



VALIDATION REPORT

**BUNDLED WIND POWER PROJECT IN
JAISALMER (RAJASTHAN IN INDIA)
MANAGED BY ENERCON (INDIA) LTD.**

REPORT No. 2005-9023-2

REVISION No. 02

DET NORSKE VERITAS



VALIDATION REPORT

Date of first issue: 2005-08-11	Project No.: 45259023
Approved by: Einar Telnes Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Enercon (India) Ltd.	Client ref.: A.Raghavan

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Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Bundled Wind Power Project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd." (hereafter called "the project") in India on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board.

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

The project activity involves the development and operation of wind turbines with an aggregated installed capacity of 58.2 MW and located in the wind zone of Jaisalmer in Rajasthan. The project applies the approved baseline and monitoring methodology, ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources.

In summary, it is DNV's opinion that the "Bundled Wind Power Project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd" project, as described in the revised PDD of December 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the approved baseline and monitoring methodology, ACM0002. DNV Certification thus requests the registration of the "Bundled Wind Power Project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd." as a CDM project

Report No.: 2005-9023-2		Subject Group: Environment	
Report title: Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd			
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Date of this revision: 2006-03-03	Rev. No.: 02	Number of pages: 11	

Indexing terms	
Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification
	Market Sector
	Process Industry
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***Abbreviations***

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
EIL	Enercon (India) Limited
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PPA	Power Purchase Agreement
RRVPL	Rajasthan Rajya Vidyut Prasaran Nigam Ltd.
RSEB	Rajasthan State Electricity Board
RREC	Rajasthan Renewable Energy Corporation
RSPCB	Rajasthan State Pollution Control Board
UNFCCC	United Nations Framework Convention on Climate Change
WEG	Wind Energy Generators



1 INTRODUCTION

Enercon (India) Ltd. has commissioned DNV Certification to validate the “Bundled Wind Power Project in Jaisalmer” (Rajasthan in India) managed by Enercon (India) Ltd. (hereafter called the project) This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consists of the following personnel:

Mr Kumaraswamy Chandrashekara	DNV Bangalore	Team Leader
Mr Ramesh Ramachandran	DNV Chennai	GHG Auditor
Mr Einar Telnes	DNV Oslo	Internal Verifier

1.1 Validation Objective

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

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board. The validation team has, based on the recommendations in the Validation and Verification Manual /4/, and employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

1.3 Description of Proposed CDM Project

The project activity involves the installation, operation, maintenance and aggregation of nine grid connected wind power projects, to be owned by:

- Enercon Windfarm (Jaisalmer) Ltd -24.0MW
- Godhawat Panmasala Group -7.2MW
- Shriram Transport Co - 4.2MW
- LNJ Group - 4.2MW
- RK Marbles Group - 6.0MW
- Desai Brothers Ltd - 3.0MW
- Texmo Group - 3.0MW
- Venlon Polyester Film Ltd - 3.0MW
- Dinesh Pouches Ltd - 3.6MW.



While each project has varying capacities, the aggregated installed capacity, to be managed by Enercon (India) Ltd., works out to 58.2 MW and located within the same wind zone park in Jaisalmer District, in the state of Rajasthan, India. By displacing the electricity from fossil fuel based electricity generating systems, the project activity leads to reduced greenhouse gas emissions.

All the sub-projects have commenced operations by 2004 and the power generated is being supplied to Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (RRVPL) under a Power Purchase Agreement (PPA) for 20 years.

The total estimated GHG reduction from the project activity of EIL is expected to be 98 225 t of CO₂e per year

2 METHODOLOGY

The validation consisted of the following three phases:

- I a desk review of the project design and the baseline and monitoring methodology
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /4/. The protocol shows in a transparent manner criterion (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

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

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

Findings established during the validation can either be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective Action Requests (CAR) is issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) validation protocol requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term Clarification may be used where additional information is needed to fully clarify an issue.



Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	Reference	Conclusion	Cross reference
<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), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.</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>

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<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 Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). A request for Clarification (CL) is used when the validation team has identified a need for further clarification.</i>

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
<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 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



2.1 Review of Documents

The Project Design Document, including the baseline study and monitoring plan, in its previous version and the final version (PDD) /1/ version 02, dated December 2005, submitted by Enercon (India) Ltd were assessed as part of the validation.

The following changes have been made between version 01 and 02:

- Inclusion of the Southern regional grid instead of the state grid for baseline emission factor calculations, and in line with version 4 of ACM0002
- Revision to sections D, E and G following responses to the findings raised in the draft validation report
- Inclusion of tables and formats according to the latest PDD template and guidance from the CDM EB.

2.2 Follow-up Interviews

On 2005-06-28 & 2005-06-29, DNV Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Enercon (India) Ltd were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Enercon (India) Ltd Mr.A.Ragahvan	<ul style="list-style-type: none"> ➤ Site Visits ➤ Environmental permits ➤ Resources, training, procedures ➤ Verification of findings of the desk review and monitoring methodology

2.3 Resolution of Clarification and Corrective Action Requests

Findings established during the validation can either be seen as a non-fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. *Corrective Action Requests* (CAR) are issued, where:

- iv) mistakes have been made with a direct influence on project results;
- v) CDM or host Party requirements have not been met; or
- vi) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term *Clarification* may be used where additional information is needed to fully clarify an issue.

