VALIDATION REPORT

Enercon (India) Ltd.

BUNDLED WIND ENERGY POWER PROJECTS (2003 POLICY) IN RAJASTHAN

SGS Climate Change Programme
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Date of issue:	Project No.:
04/05/2011	CDM.VAL0801
Project title	Organisational unit:
Bundled wind energy power projects (2003 policy) in Rajasthan	SGS Climate Change Programme
Revision number	Client:
3.1;	Enercon (India) Ltd.

Summary
SGS India Pvt. Ltd. is an affiliate of SGS United Kingdom Ltd. SGS India Pvt. Ltd has made a validation of the CDM project activity "Bundled wind energy power projects (2003 policy) in Rajasthan" at wind generating sites in Alsoi, Korwa, Sodabandham and Temderai village, in Jaisalmer District of Rajasthan state 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 rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria. The project falls under large scale category and scope 1. Energy Industries (Renewable/ Non-renewable sources).

The scope of validation is the independent and objective review of the project design document, baseline study and monitoring plan and other relevant document of the project. The information in this document is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.
The overall validation process, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (UK.PP.12 issue 3 dated 19/01/2007).
The first output of the validation process is a list of Corrective Actions Requests and New Information Requests (CARs and NIRs), presented in Annex 3 of this document. Taking into account this output, the project proponent revised its project design document.

The total emission reductions from the project are estimated to be 515,170 t of CO2e over a 10 year crediting period, averaging 51,517 t of CO2e annually.

In summary, it is SGS' opinion that the proposed CDM project activity correctly applies the baseline and monitoring methodology as mentioned in approved methodology adopted for the proposed project activity and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Subject.:		
CDM validation		**Indexing terms**
Work carried out by		
Mr. Ramkrishna Patil – Team Leader (from 01/09/2009) Mr.Sanjeev Kumar – Previous Team Leader (till 31/08/2009) Mr. Vikrant Badve – Previous Assessor (till 31/08/2009) Mr.Nikunj Agarwal–Previous Local Assessor (till 31/08/2009) Mr. Ramkrishna Patil – Local Assessor (from 01/09/2009) Mr. Ravi Kant Soni - Assessor (from 01/09/2009) Mr. Abhishek Mahawar – Financial expert Mr. Vikas Bankar - Sectoral scope Expert		
Technical review		
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Revision Number:	Date:	Number of Pages:	description
1.0	15/05/2007	47	Request for registration
2.0	15/05/2007	48	Request for Review
3.0	01/04/2010	47	Correction Request
3.0	07/03/2011	55	Full Review
3.1	04/05/2011	56	Correction Request

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reductions
CERC	Central Electricity Regulatory Authority
CERUPT	Certified Emission Reduction Unit Procurement Tender
CFE	Consent for Establishment
CFO	Consent for Operation
CO2	Carbon Dioxide
COP/MOP	Conference of parties serving as the meeting of parties to Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environment Impact Assessment
GHG	Green House Gas(es)
GWh	Giga watt hour
I	Interview
IPCC	Intergovernmental Panel on Climate Change
ISHC	International Stakeholder Consultation
kWh	Kilo watt hour
MNES	Ministry of Non Conventional Energy Sources
MoEF	Ministry of Environment and Forest
MoV	Means of Verification
MP	Monitoring Plan
MW	Mega watt
MT	Metric Tonne
NES	Non-Conventional Energy Sources
NIR	New Information Request
NGO	Non Government Organisation
NOC	No Objection Certificate
PDD	Project Design Document
PLF	Plant Load Factor
PPA	Power Purchase Agreement
RRECL	Rajasthan Renewable Energy Corporation Limited
RERC	Rajasthan Electricity Regulatory Commission
RRVPN	Rajasthan Rajya Vidyut Prasaran Nigam Limited
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator

1 Introduction

1.1 Objective

Enercon (India) Ltd. has commissioned SGS to perform the validation of the project: "Enercon Bundled wind energy power projects (2003 policy) in Rajasthan" with regard to the relevant requirements for CDM project activities. The purpose of a 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 relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

1.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has 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 not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 GHG Project Description

The proposed CDM project activity is an electricity generation project through wind turbines and exporting the same to the grid. The project will result in replacing exported amount of electricity from Northern regional grid which is dominated by fossil fuel based power plants. The project activity is located in Alsoi, Korwa, Sodabandham and Temderai village, in Jaisalmer District of Rajasthan state in India. The project activity has been started on 30th April 2003; the date has been verified from the purchase order for wind generators submitted to the validator. The Project activity involves operation of 30 wind energy converters (WECs) of Enercon make; specifications of the same have been provided in the PDD and same has been cross-checked with the purchase orders.

Baseline Scenario:

Under the baseline scenario, there would have been more direct off-site emissions through burning of fossil fuel in the coal based power plant for meeting electrical energy requirements.

With Project Scenario:

The project activity will generate and export the electricity to the Northern regional grid. Thus project activity replaces electrical energy from fossil fuel based power plants and contributes to conservation of fossil fuel, a non-renewable natural resource and consequently reduces GHG emissions.

Leakage:

As per the methodology ACM0002 Version 6.0 dated 19th May 2006; applicable for the project activity, no leakage is to be considered for the project activity.

Environmental & Social Impacts:

There are no negative environmental and social impacts expected with the project activity, the same has been cross-checked during local stakeholder consultation process by the local assessor during the validation site visit.

1.4 The names and roles of the validation team members

Assessment Team	Role
Mr. Ramkrishna Patil	Team Leader / Lead Auditor (from 01/09/2009)
Mr. Sanjeev Kumar	Previous Team Leader / Lead Auditor
Mr. Vikrant Badve	Previous Assessor (Trainee)
Mr. Nikunj Agarwal	Previous Local Assessor
Mr. Ramkrishna Patil	Local Assessor (from 01/09/2009)
Mr, Ravi Kant Soni	Assessor (from 01/09/2009)
Mr. Abhishek Mahawar	Financial Expert
Mr. Vikas Bankar	Sectoral Scope Expert

Technical Review Team	Role
Sathis Kumar	Technical Reviewer/ Sectoral Expert

Statement of Competency of the team members are provided in Annex 4.

2 Methodology

2.1 Review of CDM-PDD and additional documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline. Additional information can be required to complete the validation, which may be obtained from public sources or through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate. The results of this local assessment are summarized in Annex 1 to this report.

2.2 Use of the validation protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual version 1.2 and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements are linked to checklist questions the project should meet.	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**Y**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **New Information Request (NIR)** is used when the validation team has identified a need for further clarification.*

The completed validation protocol for this project is attached as Annex 2 to this report

2.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A 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 verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 3). In this form, the Project Developer is given the opportunity to “close” outstanding CARs and respond to NIRs and Observations.

2.4 Internal quality control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3 Determination Findings

3.1 Participation requirements

The host Party for this project is India. India has ratified the Kyoto protocol on 26th August 2002. A Letter of Approval from DNA was not submitted by the project proponent. CAR (1) was raised asking project proponent to submit the Letter of approval from Indian DNA. The project proponent provided the letter dated 3rd April 2007; issued by the Indian DNA (reference number 4/21/2006-CCC) has been provided by the client which was verified from the original copy.

The PP has identified Japan as a Project Participant country and Japan has ratified the Kyoto protocol on 4th June 2002 and the letter of approval has not been submitted by the Japan DNA, CAR (1) was raised asking project proponent to submit the Letter of approval from DNA. The project proponent provided the letter dated 2nd March 2007; issued by the Japan DNA which was verified from the original copy. Hence CAR (01) was closed out.

3.2 Baseline selection and additionality

The project has applied baseline as mentioned in the large scale methodology ACM0002 version 06 dated 19th May 2006 for "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, As the project does not modify or retrofit an existing generation facility, the baseline scenario is the emissions generated by the operation of grid-connected power plants and by the addition of new generation sources.

The present CDM project activity will generate and feed the electricity to the Northern regional grid. The emission reductions achieved because of the project activity will be direct function of the net electricity feed to the grid and grid emission factor for the Northern regional grid.

The PDD version 1; web hosted for international stakeholder consultation proponent has used additionality tool version 2. During the validation process the additionality tool has been revised to version 3 and project proponent has used version 3 of the tool to assess the additionality of the project activity. This was checked with the PDD version 4 and was found to be acceptable.

The project proponent has adopted the Investment analysis as the main barrier to justify the additionality of the project. Also the project proponent has described Common Practice Analysis. In order to get all the related documents on the basis of which the project was shown additional, CAR (05) was raised.

The project proponent has considered benefits from CDM prior to the start of the project activity. In support to this the project proponent has submitted a loan acceptance letter for 24 MW capacity owned by the project proponent; from Power Finance Corporation Ltd. (Ref/21/) mentioning funds from CDM was considered while approving the loan; to the DOE during validation. Also the project proponent has submitted a copy of the letter of intent (Ref. /22/) written to the small customers involved in this project mentioning the possible revenue from CDM funds; to the DOE. This was found to be acceptable. The project proponent also mentioned that they were well aware about the incentives from carbon trading and hence they have participated in CERUPT tender (Ref/23/); which unfortunately could not be worked and got reject. A letter confirming withdrawal of CERUPT offer was sent by Senter Internationaal on 31st March 2004 (Ref./24/) was checked and accepted . Project therefore was rejected. The project proponent has turned into a contract with Japan Carbon Finance (JCF) Ltd. (Ref/25/) for purchase for emission reductions from the project activity. A copy of the same was submitted to the DOE assessment team during the validation which was found to be acceptable.

The funds for the project activity are made available 30% from equity and 70% through bank finance. The total project cost is Rs. 1,162 Millions, the bank has sanctioned a loan of Rs. 813 Millions at an interest rate of 8.5% and the rest of the amount for the project activity was raised through equity by the project proponent. This information of Enercon wind projects was cross checked from during the discussion with the project proponent and also verified from the bank loan documents submitted by the project proponent.

The project proponent had initially considered the 16% post tax return on equity as the investment benchmark that is used by various electricity regulatory commissions for determining the tariff applicable for wind power projects in India. During the request for registration stage, the EB referred the project to "request for review" and sought clarifications from the parties involved in the project mainly related to suitability of the benchmark used by the project proponent. Subsequently, the Executive Board in 40th meeting (Ref /8/) ruled that the 16% post tax return on equity considered by Central Electricity Regulatory Commission, Government of India (Ref/26/) for power tariff determination is not a suitable benchmark. Thus the project proponent has to reconsider the benchmark for project activity as per EB mandate. The required/ expected return on equity can be considered as appropriate benchmark for the project activity as this is inline with the requirements under Guidance to investment analysis issued in EB 51 Annex 58 (paragraph 12) (Ref. /9/). The cost of equity has been determined using the Capital Asset Pricing Model (CAPM) (Ref. /13/). The CAPM economic model is widely used to determine the required/expected return on equity based on potential risk of an investment.

