



VALIDATION REPORT

RAJASTHAN STATE MINES & MINERALS
LIMITED

GRID CONNECTED WIND POWER
PROJECT

REPORT No. BVQI/INDIA/12.49

REVISION No. 01

BUREAU VERITAS QUALITY INTERNATIONAL

VALIDATION REPORT

Date of first issue: 30/12/2005	Project No.: BVQI/INDIA/12.49
Approved by: Ashok Mammen	Organisational unit: BVQI Holdings
Client: RAJASTHAN STATE MINES & MINERALS LIMITED	Client ref.: Mr Gopal Gandhi - Senior Manager (Projects)

Summary:

Bureau Veritas Quality International (BVQI) has performed a validation of the 14.8 MW small-scale grid connected wind power project of M/s. Rajasthan State Mines & Minerals Limited (hereafter called "the project") located at two locations namely Badabagh and Pohra in Jaisalmer district state Rajasthan, 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 validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan (September 2005); ii) follow-up interviews with project stakeholders (October 2005); iii) resolution of outstanding issues and the issuance of the final validation report and opinion (January 2006). The overall validation, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (BMS, September 2003), which were audited by the UN CDM Accreditation Team in December 2004. The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is BVQI's opinion that the project correctly applies the baseline and monitoring methodology **Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories TYPE ID** and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: BVQI/INDIA/12.49	Subject Group: GHG/CDM	
Report title: Rajasthan State Mines & Minerals Limited, RSMML		
Work carried out by: Mr.HB Murlidhar Mr.KH Sharma		
Work verified by: Ashok Mammen		
Date of this revision: 19/01/2005	Rev. No.: Rev no 01	Number of pages: 42

Indexing terms

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VALIDATION REPORT

Abbreviations :

BMS	BVQI Management System
BVQI	Bureau Veritas Quality International
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
CPP	Captive Power Plant
DIS	Draft of International Standard
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
FRP	Fibre Reinforced Plastic
GHG	Green House Gas (es)
I	Interview
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardization
MoV	Means of Verification
MP	Monitoring Plan
mW	megaWatts
NGO	Non Government Organisation
PDD	Project Design Document
RSMML	Rajasthan State Mines & Minerals Limited
RVPNL	Rajashtan Vidyut Prasadani Nigam Limited
SWSPL	Suzlon Wind Farm Services Private Limited
UNFCCC	United Nations Framework Convention for Climate Change
V	Volts
WEG	Wind Electricity Generator



 VALIDATION REPORT

<i>Table of Contents</i>	<i>Page</i>
1 INTRODUCTION	3
1.1 Objective	3
1.2 Scope	3
1.3 GHG Project Description	3
1.4 Validation team	4
2 METHODOLOGY	4
2.1 Review of Documents	6
2.2 Follow-up Interviews	7
2.3 Resolution of Clarification and Corrective Action Requests	7
3 VALIDATION FINDINGS	7
3.1 Project Design	8
3.2 Baseline	99
3.3 Monitoring Plan	1010
3.4 Calculation of GHG Emissions	1111
3.5 Sustainable Development Impacts	122
3.6 Comments by Local Stakeholders	122
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	133
5 VALIDATION OPINION	13
6 REFERENCES	14

Appendix A: Validation Protocol

A-1 to A -26

VALIDATION REPORT

1 Introduction

Rajasthan State Mines & Minerals Limited (RSMML) has commissioned Bureau Veritas Quality International (BVQI) to validate its 14.8 MW small-scale grid connected wind power project (hereafter called “the project”) at two locations namely at Badabagh and Pohra in Jaisalmer district of Rajasthan State, India .

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all Client projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with 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 a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

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.

1.2 Scope

The validation scope 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. BVQI has, based on the recommendations in the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004), 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 project activity involves installation and operation of 28 numbers of 350 kW (in equal phases of 14 machines each - phase I & II) and 4 numbers of 1.25 MW (phase III) Wind Electric Generators (WEG) by Rajasthan State Mines & Minerals

VALIDATION REPORT

Limited (RSMML) with a cumulative power generative capacity of 14.8 MW Badabagh and Pohra in Jaisalmer district of Rajasthan State, India. RSMML is a Government of Rajasthan enterprise.

