



# VALIDATION REPORT

MMTC LIMITED

15 MW GRID-CONNECTED WIND POWER  
PROJECT BY MMTC IN KARNATAKA


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**Report No: 53216407 - 07/114**

**Date: 2008-November-05**

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TÜV NORD CERT GmbH JI/CDM Certification Program		
P-No.:	53216407-07/114	

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Approved by:  <b>Eric Krupp</b>	Organisational unit: <b>TÜV NORD JI/CDM Certification Program</b>
Client:  <b>MMTC LIMITED</b>	Client ref.:  <b>MR. VED PRAKASH. GENERAL MANAGER</b>

**Summary/Opinion:**

The MMTC Limited, has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "15 MW grid connected wind power project by MMTC in Karnataka.", with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), and the relevant decisions by COP/MOP and CDM Executive Board.

The purpose of this project activity is to generate renewable electricity by installation of Wind Energy Generators and export it to the connected state grid, thereby displacing the grid generated electricity.

A risk-based approach has been followed to perform this validation. In the course of the draft validation 9 Corrective Action Requests (CARs) and 2 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) dt 18 June 2007.
- 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 219,277 t CO<sub>2e</sub> is most likely to be achieved within the 10 years (fixed) crediting period.

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

Report No.: <b>53216407-07/114</b>	Subject Group: <b>Environment</b>	
Report title:  <b>15 MW GRID-CONNECTED WIND POWER PROJECT BY MMTC IN KARNATAKA</b>		
Work carried out by:  <b>Manu Maudgal Ashok Chopra</b>		
Work technical review:  <b>Katja Beyer</b>		
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**Indexing terms**

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CDM  
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Kyoto Protocol

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## Abbreviations

<b>CA</b>	Corrective Action / Clarification Action
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CEA</b>	Central Electricity Authority
<b>CER</b>	Certified Emission Reduction
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CO<sub>2e</sub></b>	Carbon dioxide equivalent
<b>CP</b>	Certification Program
<b>CR</b>	Clarification Request
<b>D</b>	Document Review
<b>DNA</b>	Designated National Authority
<b>EB</b>	CDM Executive Board
<b>EIA</b>	Environmental Impact Assessment
<b>GHG</b>	Greenhouse gas(es)
<b>GWh</b>	Giga Watt Hour
<b>HCA</b>	Host Country Approval
<b>HESCOM</b>	Hubli Electricity Supply Company
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>I</b>	Interview
<b>KERC</b>	Karnataka Electricity Regulatory Commission
<b>KREDL</b>	Karnataka Renewable Energy Development Agency
<b>MMTC</b>	Minerals and Metals Trading Corporation Limited
<b>MW</b>	Megawatt
<b>MWh</b>	Megawatt hour
<b>PDD</b>	Project Design Document
<b>SGPL</b>	Senenergy Global Private Ltd.
<b>QC/QA</b>	Quality control/Quality assurance
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WEG</b>	Wind Electric Generator

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## 1 INTRODUCTION

MMTC Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project:

*“15 MW grid-connected wind power project by MMTC in Karnataka.”*

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

### 1.1 Objective

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

- the requirements of Article 12 of the Kyoto Protocol; the CDM modalities and procedures as agreed in the Marrakech Accords under decision 17/CP.7; the annex to the decision; subsequent decisions made by COP/MOP & CDM Executive Board,
- other relevant rules, including the host country legislation and sustainability criteria<sup>/HCA/</sup>

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 ID/ Version 11: Grid connected renewable electricity generation), which are included in the PDD and other relevant supporting documents.


The items covered in the validation are described below:

- **UNFCCC & Host Country Criteria**

- UNFCCC/Kyoto Protocol requirements, in particular, the requirements of the CDM as set out in decision 17/CP.7 (Marrakech Accords), the present annex, and relevant decisions by COP/MOP & CDM Executive Board
- Host country requirements / criteria

- **CDM Project Description**

- Project design
- Project boundaries

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- Predicted CDM project GHG emissions
- **Project Baseline**
  - Baseline methodology
  - Baseline GHG emissions
- **Monitoring Plan**
  - Monitoring methodology
  - Indicators/data to be monitored and reported
  - Responsibilities
- **Background investigation and follow up interviews**
- **Stakeholder consultation**
  - Publishing the PDD on TÜV NORD website
  - Review of comments
- **Draft validation reporting with CARs & CRs, if any**
- **Final validation reporting.**

The information included in the PDD and the supporting documents were reviewed against the requirements and criteria mentioned above. The TÜV NORD JI/CDM CP has, based on the recommendations in the Validation and Verification Manual<sup>VVM</sup>, employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs. The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP can not be held liable by any entities for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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(s)

No.	Project Scope
-----	---------------

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1	Energy industries (renewable / non renewable sources)
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### 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:

**Project Proponent** MMTC Limited  
Core – 1, “Scope complex”  
7, Institutional Area, Lodhi Road  
New Delhi , Delhi- 110003, India

Contact person: Mr. Ved Prakash  
General Manager  
Fax: 011 – 24360368  
Tel: 011 – 24362159  
Mobile: +91 9871292477  
Email: vp@mmtclimited.com

**Project Consultant:** Senergy Global Private Ltd  
Ground Floor, Eros Corporate Tower  
Nehru Place  
New Delhi- 110019, India


Contact Person: S. Balagurunathan  
Manager- Carbon Credits  
Tel: 91-11-46506026  
Mobile: +91-997109988  
Email: [bs@senergyglobal.com](mailto:bs@senergyglobal.com)

### 1.3.4 Project location

The project sites are located at Gajendragad site in Gadag district in the state of Karnataka India. The details of the project location are given in table 1-2:

**Table 1-2:** Project Location

Project Location 1.	Project Scope
Host Country	India
Region:	Karnataka
Project location address:	Gajendragad ,Gadag District
Latitude:	15 <sup>0</sup> 15'
Longitude:	75 <sup>0</sup> 42'

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The project site is grossly represented by 15° N latitude and 75° E longitude. The latitude and longitude details for unique identification for each WEG are given in Annex 6 of the PDD.

### 1.3.5 Technical project description

MMTC Limited is one of the major public sector companies in India involved in the trading of commodities. The project activity is to generate electricity by the installation of 25 Wind Electric Generators (WEGs) of 0.6 MW; with a total installed capacity of (15 MW). In a WEG, the kinetic energy of wind is converted into mechanical energy of the blades and the rotating blades also rotate the connected generators to generate electricity. When the wind blades rotate, the connected generator also rotates, thereby producing electricity.

The generated electricity is exported to the respective Karnataka state grid<sup>/PPA/</sup> (part of the part of the Southern grid) where the WEGs are located.

#### Technical Details of the Wind Energy Generators

Manufacturer:	Vestas RRB India Ltd.
Type:	Pawan Shakthi
Design capacity	0.6 MW
Commissioning date:	24 <sup>th</sup> March 2007
Average life time	20 years

## 2 VALIDATION TEAM


- The Validation Team is led by **Manu Maudgal** B.Tech (Chemical & Bio engineering) with a Post Graduate Diploma in Environment Management and presently with TÜV Nord- Delhi, India. He is TÜV -CERT auditor for ISO 14001 and OHSAS 18001. He has received extensive training in the CDM validation & verification process. He is an appointed assessor for JI/CDM certification program of TÜV NORD CERT GmbH and performed validation of several CDM projects.

For this validation he was assisted by:

- **Ashok Chopra**, TÜV Nord-Delhi, India. Is Graduate in Mechanical Engineering, He is TÜV -CERT Lead auditor for ISO 9001, ISO 14001 and OHSAS 18001. He has received extensive training in the CDM validation & verification process. He is an appointed Expert for JI/CDM certification program of TÜV NORD CERT GmbH and performed validation of several CDM projects.

The technical review has been conducted by Ms. Katja Beyer. She is an environmental scientist and as received extensive training in technical aspects and the validation and verification process. She is an appointed expert for the JI/CDM CP of TÜV NORD.



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The validation report is verified by:

- **Mr. Eric Krupp.** Mr. Krupp works at TÜV NORD as an approved emission verifier within the European Emission Trading Scheme. Mr. Krupp is an authorized JI/CDM assessor and deputy head of the JI/CDM Certification Program of TÜV NORD.

### 3 METHODOLOGY

The validation of the project was carried out from June 2007 to February 2008. The 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 according to the Validation and Verification Manual;
- Back ground investigation and follow-up interviews with personnel of the project proponent, the consultant, legal authorities and other stakeholders;
- Reporting of validation findings taking into account the public comments received on TUV NORD website.

The 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.

After resolution of these CARs and CRs by the project proponent the validator will issue the (final) validation report and opinion.

#### 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


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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 9 Corrective Action Requests and 2 Clarification Requests.


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

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

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

**Figure 1:** Validation protocol tables

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## 3.2 Review of Documents

The draft PDD submitted by MMTC Limited in July 2007 and supporting background documents related to the project design and baseline were reviewed.

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


## 3.3 Follow-up Interviews

On 16<sup>th</sup> August 2007, the TÜV NORD JI/CDM CP performed the interview with the project proponent and the project developer personnel to confirm selected information and to resolve issues identified in the document review.