In line with the requirements of EB 51 Annex 58 (paragraph 13) (Ref. /9/), data and parameters used in calculation of cost of equity i.e. beta values of power generating companies in India, risk free rate of return, market risk premium etc have been derived from publicly available data sources, same has been validated as described below:

- The beta values have been sourced from Bloomberg's data (Ref. /10/). The PP has submitted the Bloomberg screenshots for the beta values for the industries which are listed as power generating company at the time of decision making for the current project activity. Appendix 4 of the revised PDD (Ref. /4.1/), cost of equity calculation containing beta values has been checked. The Beta value for the selected industries varies from 0.608 to 1.481, thus the average value of Beta is appropriate and is accepted. The average beta value comes to be 1.099.
- The data on risk free rate of return has been sourced from the Reserve Bank of India web site (Ref. /11/) (http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/80303.pdf) the PP has considered rate of weighted average central government securities for year 2002-2003. The Reserve Bank of India is the India's Central bank and data is publically available. The primary objective of RBI is to undertake consolidated supervision of the financial sector comprising commercial banks, financial institutions and non-banking finance companies and hence risk free rate of return taken from Reserve Bank of India is accepted. The value of this parameter is 7.34%.
- The market returns data has been taken from the website of the Bombay Stock Exchange, Sensex Data, (Ref. /12/), http:///http://www.bseindia.com/histdata/hindices.asp (Open webpage > select Index from drop down menu as "SENSEX" > check 'monthly' > select period from drop down menu). The 24 years (from April 1979 to March 2003) BSE SENSEX data has been considered to compensate the fluctuation in the market. The value of market return comes to be 15.30%. The detailed CAPM approach has been taken from the "Textbook on Corporate Finance Theory and Practice" by Dr. Aswath Damodaran of New York University (Ref. /13/). The market risk premium is the difference of market return and risk free rate. Thus the market risk premium is 7.96% (15.30%-7.34%).The detailed calculations of cost of equity along with an elaboration of the approach are provided in Appendix 5 of the revised PDD (Ref./4.1/). The cost of equity calculations was checked by a financial expert and it is confirmed that benchmark calculations are appropriate to the type of calculation applied. Thus the benchmark cost of equity works out to 16.09%.

Appropriateness of Market Return as per para 112 of VVM 1.2:

The assessment team clarifies that the market return is of 15.30% and not the 15.03% as mentioned in Scope a) of the clarifications. The assessment team has analysed the projects referred in the clarifications i.e. 1286, 1299 and 2163. The comparison is presented below:

UNFCCC Ref. No	No. of Years	Market Return
1286	13.08	16.71%
1299	23.33	15.67%
2163	4.91	16.16%
1167 (captioned project)	24	15.30%

It is clear from above table that the market return considered by the PP is lowest in comparison to the project 1286, 1299 and 2163. The lower the market return the lesser the Benchmark, therefore the market return considered by the PP is conservative.

In regard to the time period for Market returns, the assessment team would like to clarify that the Market return for the project has been determined considering the longest period for which data was available. The assessment team has verified that this is in line with the CAPM approach described in text books on Corporate Finance. During validation, the assessment team had reviewed the text book on "Corporate Finance Theory and Practice" by Dr. Aswath Damodaran (Stern School of Business, New York University), one of the foremost authorities in the world on corporate finance and the research papers that describe the procedure for calculation of cost of equity following the Capital Asset Pricing Model (CAPM). The assessment team found that the time period i.e. 24 years considered by the PP to calculate market return is well in line with the procedures outlined in the text book and research papers on corporate finance. The extracts from the text book are checked and found to be appropriate. It is confirmed that, the most common approach to estimating the risk premium is to use market returns over very long time periods. It is further checked from the research paper titled "equity risk premiums" by Dr. Damodaran (Page no [6] that the standard errors from ten-year and twenty-year estimates are likely to be almost as large as or larger than the actual risk premium estimated. Thus for calculation of equity risk premiums, longer time periods (more than 20 years) are considered as appropriate.

The PP has referred the BSE Sensex for determination of market return. The oldest and most prominent market index in India is the BSE Sensex which was established in 1979. As of the project start i.e. March 2003, the longest period over which data was available was 24 years and this has been considered. The longer period mitigates the fluctuation in market return and hence the longer period market return is found to be appropriate and is accepted..

Source used to calculate Market Return:

The assessment team has verified that the Market returns data has been taken from the website of the Bombay Stock Exchange (the oldest available market index in India) http://www.bseindia.com/histdata/hindices.asp (Open webpage > select Index from drop down menu as "BSE SENSEX" > check 'monthly' > select period from drop down menu). The 24 years (from April 1979 to March 2003) BSE SENSEX data has been considered to compensate for short term fluctuations in the market. The average returns from BSE SENSEX over 24 year period comes to **15.30%.** The data taken to calculate the market return is publicly available on the official website of the Bombay Stock Exchange and hence accepted.

The selection of the market return as per para 112 of VVM version 1.2 is as below

As per VVM1.2 para 112:.

To confirm the suitability of any benchmark applied in the investment analysis, the DOE shall:

(a) Determine whether the type of benchmark applied is suitable for the type of financial indicator presented;

(b) Ensure that any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity;

(c) Determine whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants involved and determining whether this benchmark has been applied or if there are verifiable circumstances that have led to a change in the benchmark.

The DOE would like to submit the following clarifications on how the selection of market returns conforms to requirements of VVM para 112.

Benchmark applied is suitable for the type of financial indicator and risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity;

The revised benchmark is the cost of equity of 16.09% and not the WACC of 16.07% as mentioned in Scope a) of the clarifications. This is in line with the Guidance to investment analysis (EB 51-paragraph 12) which states that the required return on equity is appropriate benchmark for Equity IRR. In light of this the PP has considered the cost of equity applicable to the project type i.e. electricity generation projects, as the suitable benchmark for the project. The cost of equity has been determined using the Capital Asset Pricing Model (CAPM) considering Beta values of all listed power generating companies in India. The CAPM economic model is widely used to determine the required/expected return on equity based on potential risk of an investment. The CAPM framework is the Nobel award winning work of financial economist Dr. William Sharpe. Thus Cost of equity calculated by CAPM method is suitable for the type of financial indicator selected for the project activity. The selected benchmark (16.09%) is cost of equity and is suitable for comparison with equity IRR. This is in line with VVM paragraph 112 (a).

The assessment team has verified that the Beta values have been sourced from Bloomberg, which is one of most reputed financial databases in the world. Betas of all power generating companies that were listed at the time of investment decision making and had sufficient price history, were considered. The assessment team has verified the beta values; Bloomberg screenshots of Beta values have been checked and are found to be appropriate. The average beta value comes to be 1.099 and is considered for calculation of benchmark. The beta value is an appropriate value and reflects the risk specific to the project activity and is in line with VVM paragraph 112 (b).

No investment would be made at a rate of return lower than the benchmark

SGS has to date validated a total of 14 nos. ACM0002 projects of which 8 projects have used CAPM benchmark, the table below presents the validated data pertaining to the period of market returns and the value of market returns for these projects.

Sr. No	Registered	UNFCC ref No.	No of years of Market return	Market return of Sensex
1	15-Mar-10	1168	26.91	18.83%
2	30-Oct-08	1166	26.50	17.92%
3	31-Aug-10	1299	23.33	15.67%
4	10-Dec-10	3870	17.58	19.96%
5	18-Mar-10	1291	14.33	17.25%
6	1-Jul-10	1286	13.08	16.71%
7	11-Oct-09	2605	8.00	22.61%
8	2-Nov-10	3431	7.00	24.58%

The DOE has earlier validated 3 projects of the PP (UN1168, UN1299, and UN1291) where the time periods were similar to the captioned project activity. The DOE further noted that the Market return considered for the captioned project activity is 15.30% which is lower than the market return considered by all other ACM0002 project validated by the DOE. Accordingly, the Market return considered by the project proponent was deemed appropriate by the DOE. The lowest market return is considered for the calculation of the benchmark which is conservative, thus it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark considered for the project activity.

The PP has calculated the equity IRR for the Enercon Wind Farm Pvt. Ltd. as 12.22 % and with increase in PLF to 23.97%, equity IRR increases to 15.11 %. PP has calculated equity IRR for all sub projects using the project specific assumption as per correction request of EB 36 meeting report, para 61 f iii). The input values specific to project activity of each investor has been used for equity IRR calculations. The validation team has validated the input values for each specific project activity through purchase orders, loan documents if any (Ref. /1, 7/) for each investor and found to be appropriate. For the project activity, the maximum equity IRR is considered to check the additionality of the project activity. It is observed that the maximum equity IRR is for Enercon Wind Farm Pvt. Ltd and the value is 12.22 %. With increase in PLF to 23.97%, the value of equity IRR increases to 15.11 %. Thus the equity IRR is well below benchmark equity IRR and hence project is additional.

Validation of changes to the total investment costs and the equity value and compliance of input values as per the VVM, v 1.2, paragraph 111:

The table below explains the apparent change in project cost and equity values

	VALUE IN THE INITIAL PDD	**VALUE IN THE REVISED PDD**		**EXPLANATION**
		Enercon	**Other sub-projects**	
Project Capacity	30.59 MW	24 MW	6.59 MW	No change in aggregate capacity
Project Cost	INR 1481 million @ Rs.48.4 million per MW	INR 1161 million @ Rs. 48.4 million per MW	INR 345.08 million @ INR 52.36 million per MW	In the initial PDD, the project cost of INR.1481 million was arrived at by extrapolating the capital cost of Enercon for the entire capacity. The capital cost of Enercon project was INR 1161 million for 24 MW which when extrapolated for 30.59 MW works out to INR 1481 million i.e. 30.59 MW @ INR 48.41 million/MW. As can be seen, the capital cost/MW for the Enercon project is lower as compared to other sub-projects. Hence this was conservative. Based on the "corrections request", investment analysis has been carried for all sub-projects, separately. The apparent discrepancy is because in the earlier PDD

				the capital cost (INR 1481 Million) was mentioned for the entire 30.59 MW whereas in the revised PDD the capital cost for Enercon (24 MW – INR 1161 million) and other sub-projects (6.59 MW – INR 345.08 million) is bifurcated.
Equity	INR 444 million @ INR 14.52 million/MW	INR 348 million @ INR 14.52 million/MW	INR 243.89 million @ 37.00 per MW	The change in equity value is again because of reasons described above. In the earlier PDD the equity contribution was arrived at extrapolating the equity contribution for Enercon to the entire project capacity. The equity contribution of Enercon is INR 348 million i.e. INR 14.52 million/MW which when extrapolated for 30.59 MW works out to INR 444 million i.e. 30.59 MW @ INR 14.52 million/MW. This was considered to be conservative since the "per MW" equity contribution for other projects is higher than Enercon. The apparent change in equity value is because in the earlier PDD the equity value (INR 444 Million) was mentioned for the entire 30.59 MW whereas in the revised PDD the equity for Enercon (24 MW – INR 341 million) and other sub-projects (6.59 MW – INR 345.08 million) is bifurcated.

Before the correction request, the Equity IRR mentioned in the PDD was for the Enercon project. Earlier the investment cost and equity value was presented for the entire 30.59 MW based on Enercon project but now these are presented separately for Enercon and all other sub-projects. There is no change in the original and post tax equity IRR calculations for Enercon projects. Earlier the project cost and equity value of Enercon was extrapolated for other sub projects also. During correction request, post tax equity IRR was calculated separately for each investor, hence apparent change in project cost and equity for other sub projects was observed.

The DOE has validated that the Investment costs has been taken from actual purchase order and the values were further crosschecked with invoices and was found to be accurate. The loan and equity component of each specific investor has been validated from loan documents and Chartered Accountant certificates and was found to be appropriate. This is in line with para 111 of `VVM version 1.2 and found to be appropriate.