The commissioning of machines started from August 3, 2001 with the installation of first machine of 350 kW (phase I) and finished with commissioning of 1.25 MW machine (phase III) on March 2003.

The electricity generated from the candidate CDM project installations is supplied to the state electricity grid (33/11 kV) for transmission, which is then partially consumed by RSMML (25% from phase I & II and 5% from phase III) and the balance is passed on to the grid for sale to state electricity utility and third party. The installations therefore has been essentially conceived for captive electricity utilization (replacing the electricity generated by 4 MW captive DG unit already installed by RSMML) and supplying the balance electricity to the grid.

The project activity on an average basis meets 25% of the electricity requirement of RSMML and the balance electricity replaces the equivalent amount of fossil fuel based grid electricity.

The project activity will generate approximately 20 million Units (kWh) per year, contributing an estimated reduction of 133523 tCO₂e over the ten-year crediting period starting from 2001-2011.

1.4 Validation team

The validation team consists of the following personnel:

Mr. HB Muralidhar	BVQI India	Team Leader, GHG Validator
Mr. KH Sharma	BVQI India	GHG Validator
Dr. Ashok Mammen	BVQI India	Internal Technical Reviewer

2 Methodology

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (BMS, September 2003) that were audited by the CDM Accreditation Team in December 2004.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

VALIDATION REPORT

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

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

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

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

 VALIDATION REPORT

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

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by RAJASTHAN STATE MINES & MINERALS and additional background documents related to the project design and baseline, i.e. Indian Law, Guidelines for completing the Simplified Project Design Document (CDM-SSC-PDD) and the form for submissions on Methodologies for Small-Scale CDM Project Activities (F-CDM-SSC-Subm) Version 01, Appendix B of the simplified modalities and procedures for small scale CDM project activities Version 06, Sep 2005 /Version 07 Nov 2005, Kyoto Protocol, Clarifications on Validation Requirements to be checked by a Designated Operational Entity were reviewed.

The following documents were used as references to the validation work, in addition to internal BVQI procedures: IETA/PCF – Validation and Verification Manual (v. 3.3, Mar 2004); ISO FDIS DIS 14064-3 - Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions; ISO FDIS DIS 14064-2 - Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.

To address BVQI corrective action and clarification requests RSMML revised the PDD and resubmitted it on January 2006 (Version 04).

The validation findings presented in this report relate to the project as described in the PDD on January 2006.

 VALIDATION REPORT

2.2 Follow-up Interviews

On 26th and 27th October 2005 BVQI performed interviews with project participants and stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of RSMML and consultants were interviewed (see References). The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
RAJASTHAN STATE MINES & MINERALS LIMITED	Commitment of organisation towards GHG emission reduction Evidence of date of starting of project activity Checking the documentation of procurements of WEGs Discussions on additionality and related evidences Control of operations for WEGs outsourced to Suzlon Wind Farm Services Limited Power Purchase Agreements with state electricity board Base line emissions and the emissions reduction Record keeping and QA/QC of data Sensitivity towards local stakeholders and actions on their comments Monitoring methodologies.
<u>Consultant</u> Senergy Global Private Limited	Project category Additionality Source of data Monitoring Methodology
<u>Local Stakeholders</u>	Social and Economical Benefits

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for BVQI positive conclusion on the project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections, the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.

VALIDATION REPORT

2)Where BVQI had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 11 Corrective Action Requests and 2 Clarification Requests.

3)The conclusions for validation subject are presented.

3.1 Project Design

Over the last 25 years, considerable progress has been made in wind energy technology and its application for grid power generation. The wind turbine size has grown from 30 kilowatt to 5 Megawatt with the rotor diameter increasing from 10 meters to 120 meters. This project activity of RSMML located at Badabagh and Pohra involves installation and operation of both Kilowatt and Megawatt class of wind energy generators in the state of Rajasthan to harness the available potential at the site with allied benefits in providing clean energy to the local grid. Additionally the company again took the front stage in investing in megawatt class turbines thereby creating a whole market for WEG manufacturers to venture in the state of Rajasthan.