The initial validation identified four Corrective Action Requests (CAR) and eleven requests for Clarification (CL). These requests were presented to the project participant in a draft validation report on 11 August 2005. The additional information provided by the project participant to



address these requests resolved the *Corrective Action Requests* and the requests for *Clarification* to DNV's satisfaction. To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project participant are documented in Table 3 of the Validation Protocol in Appendix A.

3 VALIDATION FINDINGS

3.1 Participation Requirements

The project participants are Enercon (India) Ltd, Enercon Windfarm (Jaisalmer) Ltd, Godhawat Panmasala Group, Shriram Transport Co, LNJ Group, RK Marbles Group, Desai Brothers Ltd, Texmo Group, Venlon Polyester Film Ltd and Dinesh Pouches Ltd from the host country India and IFC – Netherlands Carbon Facility (INCaF), from the Annex 1 countries. Both India and Netherlands have ratified the protocol and established the DNA's as per participation requirements under the Kyoto Protocol. No public funding has been used for the project activity.

The DNA's of India and The Netherlands have accorded approval to the project and copies of these have been received.

The project is expected to contribute to sustainable development through increased generation of employment and improvement of infrastructure facilities in the surrounding communities. The Indian DNA has confirmed the project's contribution to sustainable development.

3.2 Project Design

The purpose of the project activity is to harness renewable resources in the Jaisalmer Region, in the state of Rajasthan, and thereby enable displacement of non-renewable natural resources. Activities involved are development, design, engineering, procurement, finance, construction, operation and maintenance of wind energy based electric generating stations supplying electricity to RRVPNL.

The aggregated installed capacity of 58.2 MW comprises 97 Enercon-made wind energy generators (WEG), each having a capacity of 600kW. Enercon India Limited (EIL) is responsible for the management of the project activity, and is an Indo-German joint-venture with Enercon GmbH of Germany. The planned annual output of the wind farm is 110 million kW hours (kWh). Salient features of the technology are gearless rotor and generator and variable speed functions.

The expected operational lifetime of the project activity is 20 years and a fixed crediting period of ten years has been chosen, with the start date of the crediting period to be 1 July 2004.

3.3 Project Baseline

The approved baseline methodology ACM0002 - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", has been adopted for the proposed project activity. The baseline methodology is applicable and justified for the proposed project as the project involves electricity capacity additions through wind sources. The project applies the baseline methodology approach – "existing actual or historical emissions". This is deemed as appropriate as the proposed project is not common practice at the present time; it displaces fossil



fuel based electricity that would otherwise be provided by the operation. The expansion of the Rajasthan state grid and the Rajasthan state power sector is not dominated by generation sources with zero or low operating costs such as hydro and nuclear, and their contribution is less than 50% of the total grid generation. The revised PDD addresses the northern region grid for calculation of the CO₂ emission factor for the electricity system. The Central Electricity Authority of India (CEA) also recommends considering regional grid over state grid since it minimizes the effect of inter state power transactions. This is also in line with the latest revision to ACM0002, Version 04.

Adopting the combined margin approach, the “Simple OM” method has been selected as per guidelines provided in ACM0002, since low-cost/must run resources (hydro, wind and nuclear) constitute only 25.6% of average total grid generation the northern grid. The operating margin emission factor has been estimated based on the generation-weighted average emissions per electricity unit of all generating sources serving the system excluding low-cost/must-run sources, from 2001 - 2003.

Electricity imports have been considered according to the methodology i.e. with an emission factor of 0 tCO₂/MWh. Electricity exports have not been deducted, which is in line with ACM0002. For the build margin, the 20% most recently installed plants have correctly been chosen, in terms of electricity generation.

While actual calorific values of coal, lignite and HSD have been used, IPCC default values have been for other fuels such as naphtha and natural gas. The completeness of the set of power plants as well as the correctness of the reported fuel consumption and electricity generation for the years 2002 – 2004 has been verified. The formulas applied are correct and no calculation errors have been found. The combined margin for the Southern grid has been estimated to be 0.908 tCO₂/MWh and is fixed *ex-ante* for the entire crediting.

3.4 Additionality

As required by ACM0002, the project applies the “Tool for demonstration and assessment of additionality”;

Step 0: Preliminary screening based on the starting date of the project activity

It has been presented that the Management Committee of EIL set out the CDM initiative in 2000. Documentary evidences have been provided for the following:

- Project sponsors contracted with EIL under this PDD
- Minutes of meetings of the management committee from 2000 onwards to demonstrate that “management committee considered CDM revenue prior to project activity
- Discussions with INCaF

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Two alternatives to the project activity have been identified:

- The proposed project activity not undertaken as a CDM project activity and
- Setting up of utility scale (100-200 MW) fossil fuel or hydro power projects that supply electricity to the Karnataka grid. This is considered relevant as the project activity is part of a utility scale wind farm development with similar investments and implementation modes.



Both the alternatives comply with all applicable laws and are thus possible baseline scenarios.