The project activity involves generation and sale of the electricity to the state utility, therefore in accordance with the Electricity Act; the tariff for the project is determined by the Rajasthan Electricity Regulatory Commission (RERC). RERC Order (Ref. /14/) for determination of tariff from wind generation sources has been based on extensive consultation, obtaining information from various stakeholders (including wind farm developers, government agencies, utilities and other stakeholders). The RERC considered the PLF for the projects to be set up based on the data made available from various sources, which was elaborately discussed during the public

hearing process conducted by RERC. RERC in its Order noted that the maximum PLF achieved in Rajasthan was 23.97% and that a 22% PLF for Jaisalmer, Jodhpur and Barmer districts should be considered as reasonable, based on data available with RERC order (Para 67, page 20 and 21 of RERC Wind Order dated 29/09/2006, (Ref./14/)) .

The Government of Rajasthan ("GoR") had come out of policies in 2003, 2004 and subsequently in 2006 tariff orders are provided by RERC for promotion of non conventional energy sources (including wind energy) in the state. The Rajasthan Renewable Energy Corporation Limited (RRECL (Ref./15/), a state government agency) while prescribing the tariff for NES power plants in GoR policy of April 2003, October 2004 and February 2006 (Ref./18/) considered that a PLF of 22.37% would be appropriate for wind projects in Rajasthan, based on the data available with RRECL (Rajasthan Renewable Energy Corporation Limited). The undertaking from RRECL dated 29/09/2007, (Ref /16/) which certifies that the PLF considered for the purpose of tariff evaluation for the wind energy projects in 2003 policy was 22.4%.The same evidence can be confirmed from RERC's latest tariff order dated 15th March 2007 (Ref. /17/) (paragraph 13 to 22 on page 8 to 10 http://www.rerc.gov.in/Order/JS_(PO)_Order_RE_Tariff_15.03.07.pdf)

The project activity is spread across Asloi, Korwa, Sodabandhan, Temadrai Ph-1, 2 and 3 Villages in Jaisalmer district of Rajasthan. It is important to note that for the extended period from 2003 up to 2006, the state government and the regulatory commission used the PLF of 22.37% and 22% respectively for arriving at the per unit cost of generation. For carrying out the investment analysis, the PLF has been considered as 22% which is same as the PLF considered by the Rajasthan Electricity Regulatory Commission (Ref./18/) and marginally lower than the PLF considered by RREC in the 2003 policy (Ref./18/). However, a sensitivity analysis of the project's IRR is also provided in the PDD (Ref. /4.1/) considering a PLF of 23.97%, which is the highest PLF observed in Rajasthan. A sensitivity analysis of the project's IRR is also provided in the PDD considering a PLF of 23.97%, which is mentioned by RERC in their order (Ref. /18/). Even at this PLF (23.97%), the post-tax equity return is 15.1% which is below the benchmark of 16.09% considered for the project activity.

The financial analysis sheet (Ref./5/) provided by the project proponent along with assumptions and data used while calculating the financial indicator was checked and discussed with project proponent during validation activity. The project proponent has carried out a sensitivity analysis with PLF as varying factor. PLF of 22% was considered as base case PLF and sensitivity analysis was carried out with lowest of 20% and highest of 23.97% PLF as per the range indicated in RERC Order dated 29/09/2006 (Ref./18/). The sensitivity analysis indicates that post tax equity IRR without CDM results in the downside PLF value will be 9.27 % and in the upside PLF value it will be 15.11%. The result of sensitivity analysis for PLF is as below:

PLF range as mentioned in RERC order dated 29/09/2006	20%	22% (Base case)	23.97%
Equity IRR for Enercon Wind Farm Pvt. Ltd.	9.27%	12.22%	15.11%
Equity IRR (Maximum value within other investors, i.e Kataria Infrastructure)	9.20%	10.70%	12.11%

Tariff applicable for the project activity:

There are two types of tariff regimes applicable for the project activity.

(1) Base year tariff of Rs.3.34 per kWh (for base year) with yearly escalation of 5% till the 10th year. Thereafter, the tariff will be as mutually agreed between the PP and the utility.

(2) Rs. 3.32 per unit for power supplied during 2003-04 which shall be increased at a simple rate of 2% (of Rs. 3.32) every year on 1st April of the year for a period of up to 10 years i.e. up to 2012-13 with Base year 2003-04. Thereafter, from 2013-14 and onwards a fixed rate of Rs. 3.92 per unit charges to be paid by utility for a period up to the 20th year of the project.

Tariff regime 1

The tariff regime 1 was issued by Govt. of Rajasthan on 4th Feb 2000 (Ref./19/) for attracting investment of 100 MW exclusively in the wind power in the state of Rajasthan. The projects of Kataria Infrastructure Corporation, Kataria Wires and Ratlam wires were able to achieve the tariff approved the under policy dated 4th Feb 2000 (Ref./19/) The same has been checked from the policy for tariff regime 2 which was issued by the Government of Rajasthan on 30th April 2003 (Ref./19/) and respective PPAs for these investors. This wind power policy allowed the earlier policy dated 4th Feb 2000 to be applicable to the wind power projects up to the cap of 100 MW envisaged in the policy. As per PPA (Ref./2/) of Kataria Infrastructure Corporation, Kataria Wires and Ratlam wires, the tariff is fixed at Rs.3.34 per kWh (for base year) with yearly escalation of 5% till the 10th year. Thereafter tariff shall be fixed as mutually agreed between the parties. Thus from 11th year onward, PP has taken tariff same as that of the 10th year for the remaining lifetime of project activity. The tariff rate will reduce substantially after 10th year because the largest component of tariff being the debt service (principal repayment and interest payments) is over by the 10th year of operations and these have already been factored in while determining the regulated tariff for the first 10 years. Also the 10th year tariff becomes INR 5.18 /KWh which is conservative as compared to policy of Government of Rajasthan on 30th April 2003 (Ref./19/) (INR 3.92 /KWh, fixed after 10th year i.e 2013-14). Thus the tariff after 10th year is conservative and is accepted.

The reduction of tariff after 10th year has been further validated from MERC order (Ref./20/). It is observed in case of Maharashtra Electricity Regulatory Commission (MERC) Order dated 20th November 2007, para 2(a)] which has mentioned much lower tariff and mentioned that "Commission should suitably fix a lower tariff (INR 1.17/KWh fixed tariff) considering the fact that the cost is fully recovered by the wind generators and henceforth, only the Operation and Maintenance and incidental costs are to be recovered by Group II wind generators". It is also observed that the table 3 on page 69 of MERC order (Ref./20/) (link: http://www.mercindia.org.in/pdf/Detail_Wind_Energy_Order.pdf) that beyond the 11th year the cost of electricity only comprises O & M cost and return of equity for tariff calculation. The MERC Order Section 1.4.2, Para 2, page-25 of 116, web link: http://www.mercindia.org.in/pdf/Detail_Wind_Energy_Order.pdf] has mentioned that, "*The Commission notes that in Cost Plus Approach, which the Commission has adopted for tariff proposal, rate per unit charged by such projects during initial period of 10 years is bound to be higher as during this period the project has various debt related obligations. However, it is essential that the consumer is able to enjoy the benefit of cheaper power once all debt related obligations are paid off and project has virtually no variable costs*". This indicates that the tariff after PPA period will be reduced and is accepted.

The tariff rate for power projects are completely governed by the state electricity authority and the Terms and conditions of the Power Purchase Agreement in turn directed by the Orders issued by the Central and State Electricity Regulatory Commission in India. Thus from the above discussion on Orders of State Electricity Regulatory Commissions it is clear that tariff after 10th year will be lower and it will not remain fixed throughout the lifetime of project activity. However the PP has taken the 10th year tariff fixed for the remaining lifetime of the project activity for investors falls under tariff regime 1.

The PP has calculated the equity IRR by applying tariff approved under PPA for the first 10 years and constant tariff after 10th year of the project activity till 20th year as per correction requested by EB. It was found that, the equity IRR comes to be 10.70%. 10.61% and 10.61% for Kataria Infrastructure Corporation (0.23 MW), Kataria Wires and Ratlam Wires which is below the benchmark of 16.09% and is accepted.

Tariff Regime 2

For remaining investors, tariff regime 2 was applicable. The tariff schedule for tariff regime 2 is INR 3.32 per kWh (for the base year) with yearly escalation of 6.64 paisa till 2012-13 and from 2013-14 till 20th year it will be a fixed at Rs.3.92. The same has been checked from the POLICY FOR PROMOTION OF ELECTRICITY GENERATION FROM WIND, 2003 (Ref./19/) (Issued vide Energy Dept. letter No.F.20 (3)Energy/98/Pt.III dated 30.4.2003)." (Source: http://www.rajenergy.com/wind_pol.pdf) and is accepted.

The project owners has entered into the Power Purchase Agreement (Ref./2/) (a legally binding agreement) with the state utility for the period of 20 years (lifetime of the project activity) as per POLICY FOR PROMOTION OF ELECTRICITY GENERATION FROM WIND, 2003 (Issued vide Energy Dept. letter No.F.20 (3)Energy/98/Pt.III dated 30.4.2003)." (Source: http://www.rajenergy.com/wind_pol.pdf). Therefore it is not appropriate to apply the constant tariff to the project activity as stated in the correction request. Hence the PP has the applied tariff approved by the government of Rajasthan. This has been checked from the PPA and is accepted

Thus the post tax equity IRR for the project activity is less than the benchmark value. This indicates that the project is additional and not a business as usual. The financial figures given in the PDD (Ref. /4.1/) are checked

with excel spreadsheet (Ref. /5/) figures and found correct. The financial analysis was checked during the validation phase for input parameters and found acceptable.

The DOE has noted that the equity IRR in this case in sensitivity analysis with the higher PLF value (23.97%) is 15.11% i.e. still below the benchmark of 16.09% Hence the project can be considered as additional.

The project proponent has submitted the excel spreadsheet giving the detailed calculations for investment analysis and sensitivity analysis and also submitted assumptions and data used to calculate the IRR for project activity. The project proponent has calculated IRR for the present project activity considering the CDM revenue and without CDM revenue. The post tax equity IRR without CDM revenue works out to 12.22 post tax equity The benchmark of 16.09% equity IRR was referred from the CAPM approach and same was checked and found acceptable.. The project proponent has carried out a sensitivity analysis with PLF as varying factor. PLF of 22% was considered as base case PLF and sensitivity analysis was carried out with lowest of 20% and highest of 23.97% PLF as per RERC order. The sensitivity analysis indicates that post tax equity IRR without CDM funds with lower PLF value will be 9.27% and with higher PLF value it will be 15.1%; while post tax equity IRR with CDM funds with lower PLF value will be 10.4% and with higher PLF value it will be 16.5% for Enercon Wind Farm Pvt. Ltd. Thus the post tax equity IRR for the project activity will be less than the benchmark equity IRR value and it will nearer the benchmark IRR value with the CDM funds when PLF will be 23.97%. This indicates that the project is additional. The financial analysis sheet given by the project proponent along with assumptions used during the calculation and the financial calculations have been discussed with project proponent during the site visit. The financial figures given in the PDD are checked with excel spreadsheet figures and found correct. It was also checked during the discussion with the project proponent. The project proponent also submitted the commissioning certificate and PPA signed by RRPVN as a proof that RRPVN allows the operation of the project activity and commissioning is done as per their procedures.