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

**Table 3-1** Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives	<ul style="list-style-type: none"> <li>- Chronological description of Project with documents of key steps</li> <li>- Technical details of the project realisation- project feasibility, designing, engineering, operational life time</li> <li>- Host Country Approval</li> <li>- Post registration involvement of Annex-I Party</li> <li>- Statutory / Approval procedures and status</li> <li>- Quality and environmental management system</li> <li>- Monitoring and measurement equipment- Power Generation &amp; Metering system for all locations of the project activity.</li> <li>- Financial aspects</li> <li>- Crediting period</li> <li>- Project activity starting date</li> <li>- CER allocation /ownership</li> <li>- Sustainable development issues</li> <li>- Analysis of local stake holder consultation</li> <li>- Roles &amp; responsibilities of the staff members w.r.t project management, monitoring and reporting</li> <li>- QC testing and calibration procedures</li> </ul>
Consultant (Senergy Global)	<ul style="list-style-type: none"> <li>- Editorial aspects of PDD</li> <li>- Methodology selection aspects</li> <li>- Base line study, project emissions, leakage and additionality</li> <li>- Details of emission reduction calculation</li> </ul>

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### 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. These requests can be resolved or “closed out” by the project proponent by providing the corresponding response in the column 3 of the table three as meant in Figure 1 and submission of revised PDD and supporting documents, if required in timely manner.

In this validation report 9 CARs and 2 CRs are raised.

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

### 3.5 Public Stakeholder Comments


The PDD was made publicly available through TÜV NORD JI/CDM CP website [www.global-warming.de](http://www.global-warming.de). Comments on the PDD were invited within 30 days, i.e. 31/07/2007 to 31/08/2007.

One comment has been received and made publicly available on the web site. The comments received were reviewed and taken into account in this pre-validation stage. The summary of the comments is presented in section 5.

### 3.6 Finalising the report

The draft validation report will be submitted to the project proponents. After reviewing the revised and resubmitted project documentation; resolving the CRs & CARs raised and outstanding concerns TÜV NORD JI/CDM CP issues the 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, has been used; the valid version (Version 11) of the applied methodology, i.e. AMS-I.D, is used and forms the basis of the validation opinion.

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## 4 VALIDATION FINDINGS

In the following paragraphs the findings from the desk review of the draft PDD<sup>/PDD1/</sup>, visits, interviews and supporting documents are summarised. This also includes the corresponding corrective action taken by the client and its final assessment.


The results are shown in table 4-1:

**Table 4-1:** Summary of CAR and CR issued

Validation topic <sup>1)</sup>	No. of CAR	No. of CR
<b>General description of project activity (A)</b> <ul style="list-style-type: none"> <li>- Project boundaries</li> <li>- Participation requirements</li> <li>- Technology to be employed</li> <li>- Contribution to sustainable development</li> </ul>	2	1
<b>Project baseline (B)</b> <ul style="list-style-type: none"> <li>- Baseline Methodology</li> <li>- Baseline scenario determination</li> <li>- Additionality determination</li> <li>- Calculation of GHG emission reductions <ul style="list-style-type: none"> <li>Project emissions</li> <li>Baseline emissions</li> <li>Leakage</li> </ul> </li> <li>- Emission reductions</li> <li>- Monitoring Methodology</li> <li>- Monitoring of <ul style="list-style-type: none"> <li>Project emissions</li> <li>Baseline emissions</li> <li>Leakage</li> <li>Sustainable development indicators / environmental impacts</li> </ul> </li> <li>- Project management planning</li> </ul>	6	-
<b>Duration of the Project / Crediting Period (C)</b>	1	-
<b>Environmental impacts (D)</b>	-	-
<b>Stakeholder Comments (E)</b>	-	1
<b>SUM</b>	<b>9</b>	<b>2</b>

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

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

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## 4.1 Participation Requirements

India as a non Annex-I party meets all relevant participation requirements. In the Letter of Approval<sup>/HCA/</sup> dated 18/06/2007, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of MMTC as Project Participant in the CDM project activity.

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


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

- MMTC shall not sell the CERs to any agency/ company/ organization which purchases the CERs using ODA Funds
- MMTC 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
- MMTC shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- MMTC shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project
- All transaction shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP

## 4.2 Project design

The objective of this project activity is to use the kinetic energy of wind to generate electricity by installation of wind electric generators which use the technology developed by M/s Vestas RRB India Pvt. Ltd. The high velocity wind possesses considerable kinetic energy; when it passes over the blades of the wind turbines, it is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected generator also rotates, thereby producing electricity with the help of generator. The technology is a clean technology since there are no GHG emissions associated with the electricity generation. The project activity comprises of twenty five (25) wind electric generators aggregating to 15 MW installed capacity. During the ten years of crediting period the project activity is likely to export 30375 MWh/year of net generated electricity to the Karnataka Electricity Board State Electricity Board i.e. Hubli Electricity Supply Company (HESCOM) which is interconnected to Southern regional grid of India .



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The operation and maintenance of the WEGs would be done by M/s Vestas RRB India Ltd., a pioneer in wind power projects in India. Installation and operation of the windmills does not pose any environmental hazards. The host country also agrees to this fact that technology of harnessing wind power through windmills is environmentally safe and sound and hence does not ask for Environmental Impact<sup>1</sup> Assessment for this type of project.

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

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

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

The geographical (the project is located at Gajendragad,, Gadag District, Karnataka in South of India) and temporal boundaries (10 years crediting period, 20 years operational lifetime) are clearly defined.

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

### 4.3 Baseline and Additionality


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

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

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

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



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

OR

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

For the project activity, baseline emission reductions have been estimated based on the weighted average emissions (in tCO<sub>2</sub>e/GWh) of the current generation mix, using the most recent statistics available at the time of PDD submission (Paragraph 9, sub point (b)).

The emission coefficient has been calculated based on the baseline information of the Southern region grid provided in Annex 3 of the PDD. The validation team has checked the underlying input values as well as the spreadsheet programming. As a result of this check the validation team is convinced of the results of the emission coefficient calculation and the chosen value. According to the CO<sub>2</sub> Baseline Database<sup>2</sup> (Version – 3.0, December 2007) published by CEA the Weighted average grid emission factor for Southern regional grid is 721.9 tCO<sub>2</sub>/GWh. The resultant figure is deemed to be adequate, transparent as well as conservative. The grid emission coefficient is also monitored and estimated ex-post.

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 KERC and the energy policy of the Government of India. The project is also in line with Non Conventional Energy Policies.

### **Additionality**

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

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

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

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**Table 4-2: Additionality assessment**

Type of barrier <sup>1)</sup>	Argument	Assessment																		
(a)	<p><b>Investment Barrier</b></p> <p>To determine the returns to the project, a comprehensive investment analysis was carried out. The assumptions and parameters used to calculate Equity IRR for the project are given in the PDD.</p> <p>It was found that the Equity IRR of the project is 13.77% without considering the CDM revenue. This was much lower than the KERC set benchmark of 16%<sup>3</sup> in the state. Thus, investing into this wind energy project by the project proponent was not at all a viable option. However, after considering the CDM revenues, the returns to the project were found to be improving with the equity IRR increasing up to 15.24%</p> <p>Sensitivity Analysis:</p> <p>a) Based on generation:</p> <table><tr><td>Variation in wind power generation</td><td>(-) 10%</td><td>(-) 5%</td><td>0.00%</td><td>(+) 5%</td><td>(+) 10%</td></tr><tr><td>Equity IRR</td><td>11.86%</td><td>12.83%</td><td>13.77%</td><td>14.69%</td><td>15.61%</td></tr><tr><td>Equity IRR (with CR)</td><td>13.25%</td><td>14.26%</td><td>15.24%</td><td>16.20%</td><td>17.14%</td></tr></table> <p>The site for the project activity being relatively new and considering the inherent nature of wind power, sufficient amount of uncertainty existed in the wind power generation in the area. A tour was conducted by experts in MMTC of the wind farms around Sodi and Harihar wind sites (Bellary and Davanagere districts in Karnataka) which are in the vicinity the site of the project activity<sup>4</sup>. Therefore, a sensitivity analysis was carried out to see the effect of wind variation on the returns to the project. It was found-that even with 10% increase in the wind power generation, the equity IRR remained below the benchmark at 15.61%, while with a decrease of 10%, the equity IRR went down to 11.86% .</p> <p>The CDM revenue helps improving the returns to a great deal especially during wind power variation. It was found that when the wind power varied negatively, it helped in providing a cushion to the decreasing returns. On the other hand, CDM revenue helped in meeting the benchmark, even with a 5% increase in the wind power generation. Thus, CDM revenue is indeed necessary to make the project financially viable.</p> <p><i>b) Based on Uncertainty related to tariff rate</i></p> <p>The buy back rate set by the HESCOM for the present project is Rs.3.40 per kilowatthour without any escalation for the first ten years of the commercial operation date. However, the project life term is that of 20 years. According to the PPA, from the 11th year onwards, the tariff rate applicable would be determined by</p>	Variation in wind power generation	(-) 10%	(-) 5%	0.00%	(+) 5%	(+) 10%	Equity IRR	11.86%	12.83%	13.77%	14.69%	15.61%	Equity IRR (with CR)	13.25%	14.26%	15.24%	16.20%	17.14%	<p>The validation team has checked the investment data sheet<sup>IRR/</sup> and assessed the Investment analysis is a decisive barrier.</p> <p><input type="checkbox"/> Argument not justified</p> <p><input type="checkbox"/> Argument not convincing</p> <p><input type="checkbox"/> Argument justified but not a decisive barrier</p> <p><input checked="" type="checkbox"/> Argument justified / significant barrier</p>
Variation in wind power generation	(-) 10%	(-) 5%	0.00%	(+) 5%	(+) 10%															
Equity IRR	11.86%	12.83%	13.77%	14.69%	15.61%															
Equity IRR (with CR)	13.25%	14.26%	15.24%	16.20%	17.14%															

3 KERC order on January 18, 2005; In the matter of Determination of Tariff in respect of Renewable Sources of Energy. The same has been submitted to the DOE.