Jaisalmer has an advantage of substantial wind energy generation potential for a considerable part of the year.

The project activity is not a debundled component of a larger project activity according to the rules for "determining the occurrence of debundling" as outlined in Appendix C of the Simplified Modalities and procedures for Small-Scale CDM activities. It is assured that the project will remain in the small-scale category over the ten-year crediting period.

The project design engineering reflects the current good practises. The best current available technology has been adopted .The Wind Energy Generators (WEG) has been supplied by M/s Suzlon Energy Ltd a leading manufacturer and supplier of WEGs in India.

Each Wind Energy Generator (WEG) consists of the following components:

A Rotor with aerodynamically controlled FRP Blades having hydraulically operated fail-safe tip brakes.

A Yaw System to get the maximum output from the available wind resources as well for speed control and efficient braking actions.

A Gearbox with its integrated design that ensures a high level of efficiency and requires an low level of maintenance.

A direct grid-connected asynchronous Generator with a multi-stage intelligent switching compensation system that delivers power at a power factor upto 0.99.

A microprocessor based Control System, which can indicate all operating, and error conditions. It also has a built-in graphical display showing average wind speeds and power output with daily, monthly, and annual outputs amongst other parameters.

VALIDATION REPORT

A Safety System, which senses electrical and mechanical faults including over speed.
A Soft Braking System for protecting the Wind Turbine against heavy loads due to sudden loss in grid power.

A Lightning protection system, which consists of arrestors, are provided along with earthing cables connected to earthing pits. This has been done at various levels of the Wind Turbine, thereby protecting the entire Wind Turbine against lightning.

The 3 phase 690V 50Hz wind energy generators are connected to a 33 KV grid .

The project activity is operated, maintained and monitored by M/s. Suzlon Wind Farm Services Private Limited [SWSPL], a sister company of the equipment manufacturer. .
It has systems and procedures to ensure optimum performance of the wind energy generators. Employees have been provided with adequate training for ensuring competent operation and management.

BVQI recognises that the RSMML Renewable Wind Energy Project is helping Rajasthan State and India fulfil its goals of promoting sustainable development. This project is in line with host country specific –CDM requirements.

BVQI also recognises that the main purpose of this project is to generate electrical energy through sustainable means utilizing wind energy for generating electricity which otherwise would have been generated through alternate fuels (most likely –fossil fuel).

The project has led to an investment of about Rs 750 Million which otherwise would not have happened in that region. Also the project activities earns additional revenue for RSMML, enabling the organisation to partially meet its financial needs

As per the indicators stipulated by Ministry of Environment and Forests, Govt. of India (Host country DNA), this project leads to alleviation of poverty by establishing direct and indirect employments.

The project design is sound and the geographical (the project location) and temporal (20 years) boundaries of the project are clearly defined.

3.2 Baseline

The project is a Renewable electricity generation for a grid project activity (Category I.D) as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The emission reductions will be the kWh produced by the proposed project multiplied by the emission coefficient for other power stations connected to the grid of India, i.e. the weighted average of the current generation mix of the Northern Region Grid. The choice of this baseline methodology is applicable for the following reasons: The Northern Region Grid is currently facing energy shortage to the extent of 5.5% and the demand in energy requirement is expected to rise by around 6.9% until 2017. While the planned capacity additions (primarily through fossil fuelled power and nuclear power generation) are not expected to meet this demand, renewable energy sources are expected to contribute to only about 2784 MW approximately by 2012.

VALIDATION REPORT

Hence, it can be concluded that the grid system will remain carbon intensive during the ten-year crediting period. The emission coefficient has been determined based on actual power generated from all power generation sources in the northern regional grid and as monitored and published by the Central Electricity Authority for the period April 2003 to March 2004.

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Certified Emissions Reductions (CERs) under the CDM, based on an analysis, presented by the PDD, of investment, technological and other barriers, and prevailing practices.

It is demonstrated that the project activity itself is not a likely baseline scenario due to the existence of investment, technological and other barriers due to prevailing practices.