In support of common practice analysis the project proponent mentioned that they analyze the extent to which wind energy projects have diffused in the electricity sector in Rajasthan. In 2005 – 06, electricity generation from wind sources was 417 GWh which is expected to increase to 512 GWh in 2006 – 07. This works out to 1.35% of total generation available to the state of Rajasthan in 2005 – 06 and 1.66% of total expected generation available to the state of Rajasthan in 2006 – 07. Clearly, electricity generation from wind is not a common practice in Rajasthan. The same has been verified by the RAJASTHAN ELECTRICITY REGULATORY COMMISSION (RERC) Report.

Out of the 279 MW installed up to 31 March 2005, the wind power projects under various policies of Government of Rajasthan are set out below:

Policy 1999 (effective 11th March 1999): 4.25 MW

Policy 2000 (effective 4th Feb 2000): 82.23 MW

Policy 2003 (effective 30th April 2003): 174.29 MW

Policy 2004 (effective 25th October 2004): 18.85 MW

The same has been verified from CONSULTATION PAPER ON “POWER PURCHASE FROM NON-CONVENTIONAL ENERGY SOURCES IN RAJASTHAN”

Based on the commissioning dates of the wind projects in the CDM pipeline (on the cdm.unfccc.int website), we estimate that the following capacities are being developed or have been developed as CDM project activities (including this Project):

Policy 2000: 28.16 MW

Policy 2003: 79.45 MW + 30.59 MW (this Project) = 110.04 MW

Policy 2004: 15.75 MW

Clearly, wind power project development in Rajasthan is insignificant when compared to the power sector of Rajasthan. The above data has been cross checked from CEA data, available on CEA web site. Further, wind power project development is substantially dependent on CDM mechanism and thus is not common practice. The same was acceptable to the DOE and hence CAR (05) was closed out.

3.3 Application of Baseline methodology and calculation of emission factors

The present project activity is generating wind power and supplying it to Northern grid. The project has applied baseline methodology as mentioned in the large scale methodology ACM0002 version 06 dated 19th May 2006 for "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

The project proponent has not provided excel spreadsheet for calculation of baseline emission as well as project emissions for the project activity along with the PDD. CAR (04) was raised and the project proponent was asked to provide the excel spreadsheet for the same. During validation the site visit the project proponent submitted the concern excel spreadsheets. By checking the excel spreadsheets it was found that grid emission factor calculated for the project activity was on higher side when compared with the CEA database version 1.1 dated 21st December 2006 for grid emission factor; which uses a conservative approach. The PP was asked to clarify this. In response to CAR (04) the project proponent agreed that CEA value for grid emission factor is calculated on a conservative approach and same will be used for the project activity and this value of grid emission factor will be fixed for the entire crediting period. The local assessor has cross-checked the grid emission factor value used by the project proponent from CEA website and checked the data used for calculation purpose. The data used is found to be acceptable and hence CAR (04) was closed.

The baseline emission calculations and emission reductions were found to be in order during the desk review and during the local assessments at the site. The emission reduction figures would further be checked during verification. As per methodology ACM0002 version 06 dated 19th May 2006, no leakage is to be considered.

3.4 Application of Monitoring methodology and Monitoring Plan

The present CDM project activity uses monitoring methodology ACM0002 version 06 dated 19th May for "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

The PDD clearly mentions that leakage is not considered as per the methodology ACM0002 version 06 dated 19th May 2006, hence no leakage is considered for the project activity. This was acceptable to the validator.

During the review of version 1 of the PDD it was found that project proponent was not clear on QA/QC procedure as required in the monitoring methodology. Also the responsibility flow chart given in PDD section B.7.2 was not correct; So CAR (07) was raised. The project proponents in his response to CAR (07) explained the QA/QC procedure more clearly in the revised PDD and provide the responsibility flow chart more elaborately in the revised PDD version 02. Hence CAR (07) was closed out.

As per the correction request, the PP has corrected the information related to metering equipment. It is observed that there is one main meter and one check meter. Both meters would be two-way export import meters that measure both export and import of electricity and provide net electricity exported to the grid. Energy metering for the project is carried out in accordance with the provisions of the Power Purchase Agreement (PPA (Ref. /2/)) entered into with the electricity distribution utility which conforms to the metering code prescribed by the Rajasthan Electricity Regulatory Commission (Ref./2/). Accordingly the project proponent has considered the net electricity exported to the grid as the sole monitoring parameter for the project activity. This was checked during the site visit conducted during validation phase and is accepted.

NIR (08) was raised as the Project Management planning was not described in the PDD version01; the project management planning such as responsibility of project management, authority and responsibility for registration, monitoring, measurement and reporting, procedures identified for training of monitoring personnel, emergency preparedness for cases where emergencies can cause unintended emissions, calibration of monitoring equipment, maintenance of monitoring equipment and installations, day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation), dealing with possible monitoring data adjustments and uncertainties are incorporated in the revised PDD, so the NIR (08) was closed out.

CAR (14) was raised as there was no information regarding training and maintenance efforts for the project activity in the PDD, in response of the CAR the project proponent then added the information about training and maintenance in the revised PDD, which was verified during the site visit, hence the CAR (14) was closed out.

3.5 Project design

The Project Design Document (PDD) was designed as per version 03.1 of guidelines laid for preparing PDD of large scale CDM project activity hence the format of the present PDD was checked against it.

It was found that section C.1.1 of version 01 of the PDD indicated 30th April 2003 as project activity starting date; but evidence for the same was not provided. CAR (15) was raised asking the project proponent to provide an evidence for the starting date of the project activity. In response project proponent provide the purchase order for the wind energy generators dated 30th April 2003. The same was cross checked during the site visit and the date 30th April 2003 was accepted hence CAR (15) was closed out.

The project boundary given in version 01 of the PDD was not clear on the components included in the project boundary so CAR (03) was raised; the project proponent rephrased the project boundary in the revised version of the PDD. This was cross-checked during the site visit and was found to be acceptable, so CAR (03) was closed out.

Operational lifetime of the project activity was mentioned as 20 years which was found acceptable after reviewing the project technology details mentioned in the purchase order of the project activity component. CAR (13) was raised asking project proponent to provide any documentary evidence that the present project technology will not be substituted or replaced by the more efficient technologies during the crediting period. Project proponent has assured that project technology will not be substituted or replaced by more efficient technology during the crediting period and the letter of undertaking for the same has also been obtained from the project proponent. This was accepted and CAR (13) was closed out.

Project proponent in the PDD mentioned that project activity has not received any public funding from parties listed in Annex 1. This was cross-checked during the discussion with the project proponent and found acceptable.

3.6 Environmental Impacts

In state of Rajasthan RRPVN is authorized government agency to keep an eye on wind mill projects. In order to check whether the project commissioning has been done as per RRPVN requirement or not, DOE has checked the commissioning certificate and PPA signed by RRPVN as a proof that RRPVN allows the operation of the project activity and commissioning is done as per their procedures.

EIA report was not submitted to the DOE, so NIR (09) was raised, the project proponent submitted the EIA and the same were checked for Environmental Impacts on various parameters like Air quality, Water, Land, Noise generation and ecology as mentioned in table under section D.1 of the PDD. This NIR was closed out.

3.7 Local stakeholder comments

The project activity involves setting up of 30.59 MW wind energy based power project for electricity generation and exporting the same to Northern regional grid, the project proponent identified local administrative body, local population as local stakeholders for the project activity. CAR (10) was raised asking project proponent to clarify which government departments they have considered as a local stakeholder for the project activity as version 01 of the PDD remains silent on this issue. In their response to CAR (10) project proponent clarifies that RRPVN and local village panchayat are the concern government departments project proponent has considered; this was verified during local stakeholder consultation during the site visit and accepted, hence CAR (10) was closed out.

The project proponent in version 01 of the PDD mentions that comments from local stakeholders have been invited through advertisements in news paper. CAR (11) was raised and the project proponent was asked to provide a copy of advertisement in news paper for seeking the comments. The project proponent in response to CAR (11) provided copy of the news paper in local language (same translated in English to the validator) and the same was verified by crosschecking with original news paper. Thus CAR (11) was closed out.

The summary of local stakeholders' comments was not provided in version 01 of the PDD so the NIR (12) was raised for the same. The project proponent then incorporates the summary in the revised PDD which was cross-checked during the local stakeholder consultation process during site visit. It was found during the site visit that the summary provided in the PDD is correct and hence was acceptable to the assessment team. It was also found that no public complaint was registered with the concern government department and no negative comment has been received on the project activity. So NIR (12) was closed out.

4 Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

4.1 Description of how and when the PDD was made publicly available

The PDD and the monitoring plan for this project were made available on the SGS website http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=165 from 21st November 2006 to 20th December 2006 and Comments were invited through the UNFCCC CDM homepage.

4.2 Compilation of all comments received

The project was up loaded for International stakeholder consultation (ISHC) for a period of 30 days and received one comment.

Comment number	***Date received***	***Submitter***	***Comment***
1	30/11/06	Name: Peter Smith City: London Country: United kingdom Organisation: P.S.Associates	1.1. The IRR has to crossover 16% to make the CDM revenues necessary for the project to reach the benchmark. This is not the case in the calculations shown in the PDD. DOE to clarify. 1.2. The CER rate that has been considered has not been mentioned 1.3. EIAs for different sites are different as they are based on site specific characteristics. How can the same information be provided for all the three Enercon PDDs that have posted on the web together in November 2006. 1.4. The project has individual project promoters and Enercon as a part of the bundle. How can the additionality be the same in these cases? How can it be proved that Enercon actually needed CDM to make the turbines viable? Enercon as a manufacturer sets up the machines for sale later or for its own use. But there is no additionality that can be established. The complete analysis is erroneous. .

4.3 Explanation of how comments have been taken into account

Date: 30/11/06	Raised by: Peter Smith	
Comment	Issue	Ref
1.1	The IRR has to crossover 16% to make the CDM revenues necessary for the project to reach the benchmark. This is not the case in the calculations shown in the PDD. DOE to clarify.	3.2

Date: 20th April 2007
[Response from project developer]

This comment is addressed to DOE. However, Enercon would like to clarify while it is desirable from project proponent's point of view that CDM revenues assist in crossing the threshold, the requirement is to establish in a transparent manner that the project activity without CDM revenues were not sufficient to cross the established threshold/benchmark and expected CDM revenues would "significantly" assist in improving the project returns. In other words, CDM should be one of the "significant" parameters in making an investment decision and not the "sole" parameter in making the investment decision.
Date: 2nd May 2007[Nikunj Agarwal]
According to the project proponent CDM is one of the significant parameters and not the sole parameters in making the investment decision. Other parameters apart from CDM are:

- ✓ Harness out the wind potential available and reduce the dependency of coal based power plant.