Step 2: Investment analysis

The argument on additionality has been primarily presented based upon two levels of investment decisions taken:

- (a) EIL's decision to proceed with the investments in wind farm over a 3 – 4 year period of setting up utility sized wind power project, and
- (b) individual investors taking decisions about participating in the wind farm by buying smaller capacities

The investment analysis presented by EIL has been applied on the wind capacity that is applicable for investment decisions (b) of above, i.e., by reference to tariffs and returns to individual projects. Investment comparison analysis has been adopted and the financial indicator that has been identified is the post-tax return on equity. Against a benchmark of 16% post tax return on equity in the Indian power sector, the post tax equity IRR without considering CDM revenues and considering 20 years cash flows has been established as 11.9%, and the post tax equity IRR with CDM revenues at 13.9%. A range between 22.28 and 25.28% of the plant load factor has also been considered for the sensitivity analysis.

The approach has also been defended based on the following considerations:

- The project activity carries a higher investment risk than normal utility scale fossil fuel or hydro projects where the investment recovery is decoupled from the level of actual generation achieved by the project due to variations in off-take. Thus, transmission unavailability, back-down of generation or part-load operations, which are beyond the control of the investors are likely to affect the project activity more severely. In such a situation, the project activity investors would require higher rate of return to compensate for these risks.
- The tariff is specified as *ex ante* for the project activity. In case of utility scale fossil fuel and hydro projects, these usually refer to a cost-plus approach whereby the projects recover their full investment cost including a post-tax return on equity if they are able to reach specified level of plant availability. Whilst for the project activity, in the initial years, the return on equity (calculated as the net profit divided by the equity invested) is low (and even negative); the utility scale fossil fuel and hydro projects are ensured of equity returns from the first year of operation. This increases the investment risks in the project activity compared to the alternatives.

Step 3: Barrier analysis

For investment decision (a) of above, barrier arguments due to changes in policy/regulations and prevailing practice have been presented. It has been demonstrated that the project activity poses commercial risks to EIL due to the following reasons:

- Government of Rajasthan reducing the tariff benefits and introducing a developmental charge of INR. 200,000 per MW to be deposited with RREC for developing pooling station
- RVPN deciding subsequently not to invest in upgrading the existing 50 MVA substations and transmission lines. Consequently, this resulted in EIL installing a new 75 MVA substation and transmission lines for the wind farms connected in the project activity and thereby incurring an additional expenditure of approximately INR 150 million.

*Step 4: Common practise analysis*

At the time of project implementation in 2001, it has been presented that penetration level of wind farms in the state of Rajasthan was 0.36% as opposed to the state of Tamil Nadu which has a penetration of 9%. This demonstrates that wind power generation is not a common practice in the state of Rajasthan.

Step 5: Impact of CDM registration

CDM revenues will enhance the viability of the project and is expected to partially offset the risks associated with the possible changes in policy and project implementation apart from improving the cash flows.

In conclusion, it is deemed likely that the project activity would not have been implemented in the absence of the CDM.

3.5 Monitoring Plan

The project applies the approved monitoring methodology ACM0002 “Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources”.

The monitoring methodology adopted involves the monitoring of the power generation from the project activity and estimate the emission rates of the northern regional grid.

The authority and responsibility for project management, monitoring, measurement, review and reporting has now been clearly established in the PDD. Calibration and maintenance of process instrumentation are also as per approved monitoring methodology and are governed by the company’s established procedures as contained in its quality management systems. Documentation have been reviewed and revised accordingly to cover issues such as internal audits, performance reviews and corrective actions pertaining to the wind power project as also the procedures for performance reviews, internal auditing and corrective actions.

Data will be saved both electronically and on paper and archived until 2 years after the end of the crediting period.

3.6 Calculation of GHG Emissions

The project will partly displace fossil fuel-based electricity generation. While the project emissions are zero, baseline emissions are equal to the emission reductions due to the project activity and have been estimated to be 98 225 tCO₂ per year, based on an ex-ante fixed baseline emission factor of 0.908 tCO₂/MWh. As stipulated in ACM0002, no leakage needs be considered for the project activity.

3.7 Environmental Impacts

While EIA studies are not required for wind farm projects under Indian legislation, a rapid EIA has been done which describes the possible impacts during construction & operation. The project is located in the wind zone area of Jaisalmer and is devoid of any wildlife, migratory birds or human habitat. As the project is a wind farm project, no significant environmental impacts are expected to occur during the life span of the project.



3.8 Comments by Local Stakeholders

Though not specifically warranted under Indian legislation, the stakeholder consultation process consisted of a meeting with the Tahsildar of Jaisalmer Tehsil on 21st June 2004. Other identified stakeholders also consulted at various stages were from local communities, NGOs, Govt. agencies such as the RRVPNL, Rajasthan State Electricity Board (RSEB) and Rajasthan State Pollution Control Board, contractors, labours and shareholders. All stakeholders support the project and no modifications to the project design were necessary. As the project is not expected to have considerable social and environmental impacts, the local stakeholder consultation process carried out for the project is deemed sufficient.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of *date* was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 28 May 2005 to 26 June 2005.

One comment was received on 2005-06-28. The comment received (in unedited form) is given in the below text box.