The project's additionality has been demonstrated through presenting mainly investment barriers occurring both during construction and operation of the project. RSSML was the first organization to invest in large-scale wind farms in a remote desert terrain, which lacked infrastructure (such as transmission lines, substations and roads). Also, lack of support in providing soft loans by the REDA (Rajasthan Energy Development Agency) led to additional financial burden. RSMML was also, neither been able to transfer and make captive use of the generated electricity nor was it able to sell it to Hindustan Zinc Limited (for better cost realization), as initially conceived. Expenditure borne by RSMML for installation of transmission system due to nonavailability of the grid for transfer of electricity and poor plant load factor has been demonstrated as additional barriers. The sustainability of RSMML project activity and its dependence on securing the proposed carbon finance through sale of carbon credits has been demonstrated by providing relevant data.

The application of the baseline methodology is transparent and conservative.

The project complies with the baseline requirements.

3.3 Monitoring Plan

Approved baseline and monitoring methodology described in AMS-1.D. –Grid connected renewable electricity generation (Version 06:30 September 2005) is used. There is no change in the monitoring methodology requirements in the latest revision (Version 07: 28 November 2005). This consists of metering the electricity generated. The selected monitoring methodology is in line with the monitoring methodologies provided for the relevant project category as listed in Appendix B of the Simplified Modalities and Procedures for Small Scale CDM project activities.

The application of the monitoring methodology is transparent.

VALIDATION REPORT

The project does not envisage any leakage since any alternate fuel cannot be used to run the windmills for generating electricity. Hence no indicators have been defined regarding project emissions and leakage emissions.

Electricity generation is monitored jointly by the Rajasthan State Vidyut Prasadani Nigam (RSVPN) and staff of RSMML & SWSPL .

The data can be very accurately measured. The Trivectormeters installed in the sub-stations (grid interconnection point) are used to measure mentioned variables on a continuous basis. It can also be recorded continuously at the central monitoring station. Records are archived for crosschecking yearly figures. The meters at the sub station are two-way meters and are in the custody of State Electricity Utility (RSVPNL). RSVPNL officials verify the readings in these meters and the same reading is used to determine the net power wheeled to the user and determine the extent of mitigation of GHG over a period of time.

The authority and responsibility of project management and registration monitoring measurement is clearly described. All indicators of importance for controlling and reporting of project performance are incorporated in the Monitoring Plan. The type, variable, unit, frequency, proportion, means and period of archiving of the data are sufficiently described.

The meters are sealed by RSVPNL and hence no monitoring data adjustments and uncertainties are possible.

Project performance reviews are conducted monthly.

Therefore the project complies with the requirements.

3.4 Calculation of GHG Emissions

As per the 'Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories' the baseline emission sources considered are fossil fuel fired power plants connected to the relevant electricity system (grid). The relevant grid considered for the calculation of baseline emissions is the Northern Regional Grid of India.

The baseline emissions are calculated as per combined margin approach, both in terms of relevant grid definitions and the emission factors. For calculating the operating margin, data vintage of 5-year average (based on the most recent publicly available statistics available at the time of PDD submission) has been used. The build margin calculations have been completed with most recent information available on plants already built at the time of PDD submission. The combined margin calculation is based on straight average of operating and build margin.

The methodologies for calculating emission reductions are transparently documented and comply with existing good practice.

VALIDATION REPORT

Considering renewable energy project, indirect emissions are not likely. Emissions related to the project activities are considered zero.

3.5 Sustainable Development Impacts

No significant environmental impacts have been identified from the project activity.

The host country (India) legislation does not require an analysis of the environmental impacts of the project activity since this is not applicable to Small Scale Projects. The Government of Rajasthan requires that all wind mills sites in the state to obtain clearances from the local authority (District Collector). Accordingly, the project proponents have obtained the necessary clearances.

The project activity has lead to an investment of about Rs 750 Million to a developing region which otherwise would not have happened in the absence of project activity. This includes improvement in the quality and availability of electricity fed into a deficit local grid and development of infrastructure such as road and transportation facilities. Being a renewable resource, using wind energy to generate electricity contributes to resource conservation.