4 The tour report has been furnished to the DOE.

	<p>the omission. Thus, a great deal of uncertainty lies in the tariff rate for the rest ten years of the project. For being on the conservative side, the financial returns of the project by the project proponent have been calculated at the present rate i.e. Rs.3.40 for the entire project period. However, with the government's policy to increase competition among power generators and several other factors like cost recovery of the projects, poor financial health of the state utilities make the probability of increase in the tariff rates after ten years very bleak. To judge the effect of the changes in the tariff rates after the tenth year on the returns of the project, a sensitivity analysis has been carried out. The following table highlights the effects of the changes of tariff rates after the tenth year:</p> <table><tr><td>Tariff Variation (after the 10th year)</td><td>(-)20%</td><td>(-)10%</td><td>0.00%</td><td>(+)10%</td><td>(+)20%</td></tr><tr><td>Tariff rate(Rs/ unit )</td><td>2.72</td><td>3.06</td><td>3.4</td><td>3.74</td><td>4.08</td></tr><tr><td>Equity IRR</td><td>12.73%</td><td>13.27%</td><td>13.77%</td><td>14.24%</td><td>14.68%</td></tr></table> <p>It was found that a variation of 10%-20% in the tariff rates at which the electricity produced will be sold after the tenth year will lead to a change in the returns to the project by a significant amount. Thus, tariff rates indeed play a very important role in the determining the returns to the project. Since the returns to the project is already below the benchmark suggested by the government, uncertainty in tariff rates after the tenth year makes the project further unviable.</p>	Tariff Variation (after the 10th year)	(-)20%	(-)10%	0.00%	(+)10%	(+)20%	Tariff rate(Rs/ unit )	2.72	3.06	3.4	3.74	4.08	Equity IRR	12.73%	13.27%	13.77%	14.24%	14.68%	
Tariff Variation (after the 10th year)	(-)20%	(-)10%	0.00%	(+)10%	(+)20%															
Tariff rate(Rs/ unit )	2.72	3.06	3.4	3.74	4.08															
Equity IRR	12.73%	13.27%	13.77%	14.24%	14.68%															
(c)	<p><b>Prevailing practice barrier:</b></p> <p>India is dominated by thermal power as the main source of electricity. In the financial year 2005-06 (during year when the investment decision was taken), the total installed capacity of thermal power plants in India constituted 64% of the total installed generating capacity, while the total capacity of all renewable sources of energy was only 5%<sup>5</sup>. The prevailing practice in the country can also be judged by looking at the governments plans to increase the installed capacity of different sources of energy. During the tenth five year plan (2002-2007), the government targeted to install thermal power plants of capacity equivalent to 25417 MW<sup>6</sup>, while, the target in case of wind power plants was 2000 MW <sup>7</sup> only. By end of the year 2004-05, the addition of installed capacity from thermal sources was approximately 2933.92 MW while from the wind power the addition of installed capacity was only 491.57 MW<sup>8</sup>. Thus, clearly, investing into thermal power plants is indeed the prevailing practice in the country. Moreover, since the main purpose of investing into wind energy for the project proponent is primarily diversification from their present business, the prevailing practice in the country was indeed a barrier for them.</p> <p>Further, in the year 2005-06, very few central sector PSU's invested into renewable energy sources<sup>9</sup> and especially wind. MMTC being a Public Sector Undertaking (PSU) regulated by the Central Government was one of the very few PSUs to invest into wind power projects.</p> <p><i>Regulatory barriers</i></p>	<p>The validation team has assessed both the cited sub-barriers under the prevailing practice. Considering that the project activity is a business investment by MMTC, the barrier argument that the investment was made as a Public sector unit is not convincing.</p>																		


<sup>5</sup> [http://powermin.nic.in/reports/pdf/ar05\\_06.pdf](http://powermin.nic.in/reports/pdf/ar05_06.pdf) , pg 170

<sup>6</sup> [http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2\\_ch8\\_2.pdf](http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2_ch8_2.pdf), pg 13

<sup>7</sup> [http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2\\_ch7\\_3.pdf](http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2_ch7_3.pdf), pg 6

<sup>8</sup> [http://www.cea.nic.in/power\\_sec\\_reports/general\\_review/0405/ch2.pdf](http://www.cea.nic.in/power_sec_reports/general_review/0405/ch2.pdf)

<sup>9</sup> Annual report 2005-06, Ministry of Power, Pg 170.


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	<p>The policies followed by the regulatory bodies of Karnataka determine the investment environment for wind power promoter. The uncertainty related to tariff rates after the tenth year of the project activity has direct implication on the returns of the project activity. This has been shown with the help of a sensitivity analysis in the investment barrier. Moreover, the PPA also has stated that at the end of the ten years HESCOM may also not be ready to buy power from this project anymore. The provision that the PPA gives in a situation like this is as per the following:</p> <p>“..the company shall be permitted to sell energy to third parties and enter into a Wheeling and Banking Agreement with HESCOM/Corporation to sell power for which it shall pay transmission and other charges to the HESCOM/Corporation at the rates applicable from time to time as approved by the commission.”</p> <p>Such a provision however gives space for the utilities to act according to their convenience. It is not likely to help the project greatly as the project proponents would have to settle in for whatever buy back rates the third party negotiates for. Besides, the additional charges of wheeling and banking would also add to the cost of the project. Thus, with so much uncertainty in the financial inflows of the project, the option of investing into wind power projects for the investors is not at all a lucrative one.</p>	<p>However, the regulatory barrier presented is convincing but not a decisive barrier.</p> <p><input type="checkbox"/> Argument not justified</p> <p><input type="checkbox"/> Argument not convincing</p> <p><input checked="" type="checkbox"/> Argument justified but not a decisive barrier</p> <p><input type="checkbox"/> Argument justified / significant barrier</p>
	<p>Role of CDM benefits</p> <p>Scenario like the above, make the viability of wind power projects doubtful. The promoter has felt encouraged to go ahead with this project even in the presence of such barriers because of the expected CDM benefits to the project. CDM benefits act as additional source of revenue apart from the usual financial inflow to the project.</p> <p>Thus, it helps in giving a monetary cushion to the project which will help the investors' deal with the above outlined barriers. For instance, even during a condition of non payment by the utility, the CDM benefits would help in bearing the annual expenses. Thus, CDM benefits are absolutely essential for the project to become viable and get implemented.</p>	
<b>Assessment of the validation team</b>		<p><input checked="" type="checkbox"/> Project is additional</p> <p><input type="checkbox"/> Project is not additional</p>

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

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

The additionality of the project has been demonstrated with the help of investment and prevailing practice barriers. Benchmark analysis<sup>/IRR-3/</sup> along with confirming sensitivity analysis are elaborated with fact based arguments. As the project proponent has no prior experience of wind power, an official recommended figure by

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Karnataka Electricity Regulatory Commission is used and the Validation team confirms its use as reliable.

The arguments with supporting spreadsheets<sup>/IRR/</sup> prove the additionality of the project. The underlying assumptions like electricity generation, Tariff rate, energy sale revenue, CER revenue, O&M expenses, insurance charges, interest on working capital, depreciation, income tax, benchmark) have been cross verified with the documental evidences<sup>/SA/PPA/IRR/O&M/ADD/</sup> provided by the PP and have been found to be correct and satisfactory.

The current project activity avails the tax benefits/incentives from the host country government and these are the accelerated depreciation and tax holiday, which are taken into consideration in computing the IRR. This was cross checked by the DOE during the course of validation by reviewing the provided evidences and doing the independent back ground investigation of the authentic web sources.<sup>/IT/IRR/</sup>.


PP has opted for equity IRR as financial indicator and has chosen the Return on Equity of 16% recommended by KERC as the benchmark to demonstrate the additionality. The financial analysis reveal that the project activity yields an equity IRR of 13.77% only without CDM benefits. The CDM benefit will enable the PP to narrow the gap between the equity IRR and the benchmark of 16% (KERC recommended ROE). The IRR w/o CER revenue (financial resource) can, therefore, be considered as a significant barrier preventing the implementation of the CDM project activity.

On the basis of risk (sensitivity) analysis validation team has found that for scenarios considered without CDM benefit, the IRR value does not cross the benchmark. However, as per the above assessment, validation team concluded that considered benchmark in context of investment analysis is a decisive barrier.

Furthermore, the additionality case PDD cites under 'Prevailing practice barrier', regulatory barrier's to describe the random and unfavorable state government policies are justified but assessed as not decisive. Further, barriers cited like low penetration of wind power in India and MMTC being one of the early Public Sector Units investing in wind projects were not convincing to validation team.

According to the PDD the impact of CDM registration of the MMTC's project activity helps in overcoming the barriers identified as above. The financial incentive due to CDM revenues would attract more independent parties (MMTC included) for the development of renewable electricity generation through the identified WEG's in the region giving a boost towards the development of these grid connected wind based power generation projects and help in the reduction of anthropogenic greenhouse gas emissions.

The need of CDM funds for the project activity, which will help to improve the project competitiveness, financial sustainability and help in the reduction of anthropogenic greenhouse gas emissions. Taking this into account, it is TÜV's opinion that the PDD sufficiently demonstrates that the project activity faces barriers and the cited barriers do not prevent the baseline scenario.