We have checked it and find that CDM is improving the IRR. Although it is not crossing the benchmark and the IRR is improving from 12% to 13.3% by giving the project proponent hope that he is harnessing the green energy and wind potential.
The comment raised can be closed.
[Acceptance and close out] OK, Closed Out[Sanjeev Kumar]

Date: 30/11/06	Raised by: Peter Smith	
Comment	Issue	Ref
1.2	The CER rate that has been considered has not been mentioned.	3.2

Date: 20th April 2007
[Response from project developer]
The rate used for the purpose of analysis is an illustrative rate of $6.5 per CER.
Date: 2nd May 2007 [Nikunj Agarwal]
OK; the comment raised can be closed.
[Acceptance and close out] OK, closed out.[Sanjeev Kumar]

Date: 30/11/06 Raised by: Peter Smith

Comment	Issue	Ref
1.3	EIAs for different sites are different as they are based on site specific characteristics. How can the same information be provided for all the three Enercon PDDs that have posted on the web together in November 2006	3.2

Date: 20th April 2007

[Response from project developer]

Enercon has conducted location-specific EIAs for each of its projects and the copy of the EIA reports are made available to the validator. The project is located in different villages but they all fall in the same District and the EIA covers the entire District. As the EIA in question covers all the sites (villages) located in Jaisalmer district is therefore applicable for Enercon wind farm Hindustan pvt. Limited in Rajasthan

Date: 2nd May 2007 [Nikunj Agarwal]

Enercon has conducted location-specific EIAs for each of its projects and the copy of the EIA reports are made available to the validator. In the context of the query, there are two bundled projects in Rajasthan and they are both located in Jaisalmer district. The projects are located in different villages but they all fall in the same District and the EIA covers the entire District. As the EIA in question covers all the sites (villages) located in Jaisalmer district is therefore applicable for both the bundled projects in Rajasthan.

[Acceptance and close out] OK, closed out.[Sanjeev Kumar]

Date: 30/11/06 Raised by: Peter Smith

Comment	Issue	Ref
1.4	The project has individual project promoters and Enercon as a part of the bundle. How can the additionality be the same in these cases? How can it be proved that Enercon actually needed CDM to make the turbines viable? Enercon as a manufacturer sets up the machines for sale later or for its own use. But there is no additionality that can be established. The complete analysis is erroneous.	3.2

Date: 20th April 2007

[Response from project developer]

In India the wind turbine manufacturers also carry out the role of a wind farm developer. Thus the role of Enercon is not restricted to manufacturing as understood by the Stake holder. Enercon as a developer develops wind power projects which are developed on Built and Transfer basis. Thus the identification and development of the Project is first done by Enercon as the developer considering all the financial aspects and other risks before the investors come into the project investment. Some of the projects in the bundle are also owned by Special Purpose Vehicle Companies formed by Enercon. Enercon has followed the approach of bundling the CDM projects which are developed under the same policy/regulatory regime (thus tariffs and other benefits are similar across all the projects in a bundle), located in the same site/region (thus the wind profile and the plant load factor are similar across all the projects in bundle) having the same technology i.e., primarily Enercon Wind Electric Converters and have been implemented roughly at the same time (thus key project parameters, e.g., capital cost per MW, interest rate and financing terms in case of debt financed projects and tax regime are similar across all the projects in a bundle). The Tools for determination of additionality provide for a 4-step process. Enercon understands that this query relates to the Step 2 Investment Analysis part of the Tools for determination of additionality. In evaluating the additionality using Investment Analysis, the assumptions relating to policy/regulatory regime, costs, wind profiles, etc. are similar across the bundle and each of these assumptions have a basis (through publicly available information in the form of various orders of regulatory commissions and through documentation available with Enercon). The choice of project for demonstrating additionality as Enercon IPPs is because these are executed through special purpose vehicles raising project financing with high debt:equity ratio and competitive interest rates which, inter alia, optimize equity returns. On the other hand, a project being financed fully through equity, as is the case with several of the other customer projects in the bundle will, ceteris paribus, have lower equity returns..

(ii) The CDM project is developing and setting of wind farms (as explained in paragraph one above), which, being renewable energy source, lead to emission reductions. The CDM project does not cover the wind turbine/equipment manufacturing facility of Enercon.

(iii) It is important to explain the process of wind farm project development in India in general and in the context of development of wind farm in the State of Rajasthan for instance. The process of development of wind power projects in India is very different from setting up conventional or other non-conventional power projects. Enercon as a Developer of wind farms first obtains the rights to develop wind power projects under the prevailing policies of Government of Rajasthan. The rights to develop wind power projects included project approval, acquiring lease hold / free hold project land, obtaining evacuation approval from the state electricity utility and constructing the evacuation facility, approvals, etc. Enercon as a Developer then proceeds with site development activities including survey and selection of potential sites, site analysis, micro-siting, wind measurement, etc. Having identified the project site, Enercon gains the possession of the land on a 30-year lease from the state government or the nodal agency or purchase free hold land by paying consideration at market rate and proceeds to develop the potential sites including surface preparation, approach roads, setting up of buildings including control rooms/office rooms, etc. Simultaneously along with the development of site, Enercon starts scouting for investors to invest in these wind projects. As investor orders are firmed up, it commences the construction of the foundation and other wind farm installation related works internal lines, protection equipment and other grid interface arrangements. In parallel, it approaches the state utility, namely the state Transmission / Distribution company that is RRVPNL / relevant Discom for signing of the Power Purchase Agreements on behalf of the investors. Enercon also carries out the Operation & Maintenance of the wind projects in the wind farms developed by it.

The investors in the wind farm are private/public sector firms who are generally passive financial investors

who own small capacities in a wind farm.

Therefore, there are two levels of investment decisions that are involved in setting up wind projects in India. At the first level, Enercon has decided to proceed with the investments in wind farm over a 3 – 4 year period of setting up utility sized wind power project. At the second level, individual investors take decisions about participating in the wind farm by buying smaller capacities.

While only Step 2 Investment Analysis is used to demonstrate additionality because it clearly shows that the projects are additional, there are a number of barriers to investment that Enercon faces in development of the wind farms which have not been detailed in the PDD. These barriers have been foreseen by Enercon at the time of development of the wind farm project as a Developer. Enercon has considered the CDM benefits in order to mitigate the impact of these barriers as it developed these wind farm projects. These include:

a) There are frequent changes to the Government policy on wind power projects which, inter alia, reduce tariffs payable to wind farms, levy additional charges for development, transmission and evacuation facilities and set limits to the amount of capacity beyond which the state utility (RVPN) can refuse to contract for purchase of power. These have resulted in delays and extra investments from Enercon.

b) With respect to the economics of wind power project, the tariff for the wind power is based on single part tariff structure, without any deemed generation benefits. The investors will not be entitled to get any revenue in case of any transmission constraints or backing down by State Transmission Company even if the wind project is fully available to generate.

This is unlike other utility scale fossil fired or hydro power projects where two part tariff structure is available which mitigates the investment risks from dispatch (actual generation), i.e., if the power projects are available for dispatch but are not dispatched due to transmission constraints or backing down by the state utility, they are entitled to fixed charges recovery for being available for generation. Further, the wind pattern in Rajasthan is such that the maximum generation is achieved during the nights, when the load on the state power system is very low. The transmission constraints and/or backing down at the time of maximum generation during off peak hours means a considerable loss of the revenue.

c) The barrier due to low penetration of wind projects brings forth other developmental risks. At the time of project development, wind data availability was for 25 meters hub height which much less than the hub height of the turbine. The wind pattern of Rajasthan is unpredictable, which is proved so in the last two years of operation of the project. The capacity utilisation factors in Jaisalmer wind farm projects have been significantly less than the estimated capacity utilisation in the past due to reduction in wind speed coupled with transmission constraints and backing down by the state utility.

Date: 2nd May 2007 [Nikunj Agarwal]
The present project activity uses tool of additionality version 3 and under this project proponent has provided all the necessary information like Investment analysis, sensitivity analysis for the project activity and it has been shown that the CDM funds were improving IRR of the project activity and benchmark value was just crossing with the help of CDM funds. Thus CDM funds will really make project happening.

Also the explanation given by the project proponent regarding Enercon's role in developing this project as a CDM project was satisfactory and in India there is no policy or regulation that can restrict Enercon or any other wind turbine manufacturer from developing the wind parks and making aware their clients regarding the green energy and CDM funds.

Evidence has been provided by the project proponent regarding barriers mentioned and same were found correct when information given in PDD cross-checked for the information then contain. The DOE has done a desk review and after that DOE come to a conclusion that the project is an additional project to the baseline and it is not a baseline scenario.
The comment raised can be closed.
[Acceptance and close out] OK, closed out.[Sanjeev Kumar]

5 Validation opinion

SGS has performed a validation of the project: “Bundled wind energy power projects (2003 policy) in Rajasthan”. The Validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by SGS for registration with the UNFCCC.

By installing wind power plant the project activity will lead to displacement of carbon-intensive electricity by the electricity from a renewable source and thus the project results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A review of the investment analysis, common practice analysis, associated with project activity demonstrates that the proposed project activity was not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The project is already commissioned and is exporting the electricity to northern grid. The total emission reductions from the project are estimated to be 515,170 t of CO2e over a 10 year crediting period, averaging 51,517 t of CO2e annually.

The validation is based on the information made available to SGS and the engagement conditions detailed in the report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence SGS cannot be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

6 List of persons interviewed

Date	*Name*	*Position*	*Short description of subject discussed*
19/12/2006	Mr. Neeraj Gupta	Project Proponent	About the description of the project, additionality
19/12/2006	Mr. Dilip Sharma	Project Proponent	About the technology of the project activity and operation and monitoring.
20/12/2006	Mr. Rahim Singh	Local Resident	Local Stake Holder Consultation
20/12/2006	Mr. Punam Singh	Local Resident	Local Stake Holder Consultation

7 Document references

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

/1/ PDD version 1 dated 15th November 2006

/2/ PDD version 2 dated 12th February 2007

/3/ PDD version 3 dated 30th March 2007

/4/ PDD version 4 dated 5th October 2007

/4.1/ PDD version 5 dated 15th February 2010 and PDD version 06 dated 07/03/2011 and PDD version 07 dated 03/05/2011

/5/ Calculation spread sheet for IRR for Enercon and for sub projects, Benchmark Calculation and Emission Reduction.

The History of PDD revision for the project activity.

PDD Version	Date of Revision	Main changes reason for Revision
Version 01	15/11/2006	Webhosted PDD
Version 02	12/02/2007	• Inclusion of ODA information • Revision of project boundary • Inclusion of alternatives to the project activity • Inclusion of QA/QC procedure and responsibility flow chart. • Procedure of inviting local stakeholders is added. • • PDD revised as per Guidelines for completion of CDM-SSC-PDD. • Project boundary has been revised inline with applied methodologies AMS III.H and AMS I.C • Explanation on selection of appropriate baseline scenario added in the PDD • Monitoring methodology revised inline with the same specified by the applied methodologies and tools referred by the same. • PDD now mentions about date on which local stakeholder consultation was carried out.
Version 03	30/03/2007	• PDD revised for appropriateness of emission reduction calculations for the project activity • Revision is equity IRR calculations • Change in combined margin emission factor • Revision in monitoring parameters in section B.6.2 of PDD.
Version 04	05/10/2007	• PDD revised during for review response for below issues 1. Justification for use of version 03 of additionality tool. 2. Appropriateness of benchmark as per CERC order 3. Justification of PLF for the project activity 4. Clarification of the capacity, cost per MW, total cost and crediting period assumptions for the investment analysis

PDD Version	Date of Revision	Main changes reason for Revision
		(Sub-step 2c) of additionality tool 5. The proof of CDM consideration 6. Clarification for the description of measurement method for net electricity exported to grid.
Version 05	15/02/2010	• PDD revised during response to correction request for below issues 1. Suitability of the benchmark as per EB 51 Annex 58. 2. Application of suitable electricity tariff for the project activity. 3. Applying input values specific to project activity by calculation post tax equity IRR separately for each investor. 4. Revision of information related to metering equipments as submitted during request for review.
Version 06	07/03/2011	• PDD revised during response to full review for below issues 1. Justification for the change in values of project cost and equity value due to consideration of actual value of each investor separately.
Version 07	03/05/2011	• PDD is revised during correction request for below issue 1. for appropriateness of market return value considered for benchmark calculation 2. The date and version of PDD is revised.