Comment by: [Sripur, EnerGHG](#)

Inserted On: 2005-06-26

Subject: Comments on bundled CDM project activity at Jaisalmer, Rajasthan

Comment: The project activity is a bundle of many small wind energy projects and all are located in a highly wind power potential areas. Jaisalmer district in Rajasthan state is one of the potential wind energy sites in India, as per the Ministry of Non-conventional Energy Sources. All projects, individually owned by different investors, may not face the same barriers or risk profile may not be applicable for some projects. Some projects may be attractive and hence each CDM project shall be examined individually for additionality. CDM project developers shall demonstrate how CDM has affected individual projects in decision making process and project implementation.

CDM project developers adopted approved consolidated additionality tool but is not applied properly. Further elaboration is required on certain issues such as alternatives available for project investors other than wind energy development, official indicative expansion plan, risk profile of wind energy projects etc.

Technology barrier presented in step 3 is not a barrier. Wind power projects though initial investment is higher than other alternatives, enjoy preferential tariffs / feed in tariffs. Most of the power utilities in India are offering higher tariffs for wind energy projects compared to the alternatives. This issue is not addressed in the PDD or additionality demonstration. Even for captive power purposes also, wind energy projects enjoy the advantage of negligible operating costs and incentives announced by the Ministry of Non-conventional Energy Sources or state level agencies. This issue is also not addressed in the



PDD. Hence, the argument presented under prevailing practice is not justified.

Power Procurement Plan is only for Annual Revenue Requirement in advance by the power utility and does not represent the true situation. Hence the argument that purchase of renewable energy is not being accepted by RERC is not correct. Project developers shall present any other evidence for RERC not considering the renewable energy.

In view of the above, barrier analysis provided under additionality demonstration is not strong enough to demonstrate the CDM role in project implementation.

Clients Response:

- Enercon has followed the approach of bundling the CDM projects which were developed under the same policy/regulatory regime, located in the same site/region and connected to the same evacuation transformer and were implemented roughly at the same time.
- In the revised additionality justification, Enercon has demonstrated additionality at two levels - how it faces barriers to investment for setting up wind at the first level and how, after it bears barriers to investments, the investors to the wind projects still expect to receive sub-optimal returns if the CDM project activity is implemented without considering CDM revenues through an investment analysis. The first level of additionality justification (barrier analysis) is common for all wind projects in a single wind farm implemented during the same policy/regulatory regime and at the same site/location, because these are barriers that Enercon as a developer faces. The second level of additionality justification (investment analysis) is based on evaluating the financial viability of the projects using common assumptions relating to policy/regulatory regime, costs, wind profiles, etc. which can be verified. The premise here is that there are no additional barriers to investment due to say the financial conditions of the individual project owners, which is a more conservative and transparent assumption.
- The revised additionality justification elaborates on the alternatives to the project activity.
- While technology barrier is not used as an argument in the revised additionality justification, a comparative analysis of Enercon technology with other technologies has been presented as part of clarifications. Further, the revised additionality justification shows how even with preferential tariffs, the wind projects do not meet the threshold return requirements

How DNV has considered the comment received in its validation:

- DNV accepts the argument that the project activity is a bundling of CDM projects which were developed under the same policy/regulatory regime, located in the same site/region and around the same time of 2003 and that these bundled projects therefore face the same barriers and risk profiles.



- The additionality arguments are more clearly addressed in the PDD. This has also been the outcome of DNV's Clarification Request No.5. These are based on two levels:
 - o As addressed in section 3.4 of this report, it has been justified that against a benchmark of 16% post tax return on equity in the Indian power sector, the post tax equity IRR without considering CDM revenues and considering 20 years cash flows has been established as 11.9%, and the post tax equity IRR with CDM revenues at 13.9% for the project activity.
 - o It has also been presented with evidence that the project activity poses commercial risks to EIL due to the changing regulations.
 - o DNV confirms that there is no technological barrier overcome by the project activity and EIL has also chosen not to present their case under this barrier.

EIL's response is considered acceptable in the light of revised PDD and detailed additionality arguments.



5 VALIDATION OPINION

Det Norske Veritas Certification Ltd (DNV Certification) has validated the “Bundled wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd.”. The validation is performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol criteria for the CDM, the CDM rules and modalities as agreed in the Marrakech Accords and relevant decisions by the CDM Executive Board.

The review of the project design documentation (PDD) and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The project participants are Enercon India Limited of India and IFC-Netherlands Carbon Facility of the Netherlands. Both participating Parties, i.e. India as the host Party and Netherlands as the Annex I Party, meet the relevant participation requirements for the CDM and have approved its voluntary participation in the project. DNV has also received confirmation by the DNA of India that the project activity assists it in achieving sustainable development.

The project activity involves the development and operation of wind based power generation facilities located in the wind zone of Jaisalmer, to be connected to the state grid, with an aggregated installed capacity of 58.2 MW. By displacing fossil fuel based grid electricity, the project is expected to result in 98 225 t of CO₂ emission reductions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of relevant barriers demonstrates that the proposed project is not a likely baseline scenario and emission reductions are hence additional to any that would occur in its absence.

The project applies the approved baseline and monitoring methodology, ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources. The baseline methodology is applicable and justified for the proposed project as the project involves electricity capacity additions through wind sources. It is justified that the proposed project activity itself is not a likely baseline scenario.