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

Nevertheless, CAR B2-B3 had to be raised and were successfully closed (ref Annex: Validation Protocol – Table 3).

## **Evidence of Management Decision**

The original start date of the project was 25<sup>th</sup> September 2006, when the Letter of Intent for WEGs were released to RRB Vestas. However, in October 2006 the project developer was informed that the site was not available as the Karnataka Government has decided to allot the land for SEZ. An alternative site was offered to the project developer. The impact of change in location was considered by the Committee of Directors of the Board and the management decision was taken on 12th December 2006 to go ahead with the project with CDM benefits<sup>/MD/</sup> nad based on this RRB Vestas gave an acceptance letter for the LOI placed 15 December 2006. Since it was on 15<sup>th</sup> December 2006 the project participant was committed financially towards the expenses, 15<sup>th</sup> December 2006 has been accepted as start date of the project, which is in conformity with directions given vide paragraph 67 of EB 41. Validation team has verified the documents, viz., the minutes of the Committee of Directors of the Board. The chronology of events furnished by the PP establishes the serious consideration of CDM benefits.

## **4.4 Crediting Period**

The intended crediting period of the project is fixed 10 years (June 2008 to May 2018). The starting date of the crediting period is 01/06/2008 or date of registration of PDD whichever will be later in accordance with § 12 of CDM Modalities and procedures.


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

## **4.5 Monitoring Plan**

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

The project category is renewable electricity generation (wind) for a grid system having installed capacity less than 15 MW and hence as per appendix B- 'indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories', Version- 11 of the simplified modalities and procedures



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for small scale CDM project activities (FCCC/KP/2005/8/ADD.1), the proposed CDM project falls under category I.D – Grid connected renewable electricity generation. Monitoring methodology designed for the real measurements of export of electricity to southern regional grid of India through WEG as well as import of electricity from grid.

The grid emission coefficient is also monitored and estimated ex-post.

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

State electricity board is certifying agency for joint meter reading. Joint meter reading is the certificate for electricity generated by wind farms for the month being taken by State electricity board in presence of project proponent representative (M/s Vestas RRB India Pvt. Ltd), involving the reading of cumulative export and import of electricity by all wind farms for project activity. In case, more than one project WEG(s) are jointly metered at the Main meter, the electricity generated is apportioned on the basis of the readings at the meter. The accuracy class of the electricity meters is 0.2.

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

Nevertheless, CAR B6 had to be raised and was successfully closed (ref Annex: Validation Protocol – Table 3).


## 4.6 Calculation of GHG Emissions

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO<sub>2</sub>) emissions by generating electricity from wind turbines, which would be exported to the Southern 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 grid emission coefficient is estimated ex-post.

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

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

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Acc. to the final PDD the project is expected to reduce emissions of **219,277 tCO<sub>2e</sub>** over a 10 years crediting period (an average of 21,927 tCO<sub>2e</sub> per annum).

## 4.7 Environmental Impacts

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

## 4.8 Comments by Local Stakeholders


The project site is on the hill which is away from the villages. Hence the local villagers were not among local stakeholders. The land is initially leased by M/s Shah agency from Karnataka Renewable Energy Development Limited which is a nodal agency. From M/s KREDL the land has been sub-leased to MMTC Limited.<sup>/LSC/</sup>

The evidences have been reviewed by validation team during the validation.

- Lease agreement from KREDL to Shah Agency dated 23 June 2006.
- Installation and commissioning of 15 MW wind energy project by MMTC dated 5 December 2006.
- Sub-lease agreement between MMTC and Karnataka Renewable Energy Development Agency (KREDL) dated 10 January 2008

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



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## 5 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the validation of CDM projects, TÜV NORD JI/CDM CP published the draft PDD on its website [www.global-warming.de](http://www.global-warming.de) on 30-07-2007 and invited comments within 30 days, until 31-08-2007 by parties, stakeholders and UNFCCC accredited non-governmental organisations.


Comments from one individual was received in this period and same was made available to public on the same website. The comments (in unedited form) from the individual – Mr. Naveen Sharma from Hamburg, Germany; and the draft consideration/response of TÜV NORD JI/CDM CP are presented in the table below:

<b>Comment by:</b> Mr. Naveen Sharma <b>Company :</b> Self <b>Inserted on:</b> 2007-08-29 <b>Subject:</b> Comments for MMTC 15 MW project
--


Comment:	Consideration / response of TÜV NORD JI/CDM CP
<p>1) The project proponent has pointed out that the information available on wind PLFs in Karnataka is inconsistent. We would request the project proponent to further clarify this statement. Perhaps the project proponent is referring to the fact that KERC mentions an average PLF of 26%, whereas the KREDL presentation states the PLF as 23%. But isn't this common knowledge that the PLF in different wind sites would be different. In fact as per the KERC order that the project proponent has referred in the PDD the average PLF in Karnataka is between 23% and 28%. Further, it is also common knowledge that the PLF for wind project can never be a fixed value, the very reason for which the additionality tool requires that a sensitivity analysis should be carried out to identify the impacts of variations in PLF. The PDD also mentions that the project is subject to a lot of risk because of the uncertainty associated with PLFs. Different wind sites will always give different PLFs and therefore to conclude that there is uncertainty in PLF just because different wind sites in Karnataka yield different levels of PLF, is erroneous. Ideally, the Validator should see what have been the PLF observed for Gadag to determine if there are significant variations in PLF from year to year that can be construed as giving rise to uncertainty.</p>	<p>The validation team as been provided the actual generation figures of the commissioned WEGs and the PLF is on an average 19.19%<sup>/IRR/</sup>.</p> <p>This is even less than the PLF value utilized by the project proponent for calculations (~23%).</p> <p>OK</p>

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Comment:	Consideration / response of TÜV NORD JI/CDM CP
<p>The state of Rajasthan has an average PLF of 22% (RERC order) and Maharashtra has PLF of 20% (MERC order), whereas the PLF considered by KERC is 26.5%. Clearly, Karnataka has one of the best PLFs amongst all the wind potential states in India. Please explain, then, how can PLF be a barrier in Karnataka when there are wind projects coming up in Rajasthan and Maharashtra (which offer lower PLF) also. Further, it is common knowledge that an analysis of the PLF as a stand alone parameter cannot be a barrier to a project activity; PLF needs to be looked at along with factors like project cost, tariff etc. for one to conclude that the PLF is a constraint for implementing a project activity. Just stating that a certain PLF level is a barrier can not be a sufficient argument. If such a skewed rationale were the basis of decision making of any company, then all companies would only invest in power project that have a high PLF, irrespective of any other criteria. The project proponent is trying to mislead by giving inappropriate comparisons. The regulatory commissions while determining the tariffs for wind, hydro and biomass projects always consider the applicable PLF for that type of project activity. The fact that wind has lower PLF is manifested in the form a higher per unit tariff for wind farms as compared to hydro and biomass. Please remember that biomass projects also entail fuel costs which are not their for wind projects. Please refrain from making such irresponsible statements.</p>	<p>The validation team as been provided the actual generation figures of the commissioned WEGs and the PLF is on an average 19.19%<sup>/IRR/</sup>.</p> <p>This is even less than the PLF value utilized by the project proponent for calculations (~23% based on theoretical calculations by project proponent).</p> <p>However, the barrier has been revised in the revised PDD version. Refer CAR B2-3.</p>
<p>2) Using superlatives in the language does not amount to barrier. What does the project proponent mean by saying that the policies are in a constant state of flux. Regulatory structure are meant to be evolving and are a vital requirement for development of any sector. Wind policies are revised by the regulatory commission taking into account the requirements for development of the wind sector. This is not an isolated phenomenon in Karnataka. It happens in all the states and all the countries across this planet.</p>	<p>The argument is mentioned in the context of national policies and not policies to any particular state. This is to primarily reflect the uncertainty in the wind power sector. Especially as wind power projects are yet to attain their optimum functionality.</p> <p>However, the validation team has raised CAR B2-3 and the revised PDD clarifies the argument presented.</p>
<p>Further, the PP has conveniently misinterpreted the clause in the PPA to suit their own arguments. The statement “the company shall be permitted to sell energy to third parties and enter into a Wheeling and Banking Agreement with</p>	<p>The clause in the PPA has been used by project proponent to state that</p>