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

/1/	Purchase Order for present project activity
/2/	A copy of PPA & commissioning certificates between Project Proponent and RRPVN
/3/	Training Certificates
/4/	Letter regarding no-use of ODA
/5/	Local Stakeholders Comments
/6/	Assumptions and Data used for IRR calculation
/7/	Bank Loan documents
/8/	EB 40 Meeting Report, Para 40 for Benchmark
/9/	EB51 Annex 58 for Guidance on Investment Analysis
/10/	Bloomberg data for Beta value used in CAPM model
/11/	Web site of Reserve Bank of India http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/80303.pdf
/12/	Web site of Bombay Stock Exchange Sensex Data http:///http://www.bseindia.com/histdata/hindices.asp
/13/	Textbook on Corporate Finance Theory and Practice" by Dr. Aswath Damodaran of New York University for CAPM calculation approach
/14/	Annex 5 - RERC order (Submitted during request for review) Para 67, page 20 and 21 of RERC Wind Order dated 29/09/2006. This is checked for PLF achieved in Rajasthan.

/15/	Web site of Rajasthan Renewable Energy Corporation Limited (RRECL) , http://www.rrecl.com/
/16/	Annex 6 - RREC Undertaking for PLF (Submitted during request for review) Undertaking from RRECL dated 29/09/2007 for PLF considered for the purpose of tariff evaluation for the wind energy projects in 2003 policy
/17/	Annex 7 - RERC's latest tariff order on 15th March 2007 (Submitted during request for review) RERC's latest tariff order dated 15th March 2007 (paragraph 13 to 22 on page 8 to 10 http://www.rerc.gov.in/Order/JS_(PO)_Order_RE_Tariff_15.03.07.pdf
/18/	Page 5 of 36, page 19, 20, 21 of 36 of RERC order dated 29/09/2006 for PLF in Rajasthan
/19/	Annex 4 - 2003 Tariff policy for wind projects (Submitted during request for review) POLICY FOR PROMOTION OF ELECTRICITY GENERATION FROM WIND, 2003, (Issued vide Energy Deptt. letter No.F.20(3)Energy/98/Pt.III dated 30.4.2003
/20/	Maharashtra Electricity Regulatory Commission (MERC) Order dated 20 November 2007, MERC Order 2003, http://www.mercindia.org.in/pdf/Detail_Wind_Energy_Order.pdf
/21/	Annex 11 (a) - Loan documents (Submitted during request for review) Loan acceptance letter for 24 MW capacity owned by the project proponent; from Power Finance Corporation Ltd.
/22/	Annex 11 (b) - Specimen Copy of Letter of Indent (LOI) (Submitted during request for review) Letter of indent written to small customer regarding the mention of possible revenue from CDM
/23/	Annex 8 - JIQ Newsletter (Submitted during request for review) JIQ Newsletter in April 2003 for the participation in CERUPT tender
/24/	Annex 9 - Letter from Senter Internationaal (Submitted during request for review) A letter confirming withdrawal of CERUPT offer was sent by Senter Internationaal on 31st March 2004
/25/	Annex 10 - A copy of MoU between Enercon and JCF (Submitted during request for review) Contract between Enercon (India) Limited and Japan Carbon Finance (JCF) Ltd. for purchase for emission reductions from the project activity
/26/	Annex 3 - CERC consultation Paper in 1999 (Submitted during request for review) Evidence for 16% post tax return on equity considered by Central Electricity Regulatory Commission, Government of India for power tariff determination. As per para 40 of EB40 meeting report, it is not a suitable benchmark. Hence it is revised as per Guidance to investment analysis issued in EB 51 Annex 58
/27/	Clean Development Mechanism Validation and Verification Manual Version 1.2
/28/	ACM0002 Version 6.0 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" and "Consolidated monitoring methodology for grid-connected electricity generation from renewable sources.
/29/	Tool for the demonstration and assessment of additionality, version 03

Annex 1: Local Assessment

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. To get copy Host Country Approval (HCA) letter from Project Proponent.	PDD	DR	The host country letter has not been submitted by the project proponent.	Pending	Y
2. No ODA has been used for this project and to be confirmed during site visit.	PDD Annex 2	DR/I	Project proponent has submitted letter of undertaking regarding no use of ODA funds for the project.	Y	Y
3. Invitation for LSC meeting was sent to participate and communicate suggestions regarding the project activity. Documents are required to verify the same.	PDD	DR/I	The comments from the Local stakeholders were invited through the advertisement given in the local news paper. A copy of the same was submitted by the project proponent to the validator. The same was obtained to verify the transparency in consultation process. The document was verified during local stakeholder consultation.	Y	Y
4. Local stakeholders' comments are required to be verified for any adverse comment. Due account of stakeholder comments received required to be verified..	PDD	DR/SV	There were no adverse comments found in the MoM of the local stakeholders submitted by project proponent and the same was cross checked during site visit during local stakeholder consultation process.	Y	Y
5. Project design engineering documents from the technology supplier are required to be checked. Copy of offer made/ specifications given by technology supplier.	PDD	DR	Purchase specifications for Project activity were obtained and verified for the project capacity.	Y	Y
6. EIA report for the project activity.	PDD	Web site	EIA report for the project activity was submitted by the project proponent and the same was checked and verified for the impact of the project activity on the land, water, air etc. during the site visit. This was found acceptable.	Y	Y
7. The monitoring plan required to be checked.	PDD	DR/SV	The monitoring plan for the project activity was checked during site visit and found satisfactory. Although during verification it will be checked again.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8. Quality Assurance (QA) and Quality Control (QC) procedures for data monitoring.	PDD	DR/SV	QA and QC procedures for data monitoring were verified during site visit. It was found satisfactory and same will be again cross-checked during verification of the project activity.	Y	Y
9. Financial analysis for the project activity.	PDD	DR	The financial analysis spreadsheet for the project activity was submitted by project proponent and verified for IRR calculations. The document is attached in 'Project Doc' folder.	Y	Y
10. Calculation spreadsheet for baseline and project emission reductions during project crediting period.	PDD	DR	The excel spreadsheet for emission reduction calculation was obtained and the calculations were verified and same is found satisfactory. The document was attached in 'Project doc' folder.	Y	Y
11. Documentary evidence that the employees of the company undergone training programme related to project activity.	PDD	DR	The document was obtained; verified during local stakeholder consultation.	Y	Y

Annex 2: Validation Protocol

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

REQUIREMENT	Ref	MoV	Comment	Draft finding	Concl
1.1 The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	PDD	DR	The project activity is likely to contribute to sustainable development. Letter of approval from Host Country (India) Designated National Authority (DNA) to be submitted by the project proponent	CAR 1	Y
1.2 The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	PDD	DR	The project activity is likely to contribute to sustainable development. According to the PDD Japan carbon Finance is acting as a project participant from Japan's voluntary participation in the CDM.	CAR 1	Y
1.3 All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	PDD	DR	Project is bilateral and India has ratified the protocol on 26th August 2002 and is allowed to participate. http://unfccc.int/parties_and_observers/parties/items/2109.php Japan has ratified the protocol on 4th June 2002 and is allowed to participate. http://maindb.unfccc.int/public/country.pl?country=JP	Y	Y
1.4 The project results in reductions of GHG emissions or increases in sequestration when compared to the baseline; and the project can be reasonably shown to be different from the baseline scenario	PDD	DR	The project activity is to generate 30.59 MW power by installing Wind Farm Project, and results in reduction of the GHG by replacing the grid based electricity which uses non sustainable fuel like coal etc.	Y	Y

REQUIREMENT	Ref	MoV	Comment	Draft finding	Concl
1.5 Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days (45 days for AR projects), and the project design document and comments have been made publicly available	PDD	DR/UNFCCC Web-site	Yes, the project is listed on UNFCCC website from 21st November 2006 to 20th December 2006. which is linked to SGS climate change website. http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=165 Number of comments received - 1	Pending	Y
1.6 The project has correctly completed a Project Design Document, using the current version and exactly following the guidance	PDD	DR	Project has used version 03.1 of PDD and followed the guidelines, except pending closure of some CARs/ NIRs.	Pending	Y
1.7 The project shall not make use of Official Development Assistance (ODA), nor result in the diversion of such ODA	PDD	DR	No ODA has identified in PDD. Annex 2 of PDD does not give any information on ODA. Records to be checked during Site visit.	CAR2	Y
1.8 For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?	PDD	DR	Not relevant as the project is not an AR project.	Not Applicable	Not Applicable
1.9 Does the project meet the additional requirements detailed in: Table 9 for SSC projects Table 10 for AR projects Table 11 for AR SSC projects	PDD	DR	Not applicable	Not applicable	Not applicable
1.10 Is the current version of the PDD complete and does it clearly reflect all the information presented during the validation assessment?	PDD	DR	The version of PDD used by project proponent present all the information, except pending closure of some CARs/ NIRs.	Pending	Y
1.11 Does the PDD use accurate and reliable information that can be verified in an objective manner?	PDD	DR	The PDD uses reliable information and can be verified in an objective manner.	Pending Site visit clarification	Y

Table 2 Baseline methodology(ies) (Ref: PDD Section B and Annex 3 and AM)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.1 Does the project meet all the applicability criteria listed in the methodology?	PDD	DR	Project meets all applicability criteria as per the approved consolidated baseline methodology ACM0002 version 6.0 dated 19th May 2006.	Y	Y
2.2 Is the project boundary consistent with the approved methodology?	PDD	DR	Project boundary is not consistent with the approved consolidated monitoring methodology. Para 3 of section B.3 says that Grid connected power plants are included in project boundary while the table below shows a contrast with the statement. Please clarify the same.	CAR3	Y
2.3 Are the baseline emissions determined in accordance with the methodology described?	PDD	DR	Excel spreadsheet for the calculation of baseline emissions to be provided by the Project Proponent.	NIR4	Y
2.4 Are the project emissions determined in accordance with the methodology described?	PDD	DR	The project emissions are taken as zero and this is in accordance with ACM0002 version 6.0 dated 19th May 2006.	Y	Y
2.5 Is the leakage of the project activity determined in accordance with the methodology described?	PDD	DR	It is mentioned in PDD that there is no leakage due to present project activity and it is in line with the ACM 0002 version 6.0 dated 19th May 2006.	Site visit	Y
2.6 Are the emission reductions determined in accordance with the methodology described?	PDD	DR	Calculations are to be checked from the excel sheet. Pending NIR4	Pending	Y

Table 3 Additionality (Ref: PDD Section B and AM)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
3.1 Does the PDD follow all the steps required in the methodology to determine the additionality?	PDD	DR	All steps are followed according to the Tools for the demonstration and assessment of additionality (version 3) EB29 for determining the additionality of the present project activity.	Y	Y
3.2 Is the discussion on the additionality clear and have all assumptions been supported by transparent and documented evidence?	PDD	DR	The discussion on additionality is needs to be supported with proper evidences like; A copy of PPA between Project proponent and RRPVN, Jodhpur Discom. A copy of IRR sheet and loan document. Claims made on grid related problems. Sensitivity analysis sheet giving the information used in PDD. Please explain the alternatives given in step 1 of Section B.5 of PDD in short.	CAR5 CAR6	Y
3.3 Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	PDD	DR	The alternatives of the project activity was the setting up of comparable utility scale fossil fuel fired or hydro power projects that supply to the Rajasthan grid under a PPA. As the Project does not modify or retrofit an existing generation facility, the baseline scenario is the emissions generated by the operation of grid-connected power plants and by the addition of new generation sources.	Y	Y
3.4 Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	PDD	DR	As per the PDD project activity is not a likely baseline scenario.	Pending	Y