In summary, it is DNV’s opinion that the project as described in the PDD of December 2005 meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology ACM0002. Hence, DNV requests the registration of the “Bundled wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd” as a CDM project activity.



references

Documents provided by the project proponent that relate directly to the project:

- /1/ Enercon (India) Limited - *Clean Development Mechanism Project Design Document – “Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd.”* of March and December 2005.
- /2/ Indian DNA, Host country approval letter dated 31 March 2005
- /3/ Annex 1 country approval letter ,the Netherlands - dated 7 July 2005

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

- /4/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- /5/ ACM0002- Consolidated baseline methodology for grid-connected electricity generation from renewable sources.
- /6/ IPCC: *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. 2000

Persons interviewed during the validation, or persons contributed with other information that are not included in the documents listed above:

- /4/ Enercon (India) Ltd
Mr.A.Raghavan

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APPENDIX A

CDM VALIDATION PROTOCOL

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

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	OK	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK	Table 2, Section E.4.1
4. 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	CAR-1	A letter of Approval from Indian DNA dated 31 March 2005 and a Letter of Approval from the DNA of Netherlands dated 7 July 2005 have been obtained
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43		Table 2, Section B.2
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Decision 17/CP.7	OK	Linked to Table 1, Point 4.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	The Indian DNA for the CDM is the National Clean Development Mechanism Authority under the Ministry of Environment & Forests.

Requirement	Reference	Conclusion	Cross Reference / Comment
			The Dutch DNA is the Ministry of Housing, Spatial Planning and the Environment (VROM)
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	India ratified the protocol on 26 th August 2002. Netherlands ratified the Protocol on 31 st May 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	Netherlands's assigned amount is 92% of the emission in 1990.
11. 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	OK	Netherlands have in place a national registry
12. 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	OK	Table 2, Section G
13. 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	OK	Table 2, Section F
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board	CDM Modalities and Procedures §37e	OK	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. 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	CDM Modalities and Procedures §40		The PDD was published on 27 th May 2005 on http://www.dnv.com/certificatio

Requirement	Reference	Conclusion	Cross Reference / Comment
comments have been made publicly available			n/climate change. Parties, stakeholders and NGO's were through the web site invited to provide comments until June 26 th 2005. One comment was received during this period.
17. 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		Table 2, Section B.2
18. 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	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format	CDM Modalities and Procedures Appendix B, EB Decision	OK	The PDD is in conformance with the UNFCCC CDM-PDD format.

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity <i>The project design is assessed.</i>					
A.1. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR	The 9 bundled subprojects are: Enercon Windfarm (Jaisalmer) Ltd-24MW, Godhawat Panmasala Group 7.2MW, Shriram Transport Co- 4.2MW, LNJ Group- 4.2MW, RK Marbles Group 6MW, Desai Brothers Ltd- 3MW, Texmo Group- 3MW, Venlon Polyester Film Ltd- 3.0MW, Dinesh Pouches Ltd- 3.6MW The boundaries & the geographical locations comprising all the turbines under the above mentioned sub projects are not sufficiently described in the PDD.	CL	OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR	The project consists of installation of 97 wind turbines each with 600MW capacity comprising the abovementioned sub projects. The project also includes construction of a 75MVA sub station which will in turn will supply to the substation of the electricity authority (Rajasthan Rajya Vidyut Prasaran Nigam Ltd (RRVPNL).		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.2. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.2.1. Does the project design engineering reflect current good practices?	/1/	DR	The details of the wind turbine technology to be used have not been clearly described.	CL-2	OK
A.2.2. 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?	/1/	DR	Comparative analysis and justifications have not been provided.	CL-2	OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR	The wind energy sector is per date not very developed in Rajasthan. The project technology has been transferred from Enercon GmbH and over the past year Enercon India Ltd. has started its own manufacturing facility in India. It is unlikely that other more efficient technologies would come up, at least within the first crediting period.		OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1/	DR	Though not specifically addressed, initial training will be required. The wind farms will be software operated, and the WEGs are made by Enercon, who will manage the project.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	Enercon is overall responsible for O&M of the bundled 58.2MW wind farm and has sufficient provisions for meeting training and maintenance needs.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.3. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1/	DR	There are no statutory requirements for environmental clearances from Ministry of Environment. Project is in line with Ministry of Non-conventional Energy's policy of promoting and achieving target of 10% renewable energy by 2010.		OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR	Yes, host country approval has been obtained.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	Yes.		OK
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	Yes, the project will provide employment opportunities and contribute to rural & infrastructure development around the area.		OK
B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Is the baseline methodology previously approved by the CDM Executive Board?	/1/	DR	Yes. The approved methodology - ACM0002 titled "Consolidated baseline methodology for grid connected electricity generation from renewable sources" has		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			been applied.		
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR	The project involves electricity capacity additions through wind sources and hence the baseline methodology is applicable for the proposed project and the application has been appropriately justified.		OK
B.2. Baseline Determination <i>The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.</i>					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1/	DR	<p>The methodology uses the approach - “existing actual or historical emissions”. This is applicable as the proposed project :</p> <ul style="list-style-type: none"> - Is not common practice at the present time - Displaces fossil fuel based electricity that would otherwise be provided by the operation and expansion of the Rajasthan state grid - The Rajasthan state power sector is not dominated by generating sources with zero or low operating costs such as hydro and nuclear, and their contribution is less than 50% of the total grid generation. <p>The baseline has been determined using the combined margin (operating & build margin) options as per approved methodology ACM0002.</p>		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR	The baseline scenario considered is the Rajasthan electricity grid power generation. The conservativeness of the baseline has not been clearly demonstrated as the baseline does not consider other options such as the Northern grid.	CL-3	OK
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR	Yes, the baseline has been developed on a project specific basis.		OK
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	The Govt of Rajasthan formally announced a policy for promotion of electricity generation from wind through a energy dept letter No F20 (3) Energy/98/Pt III dated 30-4-2003. It has to be clarified why a discussion of the above and possible impacts on the baseline have not been included in the PDD.	CL-4	OK
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	Refer to comments under B2.2	CL-3	OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1/	DR	Refer to comments under B2.2	CL-3	OK
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	/1/	DR	As required by ACM0002, the project applies the "Tool for demonstration and assessment of additionality". Step 0: Preliminary screening based on the starting date of the project activity. The Management Committee of EIL set out the CDM initiative in 2000. Documentary evidences for the same have been verified. Step 1: Identification of alternatives to the project activity consistent with current laws	CL-5	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			<p>and regulations</p> <p>Two alternatives have been identified:</p> <ul style="list-style-type: none"> - The proposed project activity not undertaken as a CDM project activity. - Setting up of utility scale (100-200 MW) fossil fuel or hydro power projects that supply to the Karnataka grid. <p>The alternatives comply with all applicable laws and are thus possible baseline scenarios.</p> <p>Step 2: Investment analysis</p> <p>It has been argued that the project IRR is 8% without carbon revenues and 10% with carbon revenues based on 10-year cash flows implying inadequate returns to investors of the project.</p> <p>Step 3 Barrier Analysis</p> <p>Barrier arguments due to changes in policy/regulations and prevailing practice have been presented. It has been demonstrated that the project activity poses commercial risks to EIL.</p> <p>Step 4: Prevailing Practice</p> <p>At the time of project implementation in 2001, it has been presented that penetration level of wind farms in the state of Rajasthan was 0.36% as opposed to the state of Tamil Nadu which has a penetration of 9%.</p>		