The Jaisalamer district is a located in the heart of the Thar Desert. There are virtually no irrigation or industrial activities in the entire district. The wind farms are located in areas where there is no inhabitation.

The project has contributed to the social, economical, environmental and technological well being of the rural public by improving conditions of the roads and generating employment opportunities.

3.6 Comments by Local Stakeholders

The project is located in a desert where there is virtually no inhabitation. There are no villages or communities in the vicinity of the project sites. Therefore, the only stakeholders considered were the local housekeeping, catering and transportation contractors (providers of housekeeping, taxi and allied services).

These stakeholders support the project and no modifications to the project design were necessary. As the project is not expected to have considerable social and environmental impacts, the local stakeholder consultation process carried out for the project is deemed sufficient.

VALIDATION REPORT

4 Comments by Parties, Stakeholders and NGOs

According to the modalities for the Validation of CDM projects, the validator shall make publicly available the project design document and receive, within 30 days; comments from Parties, stakeholders and UNFCCC accredited non-governmental organisations and make them publicly available.

BVQI published the project documents on the UNFCCC CDM website (<http://cdm.unfccc.int>) on 8th November and invited comments within 7th December by Parties, stakeholders and non-governmental organisations.

No Comments were received .

5 Validation opinion

BVQI has performed a validation of the RSMML Wind Energy Project in the state of Rajasthan in India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan (September 2005); ii) follow-up interviews with project stakeholders (October 2005); iii) the resolution of outstanding issues and the issuance of the final validation report and opinion (January 2006).

By generating electricity from wind power, the project is likely to result in reductions of GHG emissions partially displacing electricity that would have otherwise been purchased from the grid. An analysis of the investment and technological barriers demonstrates that the proposed project activity is 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. Given that the project maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

BVQI has received a confirmation by the host Party (India) that the project contributes to Sustainable Development in India.

The review of the project design documentation and the subsequent follow-up interviews has provided BVQI with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. BVQI hence recommends the RSMML Windmill Project for registration with the UNFCCC.



 VALIDATION REPORT

The validation is based on the information made available to us and the engagement conditions detailed in this report.

6 References

Category 1 Documents:

Documents provided by RSMML that relate directly to the GHG components of the project.

- 1 Lease deed cum License executed between Rajasthan Government (District Collector, Jaisalmer) and Rajasthan Mines and Minerals Limited, Udaipur for purchase of land and setting up of windmills at Badabagh and Pohra.
There are following three lease deeds for the three phases of project:
Phase-1: Date of Lease Deed 01.10.2001 Location Bada bagh
Phase-2: Date of Lease Deed 17.08.2001 Location Bada bagh
Phase-3: Date of Lease Deed 31.05.2004 Location Pohra
- 2 Purchase orders as follows:
Phase-1 # RSMM/CO/Projects/Windmill/91/2001 dated 10/04/2001 for 14nos. WEGs X 350 kW on M/s. SUZLON ENERGY LIMITED
Phase-2 # RSMM/CO/Projects/Windmill/Phase-2/2002 dated 30/01/2002 for 14nos. WEGs X 350 kW on M/s. SUZLON ENERGY LIMITED
Letter of Indent LOI/RSMM/CO/Project/Windmill/Phase-3/2003-2004/881 dated 25/02/2004 for 4nos. WEGs X 1250 kW on M/s. SUZLON ENERGY LIMITED
- 3 Commissioning Certificate for Phase-1 RSMM/CO/Projects/Windfarm/2001/973 dated 01/09/2001 issued by Rajasthan Electricity Board
- 4 Commissioning Certificate no. Nil issued by Rajasthan Electricity Board on 18/05/2002 (Three Nos.), on 24/05/2002 (Seven Numbers) and on 24/05/2002 (Four Numbers)
- 5 Commissioning Certificate no. JVVNL/XEN/O&M/JSM/S-TCH/FD2280 dated 24/03/2004
- 6 Wheeling and Banking arrangement between Rajasthan Electricity Board (and its subsidiary companies) and Rajasthan Mines and Minerals Limited for twenty years.
Phase-1 and Phase-2 is dated 29/08/2001 and 13/07/2002 including amendment number RVPN/SE/(NPP) P20/0866 dated 13/07/2002 and for phase-3 dated 19/02/2004
- 7 Wind power Policy for promotion of electricity evacuation from wind no. F20 (3) Energy/98 dated 04/02/2000. With specific reference to clause 17 on allotment on subsidized loans and clause 18.2 on augmentation of substation capacity from 33/11 KV to higher levels.