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Comment:	Consideration / response of TÜV NORD JI/CDM CP
<p>HESCOM/Corporation to sell power for which it shall pay transmission and other charges to the HESCOM/Corporation at the rates applicable from time to time as approved by the commission.”, is a standard clause that is present in most PPAs and is meant to provide additional flexibility to the investor for selling the generated electricity. The project proponent is indeed very innovative to have come up with such an interpretation of this simple clause. The project proponent states that change in the tariff rate of the project after 10 years would be a barrier to the project activity. The PDD also states that, with the government’s policy to increase competition among power generators and several other factors like poor financial health of the state utilities and high subsidies to the agricultural sector make the probability of increase in the tariff rates after ten years very bleak. For all wind power projects in Karnataka the PPA is for 10 years, for thermal and hydro projects the PPA is for 15 years. Nowhere the utility signs a PPA that covers the entire life period of the project. Further, considering the way the gas and coal prices are increasing, 10 years down the line wind tariff of Rs. 3.40 may as well turn out to be a very favorable option.</p>	<p>there is room for the utility to deny purchase of electricity from the producers after the tenth year.</p> <p>A sensitivity analysis was provided to the validation team which demonstrates that change in tariff rate after the tenth year on the returns to the project. It was found that even an increase of 20% on the present tariff rate that is Rs. 3.40/unit, the IRR remained below the benchmark value.</p> <p>Nevertheless, the validation team has assessed the stated barrier as justified but not decisive.</p>
<p>3) It is with great interest that we note that a interest rate revision post implementation of the project activity could present a barrier at the time of investment. Please elaborate on the sophisticated tool that could predict a change in policy by IREDA long before the policy change that was actually announced. Further if it was known at the time of investment that the interest rate can change from 9.5% to 10%, why was the financial analysis done at 9.5% in the first place. The Validator should also check how a revision on interest rate by 0.5% can severely affect the project activity.</p>	<p>The project has been funded through 100% equity.</p> <p>However, the validation team has raised CAR B2 and the revised PDD does not consider the argument.</p>
<p>4) As per the PDD it seems that the PP faces numerous investment related / financial barriers with respect to low PLF, high project cost, uncertain interest rate, uncertain PPA, etc. yet the PP has not carried out an investment analysis for the project. We request the PP to explain how the decision to invest could have been taken without carrying any financial analysis. Is there any specific reason why these are not made public? I request the validator to check whether the investment analysis reflects all the barriers, that the PP / consultant seems to have fabricated, apply to the project.</p>	<p>The UNFCCC simplified modalities seek to establish additionality of the project activity as per Attachment A to Appendix B, which requires at-least one identified significant barrier due to which the project would not have occurred any way.</p> <p>The validation team has raised CAR B2-3 and the revised PDD strengthens</p>

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Comment:	Consideration / response of TUV NORD JI/CDM CP
	the additionality, using an investment analysis.

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## 6 VALIDATION OPINION

The MMTC Limited has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: “15 MW grid-connected wind power project by MMTC in Karnataka”, with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), and the relevant decisions by COP/MOP and CDM Executive Board.

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

A risk-based approach has been followed to perform this validation. In the course of the draft validation 09 Corrective Action Requests (CARs) and 02 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 (HCA) F.No.4/8/2007-CCC, dated 18/06/2007.
- 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 219,277 t CO<sub>2</sub>e is most likely to be achieved within the 10 years (fixed) crediting period.


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

New Delhi, 2008-04-08



Manu Maudgal


TÜV NORD JI/CDM Certification Program

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## 7 REFERENCES


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

Reference	Document
<b>/ADD/</b>	<ul style="list-style-type: none"> <li>Consideration of MMTC Investment Committee of Directors for Installation of 15 MW wind energy project stating Wind turbine actual generation in neighbouring farms is 15 -20 % less than vendor guaranteed PLF values, dated 12 December 2006</li> <li>Extract of KERC stating the Return on Equity (ROE) as 16% and working capital details</li> </ul>
<b>/CAL/</b>	<ul style="list-style-type: none"> <li>Calibration Certificates of main meters and check meters for the 12 MW wind energy project dated 22 March 2007</li> <li>Calibration Certificates of main meters and check meters for the 3 MW wind energy project dated 29 March 2007</li> </ul>
<b>/CC/</b>	<ul style="list-style-type: none"> <li>Commissioning Certificates of 12 MW WEGs by MMTC Ltd. dated 24 March 2007</li> <li>Commissioning Certificates of 3 MW WEGs by MMTC Ltd. dated 30 March 2007</li> </ul>
<b>/EC/</b>	Regulatory and Tariff regime in Indian states by Balawant Joshi
<b>/GRD/</b>	Proof of grid connection: Latest Electricity production invoice dated 09-August 2007
<b>/HCA/</b>	Host Country Approval dated 18 June 2007 - " 15 MW grid- connected wind power project by MMTC in Karnataka" by MMTC Ltd
<b>/IRR/</b>	<ul style="list-style-type: none"> <li>Appointment of consultant to set up 15 MW wind Power project dated 10<sup>th</sup> May 2006</li> <li>Proof of administrative cost: Letter showing the transfer of employees to the project site dated 21<sup>st</sup> June 2007.</li> <li>Insurance letter from United India Insurance co. Ltd. to MMTC Ltd stating that the estimated premium would be 0.17% dated 21<sup>st</sup> September 2006.</li> <li>IRR Excel sheet-Appendix 1 and 2</li> </ul>
<b>/IT/</b>	Income tax notification dated 27 <sup>th</sup> September 2002 Extract of the IT act regarding 80 IA benefit GOI Notification No. 67/2005 on tax depreciation <a href="http://www.vakilno1.com/bareacts/companiesact/SCHEDULE%20659%20-">http://www.vakilno1.com/bareacts/companiesact/SCHEDULE%20659%20-</a>

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	<a href="http://law.incometaxindia.gov.in/TaxmannDit/DispCitation/ShowCit.aspx?fn=http://law.incometaxindia.gov.in/DitTaxmann/IncomeTaxRules/Rules2005/Appi.htm">http://law.incometaxindia.gov.in/TaxmannDit/DispCitation/ShowCit.aspx?fn=http://law.incometaxindia.gov.in/DitTaxmann/IncomeTaxRules/Rules2005/Appi.htm</a>
<b>/LSC/</b>	<ul style="list-style-type: none"> <li>Lease agreement from KREDL to Shah Agency dated 23 June 2006.</li> <li>Installation and commissioning of 15 MW wind energy project. by MMTC dated 5<sup>th</sup> December 2006.</li> <li>Sub-lease agreement between MMTC and Karnataka Renewable Energy Development Agency (KREDL) dated 10 January 2008.</li> </ul>
<b>/MD/</b>	Management Decision considering CDM was considered to go ahead with the project: Extract of Board of Directors meeting minutes held on 12 December 2006.
<b>/MOC/</b>	Modalities of communicating with the CDM EB & the UNFCCC Secretariat, issued on 21 February 2008.
<b>/MOU/</b>	Memorandum of Understanding between M/s. Vestas RRB India Limited and M/s Shah Wind Power Projects regarding the sub-lease of the land from KREDL dated 27 <sup>th</sup> May 2006
<b>/O&amp;M/</b>	<ul style="list-style-type: none"> <li>Contract Agreement for Operation &amp; Maintenance of 15 MW wind power project in Gadag district of Karnataka between M/s Vestas RRB India Ltd and M/s MMTC Ltd. Dated 10 April 2007.</li> <li>Provision for training, Operation and Maintenance by Vestas RRB India Ltd. Dated 16<sup>th</sup> August 2007.</li> </ul>
<b>/PPA/</b>	Power Purchase Agreements for between Hubli Electricity Supply Company (HESCOM) Ltd., a Government of Karnataka and M/s MMTC Ltd. Dated 23 <sup>rd</sup> May 2007.
<b>/PDD/</b>	1 Draft PDD hosted for public comments during 30/07/2007 and 31/08/2007 2 Final PDD ver 4 dt 31/10/2008
<b>/SA/</b>	Agreement for supply of land, equipment, erection & commissioning of 15 MW wind power project at Gajendragarh, Karnataka between M/s Vestas RRB India Limited and M/s MMTC Limited dated 10 <sup>th</sup> April 2007.
<b>/SD/</b>	<p>Date on which the project participant was financially committed towards the project expenses :</p> <p>Letter of acceptance from M/s Vestas to execute the project to M/s MMTC dated 15<sup>th</sup> December 2006</p>
<b>/SLP/</b>	Site lay out plan- WEG site- at Gajendragad of MMTC Ltd showing the respective 25 WEGs.



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<b>/TD/</b>	Technical Specifications of Wind Electricity Generators from M/s Vestas RRB India Ltd mentioning rated output 600 KW and expected lifetime 20 Years.
<b>/XCS/</b>	Excel sheet CER calculation


**Table 7-2: Background investigation and assessment documents**

Reference	Document
<b>/AMS-I.D./</b>	Grid connected renewable electricity generation (Version 11)
<b>/CBD/</b>	CO2 Baseline Database for Indian Power Sector -User Guide, Ver 2 and 3 dated January 2007 and December 2007 published by CEA. The same was assessed by TUV NORD in accordance with ACM0002.
<b>/CPM/</b>	TÜV Nord JI / CDM CP Manual (incl. CP procedures and forms)
<b>/GCSCP/</b>	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)
<b>/KP/</b>	Kyoto Protocol (1997)
<b>/MA/</b>	Decision 17/CP.7 (Marrakesh – Accords)
<b>/SMP/</b>	Simplified modalities and procedures for small-scale clean development mechanism project activities (Annex II to Decision 21/CP.18)
<b>/VVM/</b>	IETA, PCF Validation and Verification Manual (V.4)

**Table 7-3: Websites used**

Reference	Link	Organisation
<b>/cea/</b>	<a href="http://cea.nic.in">http://cea.nic.in</a>	Central Electricity Authority of India
<b>/dna-i/</b>	<a href="http://www.envfor.nic.in/cdm/index.htm">www.envfor.nic.in/cdm/index.htm</a>	The National Clean Development Mechanism (CDM) Authority of India



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Reference	Link	Organisation
/mmtc/	<a href="http://www.mmtclimited.com/">http://www.mmtclimited.com/</a>	MMTC Limited
/pc/	<a href="http://planningcommission.nic.in/">http://planningcommission.nic.in/</a>	Planning Commission, Government of India
/power/	<a href="http://powermin.nic.in">http://powermin.nic.in</a>	Ministry of power, India
/srlcdc/	<a href="http://www.srlcdc.org/">http://www.srlcdc.org/</a>	Southern regional load dispatch centre
/unfccc/	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNFCCC

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

Reference	Mol <sup>1</sup>		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ved Prakash	General Manager –MMTC Limited.
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	M.G. Gupta	General Manager – Finance, MMTC Limited.
/IM01/	T	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	S. P. M. Kori	Deputy Manager – MMTC Limited.
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	S. Bala Gurunathan	Manager- Carbon Credits, Senergy Global

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

# **ANNEX**

Validation Protocol

## ANNEX : VALIDATION PROTOCOL

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

Requirement	Reference	Conclusion
<b>Parties</b>		
The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	The project is a unilateral type. The post registration involvement by Annex I party will be as per provisions (decision no 57) made in 18th EB meeting
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	The project is a unilateral project and has received a Letter of Approval from the Indian government/HCA/.  The document contains all relevant elements defined for such documents (see EB 16 annex 6).
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

Requirement	Reference	Conclusion
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	As stated by the project participant, no Official Development Assistance is included in the project activity.
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	The host party India is a party to Kyoto protocol
The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK, The project is unilateral type. The post registration involvement by Annex I party will be as per provisions (decision no 57) made in 18th EB meeting.
The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	The project is unilateral type. The post registration involvement by Annex I party will be as per provisions (decision no 57) made in 18th EB meeting.
<b>Additionality</b>		
Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	<del>Refer CAP-B3</del> OK

Requirement	Reference	Conclusion
below those that would have occurred in the absence of the registered CDM project activity.		
<b>Forecast emission reductions and environmental impacts</b>		
The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	Refer CAR-B4 OK
<b>Environmental impacts (only for large scale projects)</b>		
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	Not applicable
<b>Stakeholder involvement</b>		
Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	Refer CR-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
<b>Other</b>		
The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	<del>Refer CAR B2</del> OK
The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	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	<del>Refer CAR B6</del> OK
<b>Requirements for small-scale projects only</b>		
The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech Accords and shall not be a debundled component of a larger project activity.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK
The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and use the simplified baseline and monitoring methodology for that project category.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK

Requirement	Reference	Conclusion
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 required in host country.

**Table 2: Requirements Checklist**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>					
<b>A.1. Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial boundaries (geographical) clearly defined?	/PDD/ (A-4.1.4)	DR,	In the PDD section A-4.1.4, <ul style="list-style-type: none"> <li>The provided unique identification is for the district. The unique identification of the WEGs (Latitude, Longitude or GPS co-ordinate) at Gajendragad site is to be included.</li> <li>Correction for WEG location is stated as villages- Vadegala, Rajur, Gowdagere, Unachagere, Kuntaji, whereas actually it is Gajendragad<sup>/IM01/</sup>. Also revise PDD section A.4.1.3 and annex 5.</li> </ul>	CAR A+	OK
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/PDD/ (B-3)	DR	The project system boundaries are adequately described in the PDD section B.3.	OK	

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A.2. Participation Requirements</b> <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
A.2.1. Which Parties and project participants are participating in the project?	/PDD/ (A-3)	DR	The project is a unilateral project and hence INDIA is the only party involved in the project activity. The project participant is: MMTC Limited	OK	
A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/PDD/ (A-3)	DR, I	Host Country Letter of approval <sup>/HCA/</sup> dated 18 June 2007 is available.	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/ /HCA/ /unfccc/	DR	Yes	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) /IM01/	DR, I	The Project does not involve any public funding from annex 1 country. During the validation interview it is revealed that the total investment is borne by M/s MMTC Ltd only <sup>/IM01/</sup> . Clarification requested in Section A.4.4 of PDD, as it is stated that the investor has taken debt from financial institutions.	<del>CR-A1</del>	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A.3. Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/PDD/ (A.4.2.) /IM01/	DR, I	The Project activity is renewable electricity generation from the Wind Energy Generators (WEGs) by reputed manufacturers M/s RRB Vestas India Ltd.	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.)	DR	The technology is environmentally safe and sound and technology is of indigenous origin. Commonly used technologies for power generation are fossil fuel based technologies. Also refer A.3.1	OK	
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/PDD/ (B.7.2.) /O&M/	DR, I	The MMTC Limited has Operation & maintenance contract agreement with M/s RRB Vestas India Ltd <sup>/O&amp;M/</sup> . Competent staff is employed by MMTC Ltd trained by RRB Vestas India Ltd. <sup>/O&amp;M/</sup>	OK	
<b>A.4. Contribution to Sustainable Development</b> <i>The project's contribution to sustainable development is assessed.</i>					
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?	/HCA /	DR	Yes <sup>/HCA/</sup>	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/PDD/ A.2	DR	The project creates Technological, economic benefits in addition to the environmental or social benefits and GHG emission reductions	OK	
<b>Small scale project activity</b> <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.4.2	DR	Yes the project meets the requirements and these are stated in PDD section A.4.2.	OK	
A.4.4. Is the small scale project activity not a debundled component of a larger project activity?	/PDD/ A.4.5	DR	The project is not a debundled component of a larger project. Refer PDD section A.4.5.	OK	
<b>A.5. General Topics</b>					
A.5.1. Has the PDD been duly filled?	/PDD/	DR	A consolidated CAR is raised for the following omissions in the PDD <ul style="list-style-type: none"> <li>On the cover page the Annex 4: Monitoring Information is missing. Cp PDD-G</li> <li>The references and footnotes should list the relevant document or web-link and evidence provided to DOE.</li> <li>Abbreviations used like M/S MSPL, M/S BIOL and M/S RB in section B.5 f</li> </ul>	CAR A2	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			PDD to be defined. • Reference to the Western grid to be deleted in B.4 and B.6.3		
A.5.2. Has all necessary information been made available to the validator?			Additional documents as listed out in Table 7-1 of the DVR are to be provided.	<del>Not OK</del>	OK
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
<b>B.1. Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Does the project apply an approved methodology and the correct version thereof?	/PDD/ (B.1., B.4.)	DR	The project activity applies an approved methodology AMS ID version 11.	OK	
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/PDD/ (B.2.)	DR	The project activity comprises of renewable electricity generation from 25 WEGs of 0.6 MW which is equal to the limit for small scale project of 15 MW. Cp AMSID.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.2. Baseline Scenario Determination</b> <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
B.2.1. What is the baseline scenario?	/PDD/ (B.4.)	DR,I	As stated in PDD B.4, import of electricity from fossil fuel based southern grid (continuation of the current situation) is the only alternative available to the project activity. The baseline is thus electricity generated in fossil fuel based southern grid of India.	OK	
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/PDD/ (B.4.)	DR	Continuation of the current situation or the status quo is the only alternative available Refer B.2.1	OK	
B.2.3. Has the baseline scenario been determined according to the methodology?	/PDD/ (B.4.) /cea/	DR	Yes, the grid emission factor is as per the publicly available values by the Central Electricity Authority <sup>/cea/</sup> .	OK	
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/PDD/ (B.4.)	DR	In PDD B.4, the following has to be revised: 1. Include reference of AMS.I.D. 2. Evidence required for the statement 'electricity from CDM project activity displaces electricity drawn by investor from grid'. 3. Justification of the key	CAR B+	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			assumptions and rationale as per AMS.I.D. Cp PDD guidelines.		
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.)	DR	The national policies and circumstances relevant to the baseline to be included in PDD section B.5. Cp PDD guidelines	CAR B2	OK
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/PDD/ (B.5.)	DR	Refer B.2.4 CAR B1	CAR B1	OK
B.2.7. Have the major risks to the baseline been identified?	/PDD/ (B.4.)	DR	Yes, the baseline is the Southern Grid.	OK	
<b>B.3. Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>					
B.3.1. Is the project additionality assessed according to the methodology?	/PDD/ (B.5.),	DR	The methodology AMS ID has no special requirements for additionality assessment.	OK	
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/PDD/ (B.5.)	DR	Attachment A of Appendix B is applied to prove the additionality of the project activity. The barriers considered for the project activity are Technical barrier, Investment barrier, Regulatory barrier and Prevailing practice barrier. However,		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>The arguments presented are not backed up with the supporting evidences and at times are contradicting in nature viz.</p> <ul style="list-style-type: none"> <li>Reference to the correct web links of all the footnotes to provided e.g footnote-1, to support the additionality argument. Moreover, The credible web links are preferred over blog links e.g. PDD page no: 16.</li> <li>The statement in the technical barrier contradicts with statements in the technological and Investment barrier. Refer section B.5 of PDD.</li> <li>Provide the financial returns calculated by the proponent to justify the uncertainty related tariff rate</li> <li>Clarify whether availability Based Tariff is applicable to wind projects and does the Karnataka government is enforcing it. (Include web links)</li> <li>The O&amp;M is done by RRB Vestas. Then how come MMTC will face managerial constraints. Clarify.</li> <li>Clarify how the uncertainty in loan agreement is a barrier though no loan is not taken by M/s MMTC Ltd and project 100% self-financing by MMTC. Also refer CR A1</li> </ul>	CAR B3	