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			<p>Step 5: Impact of CDM registration</p> <p>The revenues from sale of the Certified Emission Reductions would enhance the financial viability of the project.</p> <p>The project proponents have c the Management Committee of EIL set out the CDM initiative in 2000hosen to present the case on additionality due to the existence of all the barriers – with special emphasis on an investment barrier.</p> <p>Since the stated estimated cash flows are only in the range of INR 0.15/kwh which works out to only a small part of project revenues (< 5%), the demonstration of additionality due to financial barriers is not clearly justified. The arguments presented are weak in the absence of supporting documentation, evidences and source of data for the barrier.</p>		
B.2.8. Have the major risks to the baseline been identified?	/1/	DR	Refer to comments under B2.4	CL4	OK
B.2.9. Is all literature and sources clearly referenced?	/1/	DR	The references to all literature & sources have not been done in a systematic manner.	CL6	OK
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1/	DR	In the PDD the start date mentioned in the PDD is September 2003, and the project's operational date as March 2004.. Since this	CL7	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			is a bundled wind farm project it is not clear as to what the starting & operational dates refer to as the individual start & operational dates of sub projects and corresponding wind turbines has not been described. The operational lifetime of the project is estimated as 20 years and the PPA with the electricity authority has been planned for 20 years.		
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/	DR	A fixed crediting period of ten years has been chosen. However, the exact starting date of the crediting period has not been indicated.	CAR-2	OK
D. Monitoring Plan <i>The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).</i>					
D.1. Monitoring Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
D.1.1. Is the monitoring methodology previously approved by the CDM Executive Board?	/1/	DR	The project applies the approved monitoring methodology – ACM002, titled “Consolidated monitoring methodology for grid connected electricity generation from renewable sources”.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	Yes, the application of the monitoring methodology is appropriately justified.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Though project monitoring activities and responsibility have been adequately addressed, Table D.2.1.3 in the PDD is incomplete and so does not cover all the project monitoring requirements such as Type of data to be monitored, for how long the data will be kept etc.	CAR 3	OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	DR	Yes		OK
D.2. Monitoring of Project Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	Since the project is wind energy based, there will be no project GHG emissions.		OK
D.3. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	No leakages need to be considered as per Approved Monitoring Methodology ACM0002.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.4. Monitoring of Baseline Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/	DR	The monitoring plan does not include provision for monitoring the individual electricity generation from each of the turbines comprising the various sub projects.	CL-8	OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	As in D.4.1	CL-9	OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	/1/	DR	As in D.4.1	CL-10	OK
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts <i>It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	An environmental monitoring plan during construction & operation stage has been presented in the PDD. During the site visit, the environmental monitoring records in line with the plan for the same were not available.	CAR-4	OK
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	/1/	DR	The choice of environmental indicators as defined in the environmental monitoring for the project needs to be reviewed in terms of local legal requirements.	CAR-5	OK
D.5.3. Will it be possible to monitor the specified	/1/	DR	Refer comments above.	CAR-6	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
sustainable development indicators?					
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/	DR	No specific sustainable indicators are called for under Indian environmental legislation.		OK
D.6. Project Management Planning <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR	The PDD mentions only that the project proponents EIL will also be responsible for project management & operation. However, the management structure with authority & responsibility involving EIL personnel & the various other project proponents has not adequately addressed.	CL-11	OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR	Refer to comments above	CL-11	OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR	Training Procedures have been identified as part of existing ISO 9000 system procedures.		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	No GHG emission related emergency situations are expected to occur. However safety procedures have been addressed as part of the existing ISO 9000 system procedures.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	Procedures are available as part of the existing ISO 9000 system procedures.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	Procedures are available as part of the existing ISO 9000 system procedures.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Procedures are available as part of the existing ISO 9000 system procedures.		OK
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR	Procedures are available as part of the existing ISO 9000 system procedures.		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	Procedures are available as part of the existing ISO 9000 system procedures.		OK
D.6.10. Are procedures identified for review of reported results/data?	/1/	DR	Procedures are available as part of the existing ISO 9000 system procedures.		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1/	DR	Though internal audits as part of ISO 9000 system are conducted, the same do not specifically include GHG project compliance.	CL-12	OK
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/1/	DR	Refer to above comments in D6.11	CL-12	OK
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	Refer to above comments. In D6.11	CL-12	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E. Calculation of GHG Emissions by Source <i>It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.</i>					
E.1.Predicted Project GHG Emissions <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1/	DR	No project emissions are likely as this is a wind energy power project.		OK
E.2.Leakage <i>It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.</i>					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR	According to ACM0002, there are no leakages to be considered.		OK
E.3.Baseline Emissions <i>The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.</i>					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	/1/	DR	Refer comments under B.2.2	CL-3	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR	Refer comments under B2.2	CL-3	OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	Refer comments under B2.2	CL-3	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR	The conservativeness of the baseline has not been clearly demonstrated as the baseline does not consider other options such as use of northern grid. Refer B2.2	CL-3	OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR	Refer comments above	CL-3	OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/1/	DR	Refer comments above.	CL-3	OK
E.4.Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR	The project is expected to reduce 98 225 tCO ₂ per year, based on an ex-ante fixed baseline emission factor of 0.908 tCO ₂ /MWh		OK
F. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
F.1.1. Has an analysis of the environmental impacts of	/1/	DR/I	A rapid EIA has been done which describes		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
the project activity been sufficiently described?			the possible impacts during construction & operation.		
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/	DR/I	No, EIA studies are not required for wind farm projects under Indian legislation.		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR/I	As, it is a wind farm project, the impacts are expected to be minimal.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	Refer to comments above.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR/I	An environmental monitoring plan has been described in the PDD. However the monitoring of the same is not done as per plan.	CAR-4	OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1/	DR/I	No specific environmental clearances are required for wind farm projects in India.		OK
G. Stakeholder Comments <i>The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.</i>					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR/I	Minutes of the meeting indicate that the Stakeholders from the local community have been consulted only after the commissioning of the project.	CL-13	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR/I	Stakeholders have been consulted through direct meetings and local advertisements.		OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	Not specifically required for wind farm projects under Indian legislation.		OK
G.1.4. Is a summary of the stakeholder comments	/1/	DR/I	Yes. These are provided in the PDD.		