VALIDATION REPORT

- 8 Refusal of loan from Rajasthan Energy Development Authority Note sheet no. Nil dated 18/09/2000
- 9 Refusal of loan from Rajasthan Energy Development Authority Note sheet no. Nil dated 18/09/2000
- 10 Issue of loans from Unit Trust of India and Life Insurance Corporation of India for sum of Rs. 65 Lac.
- 11 Grant of license for supply of electricity by Rajasthan Electricity Regulatory Commission for sale of power from Rajasthan Mines and Minerals Limited to Hindustan Zinc Limited, Udaipur.
- 12 Proof of construction of transmission lines for a distance of 15 KM by RSMML at a cost of Rs.90 Lac due to non- availability of a pooling station as assured by Rajasthan Electricity Board.
- 13 Resolution passed by the Board of Directors for installation of Windmills

Category 2 Documents:

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

- 1 Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories, Version 06, 30 September 2005 & Version 07, 28 November 2005.
- 2 Guidelines for completing CDM-SSC-PDD and F-CDM-SSC-Subm, Version 01
- 3 Kyoto Protocol to the United Nations Framework Convention on Climate Change, United Nations, Dec 1997.

Persons interviewed:

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

Rajasthan State Mines & Minerals Limited

Mr Gopal Gandhi - Senior Manager (Projects)

Service Provider (Suzlon Wind Farm Services Pvt Ltd)

Sudhakar Pande Site Manager

Manoj Sharma Site Administration Manager



VALIDATION REPORT

Senergy Global Private Limited

Dr Inderjeet Singh - Manager (CDM)

Local Stakeholders

Mr. Tripal Singh	House Keeping / Manpower Provider
Mr. Bheem Singh Rathore	Vehicle/Taxi Services
Mr. Ramesh Golakia	Electrical Work & Electrical Materials
Mr. Radheshyam Sharma	Canteen Services

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VALIDATION REPORT

APPENDIX A -SMALL-SCALE CDM VALIDATION PROTOCOL -RSMML**Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities**

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	See Table 2, Section A.3.3 & Table 3, CAR-1	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	Project proponent has obtained the host country approval from Ministry of Environment & Forest (DNA, India) on 26th December 2005 vide letter no. F.No.4/22/2005-CCC (See Table 3, CAR-1)	Table 2, Section A.3.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	See Table 2, Section A.3.3	Table 2, Section E.4.1
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	Project proponent has obtained the host country approval from Ministry of Environment & Forest (DNA, India) on 26th December 2005 vide letter no. F.No.4/22/2005-CCC (See Table 3, CAR-1)	-
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	See Table 2, Section E.4.1	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any	Kyoto Protocol Art.	Yes	Table 2, Section B.2.1



VALIDATION REPORT

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	See Table 2, Section B.2.1	
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	The project will not receive any public funding from Parties included in Annex 1.	-
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	Ministry of Environment & Forest is the Host Party's (India) Designated National Authority for CDM	-
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	Yes	-
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	Yes See Table 2, Section A.1.1, A.1.2	Table 2, Section A.1
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	Yes. The project design document does conform with the Small Scale CDM Project Design Document format (version 02, 8 July, 2005) is currently valid	-
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	Yes Type 1, Category 1. D.	Table 2, Section A.1.3 and B.1



VALIDATION REPORT

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	Yes See table 2, Section G.1.1	Table 2, Section G
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	Not required by the host country See table 2, Section F.1.1	Table 2, Section F
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	PDD was made publicly available for 30 days from 08/11/2005 to 07/12/2005 on the UNFCCC website and public comments were invited.	