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/PDD/ (B.5.)	DR	Refer B.3.2, CAR B3	CAR B3	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.)	DR	Evidence for the consideration of CDM benefit before opting for project activity has been provided by MMTC Limited. /MD/	OK	
<b>B.4. Calculation of GHG Emission Reductions – Project emissions</b> <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.4.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.6.)	DR	As the proposed project activity is electricity generation from WEGs. There are no project emissions.	OK	
B.4.2. Have conservative assumptions been used when calculating the project emissions	/PDD/ (B.6.)	DR	Refer B.4.1	OK	
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/PDD/ (B.6.)	DR	Refer B.4.1	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.5. Calculation of GHG Emission Reductions – Baseline emissions</b> <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.6.)	DR	<ul style="list-style-type: none"> <li>In PDD section B.6.1 the equations used for the estimation of the baseline emissions and net emission reductions is to be provided. Cp PDD-G.</li> <li>Moreover B.6.3 and Annex III to provide the data used for the estimation of the baseline emission calculations, including the weightages used for the calculation of the combined margin in case of WEG projects.</li> </ul>	CAR B4	OK
B.5.2. Have conservative assumptions been used when calculating the baseline emissions	/PDD/ (B.6.)	DR	Refer B.2.4	CAR B1	OK
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/PDD/ (B.6.)	DR	Refer B.5.1, B.2.4	CAR B1, B4	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.6. Calculation of GHG Emission Reductions – Leakage</b> <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.6.)	DR	Leakage is not considered, as there is no transfer of renewable technology equipment either from another activity to the project activity or from project activity to another activity.	OK	
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/PDD/ (B.6.)	DR	Refer B.6.1	OK	
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/PDD/ (B.6.)	DR	Refer B.6.1	OK	
<b>B.7. Emission Reductions</b> <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/PDD/ (B.6.)	DR	In PDD section B.6.3, the equation applied is to be reproduced with applied data values that enables the reader to reproduce the calculation. Cp PDD guidelines.	CAR B5	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.8. Monitoring Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.8.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.7.)	DR	The monitoring plan in section B.7 to be revised for the following: <ul style="list-style-type: none"> <li>in section B.7.1 the QA/QC procedure should include the calibration arrangements associated with the main and check meters used and also the retention of associated records with project proponent.</li> <li>The institutional arrangements for data collection and archiving for a period of 2 more years after the crediting period or last date of CER issuance to be included in section B.7.2. Cp PDD guidelines.</li> </ul>	CAR B6	OK
B.8.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/PDD/ (B.7.)	DR	Refer B.8.1, CAR B6	CAR B6	OK
<b>B.9. Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
B.9.1. Does the monitoring plan provide for the	/PDD/	DR	As project emissions are zero, this is not	N/A	

CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	(B.7.)		applicable.		
B.9.2.	Are the choices of project GHG indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Refer B.9.1	N/A	
B.9.3.	Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/PDD/ (B.7.)	DR	Refer B.9.1	N/A	
B.9.4.	Is the measurement equipment described and deemed appropriate?	/PDD/ (B.7.)	DR	Refer B.9.1	N/A	
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.)	DR	Refer B.9.1	N/A	
B.9.6.	Is the measurement interval identified and deemed appropriate?	/PDD/ (B.7.)	DR	Refer B.9.1	N/A	
B.9.7.	Is the registration, monitoring, measurement and reporting procedure defined?	/PDD/ (B.7.) /IM01/	DR I	Refer B.9.1	N/A	
B.9.8.	Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/PDD/ (B.7.)	DR	Refer B.9.1	N/A	
B.9.9.	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how	/PDD/ (B.7.)	DR	Refer B.9.1	N/A	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
to process performance documentation)					
<b>B.10. Monitoring of Baseline Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/PDD/ (B.7.)	DR	Yes, the Emission Factor (EF) is calculated annually ex-post and also the grid EF will be monitored annually, As stated in PDD B.7.1, the EF <sub>y</sub> data, would be obtained from the Central Electricity Authority of India every year	OK	
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Yes, as the only GHG is CO <sub>2</sub> .	OK	
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/PDD/ (B.7.)	DR	Yes and this stated in PDD	OK	
B.10.4. Is the measurement equipment described and deemed appropriate?	/PDD/ (B.7.)	DR	Yes, shared main meter connected to the incoming feeder of MSEDCL is provided.	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.)	DR	Yes, the measurement accuracy class of the electricity meters is 0.2 is addressed and is appropriate. Procedures are in place to deal with erroneous measurements. Refer PDD B.7.	OK	
B.10.6. Is the measurement interval for baseline data identified and deemed appropriate?	/PDD/ (B.7.)	DR	Yes, the measurement interval for identified baseline data deemed appropriate.	OK	
B.10.7. Is the registration, monitoring, measurement and reporting procedure	/PDD/ (B.7.)	DR	Yes, the registration and monitoring procedures are defined.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
defined?					
B.10.8. Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/PDD/ (B.7.) /IM01/	DR	Yes, refer PDD B.7. The identified procedures are stated.	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.)	DR	The operation and maintenance contract in-between MMTC and Vestas clearly defines the day-to-day record generated and their handling <sup>/O&amp;M/</sup> . Also refer PDD B.7	OK	
<b>B.11. Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
B.11.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/PDD/ (B.7.)	DR	Refer B.6.1, no leakage applicable	OK	
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Refer 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	Refer B.11.1	OK	



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts</b> <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/PDD/ (B.7.)	DR	For the measures implemented under the project activity, the monitoring of sustainable development indicators/ environmental impacts is not required.	OK	
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/PDD/ (B.7.)	DR	Refer B.12.1.	OK	
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/PDD/ (B.7.)	DR	The project has obtained the Host Country Approval <sup>/HCA/</sup> . Also refer B.12.1.	OK	
<b>B.13. Project Management Planning</b> <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
B.13.1. Is the authority and responsibility of overall project management clearly described?	/PDD/ (B.7.)	DR	Annex- 4 of PDD gives the MMTC CDM team Organogram for the project activity.	OK	
B.13.2. Are procedures identified for training of monitoring personnel?	/PDD/ (B.7.)	DR	Refer A.3.3	OK	
B.13.3. Are procedures identified for emergency preparedness for cases where	/PDD/ (B.7.)	DR	No such emergency is envisaged.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
emergencies can cause unintended emissions?					
B.13.4. Are procedures identified for review of reported results/data?	/PDD/ (B.7.)	DR	Yes	OK	
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/PDD/ (B.7.)	DR	Yes	OK	
<b>C. Duration of the Project/ Crediting Period</b> <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1. Are the project's starting date and operational lifetime clearly defined and evidenced?	/PDD/ (C.1.)	DR	The project's starting date is 24 march 2007 <sup>SD/</sup> and the expected lifetime is 20 years <sup>TD/</sup> .	OK	
C.2. Is the start of the crediting period clearly defined and reasonable?	/PDD/ (C.2.)	DR	Crediting period start date stated as 1 <sup>st</sup> October 2007 is un-realistic because as per Para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project.	CAR G+	OK
<b>D. Environmental Impacts</b> <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
D.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/PDD/ (D.1.)	DR	This is not a requirement for the measures, which form the project activity.	OK	
D.2. Are there any Host Party requirements for	/PDD/ (D.1.)	DR,	No host party requirements for EIA in case of renewable energy projects (as it	OK	

CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?			has a positive impact and little adverse impact). Hence no formal clearance is required.		
D.3.	Will the project create any adverse environmental effects?	/PDD/ (D.1.)	DR,	No	OK	
D.4.	Are transboundary environmental impacts considered in the analysis?	/PDD/ (D.1.)	DR	No Trans- boundary impact has been envisaged from this project activity.	OK	
D.5.	Have identified environmental impacts been addressed in the project design?	/PDD/ (D.2.)	DR	No adverse environmental impacts have been envisaged.	OK	
D.6.	Does the project comply with environmental legislation in the host country?	/PDD/ (D.1.)	DR	Yes. Also refer D.2	OK	
<b>For Small-scale projects</b>						

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.7. Does host country legislation require an analysis of the environmental impacts of the project activity?			Refer D.2	OK	
D.8. Does the project comply with environmental legislation in the host country?			Refer D.6	OK	
D.9. Will the project create any adverse environmental effects?			No	OK	
D.10. Have environmental impacts been identified and addressed in the PDD?			Refer D.1	OK	
<b>E. Stakeholder Comments</b> <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>					
E.1. Have relevant stakeholders been consulted?	/PDD/ (E.1.)	DR	Yes, the project site is on the top of the hill with no habitation. The habitation areas are at the foothills. The relevant stakeholder groups (State electrical utility, M/s KREDL and Shah Agency) have been consulted. <sup>/LSC/</sup>	OK	
E.2. Have appropriate media been used to invite comments by local stakeholders?	/PDD/ (E.1.)	DR	Yes, WEG visits, letters to concerned authorities are the media adopted. <sup>/LSC/</sup> The media adopted are sufficient as the project area is not populated.	OK	
E.3. If a stakeholder consultation process is required by regulations/laws in the host	/PDD/ (E.1.)	DR	Not required for wind energy projects.	OK	

CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	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.)	DR	<p>The stakeholder consultation evidences are to be provided to DOE (PDD section E.2)</p> <ul style="list-style-type: none"> <li>• The lease sanctioned letter from the KREDL (for 25 WEGs) to shah Agency</li> <li>• Sub –lease sanctioned letter from M/s Shah Agency to M/s MMTC Ltd. are awaited <sup>/LSC/</sup></li> </ul>	<del>CR-E1</del>	OK
E.5.	Has due account been taken of any stakeholder comments received?	/PDD/ (E.3.)	DR, I	<p>Refer E.4 above.</p> <p>Also one stakeholder comment has been received during GSP and relevant points have been addressed as CAR/CRs during course of validation <sup>/LSC/</sup></p>	<del>CR-E1</del>	OK