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
received provided?					
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR/I	All clarifications/comments from local stakeholders have been addressed. No negative comments were raised as confirmed during the site visit.		OK

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Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table 1 & 2	Summary of project participants' response	Final conclusion
CAR 1: The written approval of participation from the Netherlands govt has not been obtained.	Table1	The written approval of participation from the Netherlands government has been obtained. Copy is attached.	Accepted. Letter of authorization from the State of Netherlands, dated 7 July 2005 has been received. CAR is closed.
CAR 2 A fixed crediting period of ten years has been chosen. However the exact starting date of the crediting period has not been indicated	C1.2	Exact starting date has been mentioned in the revised PDD (Section C)	The PDD has been revised to indicate the starting date of the crediting period as 1 st July 2004. CAR is closed.
CAR 3 Table D.2.1.3 in the PDD is incomplete and does not cover all the project monitoring requirements such as "Type of data to be monitored," for how long the data will be kept etc	D1.3	Table D.2.1.3 has been suitably modified (Section D)	Section D of the PDD has been verified and accepted. CAR is closed.
CAR 4 An environmental monitoring plan for the construction & operation stage has been presented in the PDD. During the site visit, the environmental monitoring records in line with the plan for the same were not available.	D5.1	Evidence has been enclosed (Copy of annual report on EMP parameters by site supervisor)	Complimentary information provided has been accepted. CAR is closed.
CL 1 The boundaries & the geographical locations comprising all the turbines in the sub-projects are not sufficiently described in the PDD.	A1.1	A diagrammatic representation of the geographical locations is enclosed. The PDD has been modified appropriately (Appendix 3) to incorporate the boundaries and geographical locations	Complimentary information provided has been accepted. CL is closed.
CL 2 The details of the wind turbine technology to be used have not been clearly described.	A2.1	Detail of the wind turbine technology is enclosed. PDD has been suitably modified (appendix 4)	Complimentary information provided has been accepted. CL is closed.
CL 3 The conservativeness of the baseline has not been clearly demonstrated as the baseline does	B2.2	The Northern region grid has been chosen for calculation of the carbon dioxide emission factor for the electricity system.	The Northern Grid has now been chosen for the CO2 emission factor calculations. The PDD has also been revised