Table 4 Monitoring methodology (PDD Section B and AM)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
4.1 Does the project meet all the applicability criteria listed in the monitoring methodology	PDD	DR	Project meet all the applicability criteria listed in the monitoring methodology ACM0002 version 6.0 dated 19th May 2006.	Y	Y
4.2 Does the PDD provide for the monitoring of the baseline emissions as required in the monitoring methodology?	PDD	DR	Yes the PDD provide the monitoring of the baseline emissions as required in the monitoring methodology ACM0002 version 6.0 dated 19th May 2006.	Y	Y
4.3 Does the PDD provide for the monitoring of the project emissions as required in the monitoring methodology?	PDD	DR	As per ACM0002 version 6.0 dated 19th May 2006 the Project Emission for the present project activity is zero, so no need to monitor the project emission.	Y	Y
4.4 Does the PDD provide for the monitoring of the leakage as required in the monitoring methodology?	PDD	DR	As per ACM0002 version 6.0 dated 19th May 2006 no leakage is to be considered for the present project activity.	Y	Y
4.5 Does the PDD provide for Quality Control (QC) and Quality Assurance (QA) Procedures as required in the monitoring methodology?	PDD	DR	PDD does not provide relevant information on Quality Control (QC) and Quality Assurance (QA) Procedures as required in the monitoring methodology. The responsibility flow chart given in PDD section B.7.2 is not correct.	CAR7	Y

Table 5 Monitoring plan (PDD Section B and Annex 4)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
5.1 Monitoring of Sustainable Development Indicators/ Environmental Impacts	PDD	DR	Pending CAR1	Pending	Y
5.1.1 Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	PDD	DR	Not Applicable	Not Applicable	Not Applicable
5.1.2 Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	PDD	DR	Not Applicable	Not Applicable	Not Applicable
5.1.3 Will it be possible to monitor the specified sustainable development indicators?	PDD	DR	Not Applicable	Not Applicable	Not Applicable
5.1.4 Are the sustainable development indicators in line with stated national priorities in the Host Country?	PDD	DR	Pending CAR1	Pending	Y
5.2 Project Management Planning			The project management planning was not described in the PDD.	NIR8	Y
5.2.1 Is the authority and responsibility of project management clearly described?	PDD	DR	The authority and responsibility of project management is not described in the PDD.	Pending NIR8	Y
5.2.2 Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD	DR	The authority and responsibility for registration, monitoring, measurement and reporting is not described in the PDD.	Pending NIR8	Y
5.2.3 Are procedures identified for training of monitoring personnel?	PDD	DR	Procedure identified for training of monitoring personnel is not mentioned in the PDD.	Pending NIR8	Y
5.2.4 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	PDD	DR	No specific procedure for emergency preparedness is identified in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.5 Are procedures identified for calibration of monitoring equipment?	PDD	DR	No specific procedure is identified for calibration of monitoring equipment in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.6 Are procedures identified for maintenance of monitoring equipment and installations?	PDD	DR	No specific procedure is identified for maintenance of monitoring equipment and installations in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.7 Are procedures identified for monitoring, measurements and reporting?	PDD	DR	No specific procedure is identified for monitoring, measurements and reporting in the monitoring plan given in the	Pending NIR8	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			PDD.		
5.2.8 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	PDD	DR	No specific performance evaluation procedure is identified in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.9 Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	PDD	DR	No specific procedure is identified for dealing with possible monitoring data adjustments and uncertainties in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.10 Are procedures identified for review of reported results/data?	PDD	DR	No specific procedure is identified to review reported results/ data in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.11 Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	PDD	DR	No specific procedure is identified for internal audits of GHG project compliance with operational requirements where applicable.	Pending NIR8	Y
5.2.12 Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	PDD	DR	No specific procedure is identified for project performance reviews before data is submitted for verification, internally or externally in the monitoring plan given in the PDD.	Pending NIR8	Y
5.2.13 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	PDD	DR	No specific procedure is identified in the monitoring plan given in the PDD.	Pending NIR8	Y

Table 6 Environmental Impacts (Ref PDD Section D and relevant local legislation)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
6.1 Has an analysis of the environmental impacts of the project activity been sufficiently described?	PDD	DR	Yes, PDD contain sufficient information.	Y	Y
6.2 Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	PDD	DR	Project has completed Rapid EIA and EIA Report is required to be obtained by the project proponent. The findings from Rapid EIA are required to be mentioned in the PDD.	NIR9	Y
6.3 Will the project create any adverse environmental effects?	PDD	DR	Pending NIR9	Pending NIR9	Y
6.4 Are transboundary environmental impacts considered in the analysis?	PDD	DR	No transboundary environmental impact identified from project activity. To be verified during site visit.	Site visit	Y
6.5 Have identified environmental impacts been addressed in the project design?	PDD	DR	Pending NIR9	Pending NIR9	Y
6.6 Does the project comply with environmental legislation in the host country?	PDD	DR	The project activity is complied with all environmental legislation in the host country India.	Pending NIR9	Y

Table 7 Comments by local stakeholders (Ref PDD Section E)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7.1 Have relevant stakeholders been consulted?	PDD	DR	No, the list of relevant stakeholders consulted is not complete. Please clarify which governmental and non-governmental parties are consulted for project activity.	CAR 10	Y
7.2 Have appropriate media been used to invite comments by local stakeholders?	PDD	DR	According to the PDD the Project Proponent placed advertisement in local news paper for inviting the local stakeholder comments. Supporting document need to be provided by the project proponent.	CAR 11	Y
7.3 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD	DR	The project participant has consulted the local stakeholders as a requirement for CDM project. MoM of the meeting is also given in Appendix 2 of the PDD. Documentary evidence needs to be checked.	Site Visit	Y
7.4 Is a summary of the stakeholder comments received provided?	PDD	DR	The summary of the stakeholder comments is not provided in the PDD.	NIR 12	Y
7.5 Has due account been taken of any stakeholder comments received?	PDD	DR	Due account taken of stakeholder comments received is mentioned in the PDD	Y	Y

Table 8 Other Requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.1 Project Design Document					
8.1.1 Editorial issues: does the project correctly apply the PDD template and has the document been completed without modifying/adding headings or logo, format or font.	PDD	DR	The PDD template for version 03.1 has been applied correctly.	Y	Y
8.1.2 Substantive issues: does the PDD address all the specific requirements under each header. If requirements are not applicable / not relevant, this must be stated and justified	PDD	DR	Pending CARs and NIRs	Pending	Y
8.2 Technology to be employed					
8.2.1 Does the project design engineering reflect current good practices?	PDD	DR	The project reflects current good practice for project design engineering.	Site visit	Y
8.2.2 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?	PDD	DR	The project does not uses state of the art technology as per technology details given in section A.4.3 of the PDD. Technical specifications of the Wind Energy Turbines need to be checked during site visit.	Site Visit	Y
8.2.3 Is the project technology likely to be substituted by other or more efficient technologies within the project period?	PDD	DR	Proof for the same has to be submitted by the project proponent.	CAR 13	Y
8.2.4 Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	PDD	DR	No information was found regarding training and maintenance efforts for project activity in the PDD.	CAR 14	Y
8.3 Duration of the Project/ Crediting Period					
8.3.1 Are the project's starting date and operational lifetime clearly defined and reasonable?	PDD	DR	Project activity starting date is mentioned as 30-04-2003 in the PDD section C.1.1. Evidence for the same is required to be submitted	CAR 15	Y
8.3.2 Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	PDD	DR	Fixed crediting period of 10 years is selected for the project activity and it is reasonable.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.2.3 Does the project's operational lifetime exceed the crediting period	PDD	DR	The project's operational life time is expected to be 20 years which exceeds the crediting period of 10 years.	Y	Y

Annex 3: Overview of Findings

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
1	CAR	Project proponent is required to submit the Letter of Approval for the present project activity from Host country.	1.2
Date: The letter from Indian DNA is enclosed.			
Date: [Nikunj Agarwal] [Comments from Local Assessor] HCA from Indian DNA is not submitted by the project proponent.			
[Acceptance and close out] CAR is open, Sanjeev Kumar (12th March 2007)			
Date: The letter from Indian DNA is enclosed.			
Date:2007-05-02 [Nikunj Agarwal] [Comments from Local Assessor] HCA from Indian DNA (reference number 4/21/2006-CCC) dated 3rd April 2007 has been received and checked with the original copy and found satisfactorily, LOA from Japan DNA is not submitted by the project proponent. [Acceptance and close out] CAR is open [Sanjeev Kumar]			
Date: The letter from Japan DNA is enclosed.			
Date:2007-05-10 [Nikunj Agarwal] [Comments from Local Assessor] HCA from Japan DNA has been submitted by the project proponent, hence the CAR01 can be closed. [Acceptance and close out] CAR is closed [Sanjeev Kumar]			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
2	CAR	No ODA has identified in PDD as per section A.4.5. Annex 2 of PDD does not give any information on ODA. Please correct the same.	1.7
Date: Letter of undertaking from Enercon has been provided. The Annex 2 of the PDD has been revised.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] Letter of undertaking from project proponent has been submitted same has been cross-checked with Annex 2 of rephrased PDD; which gives information on no ODA use in the project activity. This is found acceptable. CAR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
3	CAR	Project boundary is not consistent with the approved consolidated monitoring methodology. Para 3 of section B.3 says that Grid connected power plants are included in project boundary while the table below shows a contrast with the statement. Please clarify the same.	2.2
Date: The first line in the PDD "The project boundary encompasses the physical, geographical site of the Project sited at the Project Location. It would include the wind turbine installations and sub-station up to the Metering Point." will be removed in the revised PDD. This will make the project boundary definition in para 3 of Section B.3 consistent with ACM0002.			

Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] The correction made by the project proponent in revised version of PDD has been found acceptable. CAR can be closed.
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
4	NIR	Excel spreadsheet for the calculation of baseline emissions to be provided by the Project Proponent.	2.3
Date: This has been provided.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] CEA has developed a database for Grid emission factor values and it is available on their web-site www.cea.nic.in . This database is specially prepared for CDM related projects. Please explain why CEA data for grid emission factor has not been used by the project proponent.			
[Acceptance and close out] NIR is open, Sanjeev Kumar (12th March 2007)			
Date: The Baseline has been revised to values as given by the CEA (Central Electricity Authority of India). The CEA baseline can visited at the following Link: www.cea.nic.in. The difference in the amount of the CERs estimated in the latest version of PDD is on the account of change of the baseline emission factor to CEA values. The PLF considered for the wind power project located in Rajasthan is derived from the RERC order (Rajasthan Electricity Regulatory Commission) dated 29/09/2006.			
Date: 2007-05-02[Nikunj Agarwal] [Comments from Local Assessor] The grid emission factor has now been taken as per CEA data and same has been accepted. So the CAR can be closed. [Acceptance and close out]OK, Closed Out[Sanjeev Kumar]			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
5	CAR	The discussion on additionality is needs to be supported with proper evidences like; A copy of PPA between Project proponent and RRPVN, Jodhpur Discom. A copy of IRR sheet and loan document. Claims made on grid related problems. Sensitivity analysis sheet giving the information used in PDD.	3.2
Date: These have been provided.			
Date: [Nikunj Agarwal] [Comments from Local Assessor] The documents like PPA, IRR excel spreadsheet has been submitted by the project proponent and found satisfactory after cross-checking the same with the information provided in the PDD. However no sensitivity analysis sheet was provided.			
[Acceptance and close out] CAR is open, Sanjeev Kumar (12th March 2007)			
Date: These have been provided.			
Date: 2007-05-02[Nikunj Agarwal] [Comments from Local Assessor] The same has been received and found satisfactorily; hence the CAR was closed out. [Acceptance and close out]OK, Closed Out[Sanjeev Kumar]			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref

6	CAR	Please explain the alternatives given in step 1 of Section B.5 of PDD in short.	3.2
Date: The alternatives mentioned in Step 1 of Section B.5 in the PDD include the project not undertaken as CDM project activity, continuation of the current situation and utility scale fossil fuel fired/hydro projects. Enercon understands that the query relates to explain the last set of alternatives, i.e., utility scale fossil fuel fired/hydro projects. The utility scale fossil fuel fired/hydro projects imply large coal-fired, gas-fired, diesel-fired and hydro projects, as these are alternatives available to similar project developers. These are realistic alternatives as similar project developers are developing several such projects. These are credible alternatives as the scope of project development, size of investments and time scale for development for the wind farms developed by Enercon are similar to that for utility scale fossil fuel fired/hydro projects.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] The explanation given by the project proponent is satisfactory and accepted. CAR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
7	CAR	PDD does not provide relevant information on Quality Control (QC) and Quality Assurance (QA) Procedures as required in the monitoring methodology. The responsibility flow chart given in PDD section B.7.2 is not correct.	4.5
Date: The QA/QC procedures for monitoring the electricity supplied to the grid (the only parameter to be monitored) are governed by the power purchase agreements and relevant electricity sector regulations. Section B.7.1 states this and the relevant QA/QC procedures are set out under Annex 4. The responsibility flow chart in PDD section B.7.2 has been corrected.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] Annex 4 of the rephrased PDD was checked for the monitoring information and QA/QC procedure for data monitoring. The same was found acceptable. CAR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
8	NIR	The project management planning was not described in the PDD.	5.2
Date: The Project has been implemented.			
Date: [Nikunj Agarwal] [Comments from Local Assessor] It was observed during the site visit that the project has already been implemented. NIR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
9	NIR	Project has completed Rapid EIA and EIA Report is required to be obtained by the project proponent. The findings from Rapid EIA are required to be mentioned in the PDD.	6.2
Date: The EIA report has been provided. The findings of the EIA are set out in the section D.1 of PDD.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] EIA report for the project activity was not submitted for the project activity.			
[Acceptance and close out] NIR is open, Sanjeev Kumar (12th March 2007)			

Date: The EIA report has been provided.
Date:2007-05-02 [Nikunj Agarwal] [Comments from Local Assessor] EIA report for the project activity has been submitted received and the same has been checked for the effect of water, air etc on the project activity. So this NIR can be closed. [Acceptance and close out]OK, Closed out[Sanjeev Kumar]

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
10	CAR	Please clarify which governmental and non-governmental parties are consulted for project activity.	7.1
Date: The procedure for inviting local stakeholders for the meeting and the minutes of meetings are provided in the PDD.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] The documents regarding local stakeholder consultation and MoM of meeting are provided by the project proponent and found acceptable. CAR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
11	CAR	Evidence needs to be provided by the project proponent regarding how local stakeholders are informed about the project activity.	7.2
Date: Enercon invited suggestions by disseminating the information to the gram sarpanch. The copy of the letter has been provided.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] Letter written to Gram Sarpanch regarding the project activity and seeking their comments on the same has been provided to the project proponent. Same has been cross-checked during local stakeholder consultation at site visit and found acceptable.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
12	NIR	The summary of the stakeholder comments is not provided in the PDD.	7.4
Date: A revised summary is provided in the revised PDD in section E.2.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] The rephrased version of PDD was checked and it was found that summary of stakeholder comments on the project activity has been provided and same is acceptable. NIR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
13	CAR	A letter from project proponent is required to be submitted mentioning that the present project technology will not be substituted or replaced by more efficient technologies with in the crediting period.	8.2.3
Date: Letter of undertaking from Enercon has been provided.			

Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] The letter of undertaking was submitted by the project proponent and same accepted. CAR can be closed.
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
14	CAR	No information was found regarding training and maintenance efforts for project activity in the PDD.	8.2.4
Date: The information regarding training and maintenance is added to the revised PDD Section B.7.2.			
Date: 12th March 2007 [Nikunj Agarwal] [Comments from Local Assessor] The revised version of PDD was cross-checked for the information under section B.7.2 and same was found acceptable. CAR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Date: 12th December 2006 Raised by: Nikunj Agarwal

No.	Type	Issue	Ref
15	CAR	Project activity starting date is mentioned as 30-04-2003 in the PDD section C.1.1. Evidence for the same is required to be submitted.	8.3.1
Date: The evidence (purchase order) has been provided.			
Date: [Nikunj Agarwal] [Comments from Local Assessor] A copy of purchase orders for the project activity was submitted by the project proponent. It was cross-checked from that the first purchase order under this project was raised on 30th April 2003. Hence same can be accepted as project activity start date. CAR can be closed.			
[Acceptance and close out] OK, Sanjeev Kumar (12th March 2007)			

Annex 4: Statement of Competence

Name: Patil, Ramkrishna

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	
Sub scope(s):	
2. Energy Distribution	**x**
Sub scope(s): Energy Distribution	
3. Energy Demand	
Sub scope(s):	
4. Manufacturing	
Sub scope(s):	
5. Chemical Industry	
Sub scope(s):	
6. Construction	
Sub scope(s):	
7. Transport	
Sub scope(s):	
8. Mining/Mineral Production	
Sub scope(s):	
9. Metal Production	
Sub scope(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Sub scope(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Sub scope(s):	
12. Solvent Use	
Sub scope(s):	
13. Waste Handling and Disposal	
Sub scope(s):	
14. Afforestation and Reforestation	
Sub scope(s):	
15. Agriculture	
Sub scope(s):	

Approved Member of Staff by: Siddharth Yadav Date: 28/10/2009

Statement of Competence

Name: Sanjeev Kumar

Status

- Product Co-ordinator	☐	
- Operations Co-ordinator	☐	
- Technical Reviewer	☐	
- Expert	☒	

	Validation	Verification
- Local Assessor	☒	☒
- Lead Assessor	☒	☒
- Assessor /Trainee Lead Assessor	☐	☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒
2. Energy Distribution	☒
3. Energy Demand	☒
4. Manufacturing	☒
5. Chemical Industry	☐
6. Construction	☐
7. Transport	☐
8. Mining/Mineral Production	☐
9. Metal Production	☐
10. Fugitive Emissions from Fuels (solid,oil and gas)	☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
12. Solvent Use	☐
13. Waste Handling and Disposal	☐
14. Afforestation and Reforestation	☐
15. Agriculture	☐

Approved Member of Staff by Siddharth Yadav Date: 16th May 2007

Statement of Competence

Name: Nikunj Agarwal

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

	Validation	Verification
- Local Assessor	☒	☒
- Lead Assessor	☐	☐
- Assessor / Trainee Lead Assessor	☐	☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒
2. Energy Distribution	☐
3. Energy Demand	☒
4. Manufacturing	☒
5. Chemical Industry	☐
6. Construction	☐
7. Transport	☐
8. Mining/Mineral Production	☐
9. Metal Production	☐
10. Fugitive Emissions from Fuels (solid,oil and gas)	☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
12. Solvent Use	☐
13. Waste Handling and Disposal	☐
14. Afforestation and Reforestation	☐
15. Agriculture	☐

Approved Member of Staff by Marco van der Linden Date: 03-04-07

Statement of Competence

Name: Vikrant Badve

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

	Validation	Verification
- Local Assessor	☒	☒
- Lead Assessor	☐	☐
- Assessor / Trainee Lead Assessor	☐	☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) ☒
2. Energy Distribution ☒
3. Energy Demand ☒
4. Manufacturing ☒
5. Chemical Industry ☐
6. Construction ☒
7. Transport ☐
8. Mining/Mineral Production ☐
9. Metal Production ☐
10. Fugitive Emissions from Fuels (solid,oil and gas) ☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride ☐
12. Solvent Use ☐
13. Waste Handling and Disposal ☐
14. Afforestation and Reforestation ☐
15. Agriculture ☐

Approved Member of Staff by Marco van der Linden Date: 29-12-06

Statement of Competence

Name: Soni, Ravikant

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):
2. Energy Distribution **x**
Sub scope(s): Energy Distribution
3. Energy Demand
Sub scope(s):
4. Manufacturing
Sub scope(s):
5. Chemical Industry
Sub scope(s):
6. Construction
Sub scope(s):
7. Transport
Sub scope(s):
8. Mining/Mineral Production
Sub scope(s):
9. Metal Production
Sub scope(s):
10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):
12. Solvent Use
Sub scope(s):
13. Waste Handling and Disposal
Sub scope(s):
14. Afforestation and Reforestation
Sub scope(s):
15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 28/10/2009

Statement of Competence

Name: Mahawar, Abhishek

Status

-	Lead Assessor		-	Expert	
-	Assessor	x	-	Financial Expert	x
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 12/11/2009

Statement of Competence

Name: Bankar, Vikas

Status

-	Lead Assessor		-	Expert	x
-	Assessor		-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Sub scope(s): Wind, Combined heat and power and Biomass Electricity utilization	
2. Energy Distribution	**x**
Sub scope(s): Energy Distribution	
3. Energy Demand	
Sub scope(s):	
4. Manufacturing	
Sub scope(s):	
5. Chemical Industry	
Sub scope(s):	
6. Construction	
Sub scope(s):	
7. Transport	
Sub scope(s):	
8. Mining/Mineral Production	
Sub scope(s):	
9. Metal Production	
Sub scope(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Sub scope(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Sub scope(s):	
12. Solvent Use	
Sub scope(s):	
13. Waste Handling and Disposal	
Sub scope(s):	
14. Afforestation and Reforestation	
Sub scope(s):	
15. Agriculture	
Sub scope(s):	

Approved Member of Staff by: Siddharth Yadav Date: 12 November 2009

Statement of Competence

Name: Sathis Kumar

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	x

Scopes of Expertise

1. **Energy Industries (renewable / non-renewable)** **x**

Sub scope(s): TA 1.2 Energy generation from renewable energy sources

2. **Energy Distribution** **x**

Sub scope(s): TA 2.1 Electricity distribution
TA 2.2 Heat distribution

3. **Energy Demand** **x**

Sub scope(s): TA 3.1 Energy Demand

4. **Manufacturing**

Sub scope(s):

5. **Chemical Industry**

Sub scope(s):

6. **Construction**

Sub scope(s):

7. **Transport**

Sub scope(s):

8. **Mining/Mineral Production**

Sub scope(s):

9. **Metal Production**

Sub scope(s):

10. **Fugitive Emissions from Fuels (solid, oil and gas)**

Sub scope(s):

11. **Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride**

Sub scope(s):

12. **Solvent Use**

Sub scope(s):

13. **Waste Handling and Disposal**

Sub scope(s):

14. **Afforestation and Reforestation**

Sub scope(s):

15. **Agriculture**

Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 11/01/2011