**Table 3: Resolution of Corrective Action and Clarification Requests**

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
<b>Outstanding Issue</b>  Additional documents as listed out in Table 5-1 of the DVR are to be provided.	A.5.2	The following documents provided along with this table: <ul style="list-style-type: none"> <li>○ Site Layout plan</li> <li>○ Letter by RRB Vestas assuring well trained manpower and infrastructure provided after sale service.</li> <li>○ Appointment of personnels by MMTC at site</li> <li>○ Allotment order (allotting land to Shah Agency)</li> <li>○ Calibration Certificate</li> </ul>	O.K <sup>/SLP/</sup>  O.K
<b>CAR A1</b> In the PDD section A-4.1.4, <ul style="list-style-type: none"> <li>• The provided unique identification is for the district. The unique identification of the WEGs (Latitude, Longitude or GPS co-ordinate) at Gajendragad site is to be included.</li> <li>• Correction for WEG location is stated as villages- Vadegala, Rajur, Gowdagere, Unachagere, Kuntaji, whereas actually it is Gagendragad<sup>/IMO1/</sup>. Also revise PDD section A.4.1.3 and annex 5.</li> </ul>	A.1.1	<ul style="list-style-type: none"> <li>○ The latitude and longitudes of all the 25 turbines in the project have been furnished in the Annexure 6 of the PDD Version 2.</li> <li>○ The village information can be reconfirmed from the Commissioning Certificates for the project. However the site at which the WEGs are located is known as Gajendragad. A wind farm site can be spread over several villages; therefore for more specific information, villages were mentioned. However, the site Gajendragad has now been specified in the revised PDD (version 2)</li> </ul>	OK         OK <sup>/CC-1 &amp;2/</sup>
<b>CAR A2</b>	A.5.1		

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>A consolidated CAR is raised for the following omissions in the PDD</p> <ul style="list-style-type: none"> <li>On the cover page the Annex 4: Monitoring Information is missing. Cp PDD-G</li> <li>The references and footnotes should list the relevant document or web-link and evidence provided to DOE.</li> <li>Abbreviations used like M/S MSPL, M/S BIOL and M/S RB in section B.5 f PDD to be defined.</li> <li>Reference to the Western grid to be deleted in B.4 and B.6.3</li> </ul>		<ul style="list-style-type: none"> <li>revised</li> <li>included in the revised PDD (Version 2).</li> <li>The expansions have been included in the form of footnote</li> <li>corrected in the revised PDD (Version 2).</li> </ul>	<p>O.K. OK OK  OK</p>
<p>CAR B1 In PDD B.4, the following has to be revised:</p> <ul style="list-style-type: none"> <li>Include reference of AMS.I.D.</li> <li>Evidence required for the statement 'electricity from CDM project activity displaces electricity drawn by investor from grid'.</li> <li>Justification of the key assumptions and rationale as per AMSID. Cp PDD guidelines.</li> </ul>	<p>B.2.4, B.5.2      B.2.6,</p>	<ul style="list-style-type: none"> <li>Reference to the methodology followed that AMS 1.D. (Version 11, Sectoral scope 1, EB 31) has been mentioned in the section B.4.</li> <li>The statement "electricity from CDM project activity displaces electricity drawn by investor from grid" has been erroneously put in the PDD. The error is regretted. The statement has been removed.</li> <li>All the key assumptions have been taken as per the methodology AMS 1 D, Version 11. These key assumptions are selection of the emission co-efficient, ex post nature of</li> </ul>	<p>O.K.   O.K.   O.K.</p>



Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
		generation data and the values used to calculate the emission co-efficient. The justification of these have been clearly mentioned in the revised PDD (Version 2)	
CAR B2 The national policies and circumstances relevant to the baseline to be included in PDD section B.5. Cp PDD guidelines	B.2.5	The necessary policies and circumstances relevant to the baseline have been included in the PDD section B.5.	O.K.
CAR B3 The arguments presented are not backed up with the supporting evidences and at times are contradicting in nature viz.  1. Reference to the correct web links of all the footnotes to provided e.g footnote-1, to support the additionality argument. Moreover, The credible web links are preferred over blog links e.g. PDD page no: 16.  2. The statement in the technical barrier contradicts with statements in the technological and Investment barrier. Refer section B.5 of PDD.  3. Provide the financial returns calculated by	B.3.2, B.3.3	1. All necessary web links and references have been included in the version 2 of the PDD.  2. The technology barrier however is being deleted in totality in revised PDD.	O.K  OK  OK

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>the proponent to justify the uncertainty related tariff rate</p> <p>4. Clarify whether availability Based Tariff is applicable to wind projects and does the Karnataka government is enforcing it. The cited regulatory barrier is more appropriate for 'prevailing practice barrier'. (Include web links)</p> <p>5. The O&amp;M is done by RRB Vestas. Then how come MMTC will face managerial constraints. Clarify.</p> <p>6. Clarify how the uncertainty in loan agreement is a barrier though no loan is taken by M/s MMTC Ltd and project 100% self-financing by MMTC. Also refer CR A1</p>		<p>3. The investment barrier has been put forward with the help an investment analysis. Refer excel sheet.</p> <p>4. The argument has been deleted from the revised PDD. Regulatory barrier is now placed under 'prevailing practice barrier'</p> <p>5. The knowledge of competency of any O&amp;M contractor is also subject to sufficient experience and know ledge in a particular field. Since the proponent lacked both it had to hire additional manpower for the project site as well as technical help. However, this argument has now been removed from the PDD version 2.</p> <p>6. The argument is deleted from the revised PDD.</p>	<p>OK</p> <p>OK</p> <p>OK</p>
<p>CAR B4</p> <ul style="list-style-type: none"> <li>In PDD section B.6.1 the equations used for the estimation of the baseline emissions and net emission reductions is to be provided. Cp PDD-G.</li> <li>Moreover B.6.3 and Annex III to provide the data used for the estimation of the baseline emission calculations, including the weightages used for the calculation of the combined margin in case of WEG</li> </ul>	B.5.1, B.5.3	<ul style="list-style-type: none"> <li>The section B.6.1 of the new PDD has been revised to include the equations as mentioned in the CDM-SSC-PDD, version 5, 14th September, 2007.</li> <li>The section B.6.3 contains all the relevant data used for the calculation of baseline emissions. Moreover, the baseline calculations have been done with Weighted</li> </ul>	<p>O.K.</p> <p>O.K.</p>

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
projects.		Average Emission Rate, thus the query of weightings used for the calculation of Combined Margin is not applicable in this case anymore. Annex III of the PDD contains the detailed data used for the calculation of the baseline emissions i.e. the CO2 Baseline Database published by the CEA, Version 3, 15 <sup>th</sup> December 2007.	
CAR B5 In PDD section B.6.3, the equation applied is to be reproduced with applied data values that enable the reader to reproduce the calculation. Cp PDD guidelines.	B.7.1	The section B.6.3. has been revised. Besides an excel sheet would be furnished along with the PDD wherein calculations of baseline emissions have been done in a transparent manner. The excel sheet is provided.	O.K. <sup>/XCS/</sup>
CAR B6 The monitoring plan in section B.7 to be revised for the following: <ul style="list-style-type: none"> <li>in section B.7.1 the QA/QC procedure should include the calibration arrangements associated with the main and check meters used and also the retention of associated records with project proponent.</li> <li>The institutional arrangements for data collection and archiving for a period of 2 more years after the crediting period or last date of CER issuance to be included in section B.7.2. Cp PDD guidelines</li> </ul>	B.8.2 B.8.1.	<ul style="list-style-type: none"> <li>The QA/QC procedures for the monitoring parameter in the section B.7.1. have been revised to include the calibration procedures and the management of the records with the project proponent.</li> <li>The data is archived in both electronic and paper form by the Corporate Office of MMTC, New Delhi for for a minimum of two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.. This has been included in the revised PDD.</li> </ul>	O.K.  O.K.

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR C1 Crediting period start date stated as 1 <sup>st</sup> October 2007 is un-realistic because as per Para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project.	C.2	The starting date of the crediting period has been changed to 1 <sup>st</sup> June 2008.	O.K.
<b>Clarification Requests</b>			
CR A1 During the validation interview it is revealed that the total investment is borne by M/s MMTC Ltd only <sup>/IMO1/</sup> . Clarification requested in Section A.4.4 of PDD, as it is stated that the investor has taken debt from financial institutions.	A.2.4	In the section A.4.4 of the PDD debt from the financial institutions has been wrongly mentioned as the project has been funded by hundred percent equity. It has been revised in the version 2 of the PDD.	O.K.
CR E1 The stakeholder consultation evidences are to be provided to DOE (PDD section E.2) <ul style="list-style-type: none"> <li>The lease sanctioned letter from the KREDL (for 25 WEGs) to shah Agency</li> <li>Sub –lease sanctioned letter from M/s Shah Agency to M/s MMTC Ltd. are awaited<sup>/LSC/</sup></li> </ul>	E.4, E.5	The land used for the project has been leased from the State Revenue Department by M/s Shah Agency which has been transferred in the name of KREDL (Karnataka Renewable Energy Development Limited) who will in turn sub lease it in the name of MMTC Limited. The State Revenue Department is therefore also considered a stakeholder. The allotment order by the Revenue Department of Karnataka	O.K <sup>/LSC/</sup> .

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>serves as the proof for the consent of the Revenue Department.</p> <p>The allotment order will be furnished with this document. However, the sub lease document from the KREDL to MMTC is yet to given by KREDL.</p>	
<b>Additional remarks / minor or editorial mistakes</b>			

## CERTIFICATES





### **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**

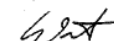
born on 1971-06-25

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. 06 05 01 - 017

Essen, 2007-07-06

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