Draft report corrective action requests and requests for clarifications	Ref. to Table 1 &2	Summary of project participants' response	Final conclusion
not consider other options such as use of northern grid.		The regional grid is considered over state grid since it minimizes the effect of inter state power transactions, which are dynamic and vary widely. Annex 3, Section B.2, Section E have been suitably modified	accordingly. CL is closed.
CL 4 The Govt of Rajasthan formally announced a policy for promotion of electricity generation from wind through an energy dept letter No F20 (3) Energy/98/Pt III dated 30-4-2003. It has to be clarified why a discussion of the above and possible impacts on the baseline have not been included in the PDD.	B2.4	The possible impacts due to the policy of Rajasthan government for promotion of electricity generation from wind through an energy dept. letter has been now addressed in the revised additionality section under step 3 of barrier analysis - Barrier due to changes in Government policy. The revised additionality case has been presented in the PDD	Complimentary information provided and argued under additionality has been accepted. CL is closed.
CL 5 The project proponents have chosen to present the case on additionality due to the existence of all the barriers – with special emphasis on an investment barrier. Since the stated estimated cash flows are only in the range of INR 0.15/kwh which works out to only a small part of project revenues (< 5%), the demonstration of additionality due to financial barriers is not clearly justified. The arguments presented are weak in the absence of supporting documentation, evidences and source of data for the barrier.	B2.7	The additionality justifications have been revised to address this issue. The revised additionality case is attached	Complimentary information provided has been accepted as it demonstrates that the project activity overcomes the investment barrier. It is observed that post tax equity IRR without considering CDM revenues and considering 20 years cash flows is 11.9% while the post tax equity IRR with CDM revenues is 13.9%. CL is closed.
CL 6 The references to all literature & sources has not been done in a systematic manner	B2.9	The references and sources are provided in the respective sections of additionality (revised) and Baseline calculations (Revised annexure 3)	Accepted. Revised PDD has been verified. CL is closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 1 &2	Summary of project participants' response	Final conclusion
<p>CL 7</p> <p>In the PDD the start date mentioned in the PDD is September 2003, and the project's operational date as March 2004.. Since it is a bundled wind farm project it is not clear as to what the starting & operational dates refer to as the individual start & operational dates of sub projects and corresponding wind turbines has not been described.</p>	C1.1	<p>The PDD has been revised with a single date for starting of crediting period. (Section C)</p>	<p>The PDD has been revised to indicate the starting date of the crediting period as 1st July 2004.</p> <p>CL is closed.</p>
<p>CL 8</p> <p>The monitoring plan does not include provision for monitoring the individual electricity generation from each of the turbines comprised by the individual sub projects</p>	D4.1	<p>The project proponent has meters connected to the individual turbines to measure the generation continuously. The generation data measured in these meters are reported in their website on daily basis. The turbines are connected to a feeder connecting to grid substation. Meters are installed in the grid substation to record the net supply of electricity to the grid.</p> <p>As per the power purchase agreement with the electricity board, joint readings are taken by representatives of project proponent and board for the meters installed at grid substation Enercon take the reading of the individual turbine meters supplying power to the grid substation. The difference between the summation of these individual turbine meter readings and the substation reading is attributed to transmission loss. The net supply of electricity to the grid is then calculated based on the generation data measured in the turbines duly corrected for transmission loss. This data, which is the actual supply to the grid is considered for CER calculation</p>	<p>Complimentary information provided is accepted.</p> <p>CL is closed.</p>

Draft report corrective action requests and requests for clarifications	Ref. to Table 1 & 2	Summary of project participants' response	Final conclusion
		and monitored in Section D of PDD	
<p>CL 11</p> <p>The PDD mentions that the project proponents EIL will also be responsible for project management & operation. However, the management structure with regards to authority & responsibility involving EIL personnel & the various other project proponents have not been adequately addressed.</p>	D6.1	<p>The management structure for operation and management of wind mills has been included in the PDD. The notification from the Managing Director describing the management structure for taking up the project activity as CDM project has been attached. EIL will primarily be responsible for project management, registration, monitoring, measurement and reporting</p>	<p>Complimentary information provided is accepted.</p> <p>CL is closed.</p>
<p>CL 12</p> <p>Though internal audits as part of ISO 9000 system are conducted, the same do not specifically include GHG project compliance.</p>	D6.11	<p>The complete GHG project compliance is not a part of ISO 9000. However, the monitoring parameter is covered under the ISO quality system. The complete GHG project compliance will become a part of ISO 9000 quality system in the next revision of quality manual by Dec 2005</p>	<p>Complimentary information provided is accepted.</p> <p>CL is closed.</p>
<p>CL 13</p> <p>Minutes of the meeting indicate that the Stakeholders from the local community have been consulted only after the commissioning of the project.</p>	G1.1	<p>At the initial stages of structuring of this project, as CDM, Enercon was not aware that local stakeholder meeting has to be conducted for receiving input in a structured form from them. However, after gaining such knowledge, Enercon conducted local stakeholder consultation whose summary is presented in the section G in PDD</p>	<p>Complimentary information provided is accepted.</p> <p>CL is closed.</p>

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