 VALIDATION REPORT

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV ^a	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	1	DR	Yes, as per 17/CP.7 (ii). The capacity of project is 14.8 MW distributed at two sites at Jaisalmer, Rajasthan. 1) 4 X 1.25 = 5 MW at Pohra and 2) 28X0.350=9.8 at Bada Bagh. The total capacity is less than 15 MW.	OK	OK
A.1.2. The small-scale project activity is not a debundled component of a larger project activity?	1	DR I	RSMML has not registered or applied for registration of any other wind project. Refer A.4.5 of PDD.	OK	OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	2	DR	Yes, Project Type I – Renewable energy project Category ID: Renewable electricity generation for a grid.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	1	DR I	The project site location is indicated in PDD as Pohra and Badabagh in District Jaisalmer in the State of Rajasthan. Project boundary is not specifically defined in PDD. Information on Latitude, Longitude and the revenue land information (Khasra no.) is not furnished in PDD.	CAR 1	OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	1	DR	The project evacuates the power to the Northern Region Grid. This includes the Wind Energy Generators (WEG) installations, sub-station and sub-transmission systems. Mention of sale to third party indicated in A.2 of the PDD is not clearly defined.	CL 1	OK
A.2.3. Does the project design engineering reflect current good practices?	-	DR	The project activity leads to the promotion of 14.8 MW Wind Electric Generators. The features are: <ul style="list-style-type: none"> 4 Nos. WEG s of 1.25 MW operating at 690 V, 3 Phase, 50 Hz each. 28 Nos. WEG s of 0.350 MW operating at 440V, 3 Phase, 50 Hz each. 	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Asynchronous generator with pitch-controlled blades, reduction gearbox, mounted on lattice type MS tower, with step up transformer of output voltage of 33 KV and protection system.		
A.2.4. Will the project result in technology transfer to the host country?	-	DR	No, as indicated in PDD – Refer A.4.2. This is one of the early commercial projects to encourage use of Wind Energy in the state of Rajasthan.	OK	OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	-	DR I	M/s Suzlon Wind Farm Services Ltd is carrying out the operation and maintenance. The staffs are competent and qualified. Infrastructure and system are in place for up-keep and efficient operation. M/s. Suzlon has also trained two engineers of RSMML. (Refer Purchase Order No: RSSM/CO/PROJ/WINDFARM/91/2001/249 dt. 10/04/2001 and subsequent purchase orders dated 30/01/2002 and 25/02/2004.	OK	OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1	DR I	Yes. <ul style="list-style-type: none">Direct / Indirect employment benefits accruing out of ancillary units of manufacturing lattice tower/ installation.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<ul style="list-style-type: none"> Local employment for the operation and maintenance of windmill. Infrastructure like roads and public transports for the local population. <p>Ancillary services such as security, taxi and catering services.</p>		
A.3.2. Is the project in line with sustainable development policies of the host country?	1	DR	Yes Refer A2,	OK	OK
A.3.3. Is the project in line with relevant legislation and plans in the host country?	-	DR I	<p>Indian legislation allows windmill operations. The Indian and Rajasthan state government promotes wind power generation.</p> <p>The Rajasthan State Government has also released wind power generation policy in the year 2000 and 2003.</p> <p>Referred to Policy No. F 20 (3) Energy/98/04/02/2000 and F 20 (3) Energy/98/Pt.III dated 30/04/2003.</p>	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	1,2	DR	The approved methodology For Type I Cat. D has been considered in accordance with simplified baseline and monitoring methodologies for selected CDM projects- Appendix B.	OK	OK
B.1.2. Is the baseline methodology applicable to the project being considered?	1,2	DR	This methodology is applicable to Windmill, a renewable energy source.	OK	OK
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	1	DR	Refer B.3 of PDD The explanation demonstrates the existence of technological investment, financial and other barriers adequately.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	1	DR I	Refer B .5 of PDD. Average OM and Average BM has been calculated. However the basis of calculation (consistent with year of commissioning of the project) is not clearly explained in the PDD. Also It is not clear whether the chosen baseline is conservative. Low - Cost and Must – Run plants have not been identified.	CAR2	OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	-	DR	Yes as given A.3.3	OK	OK
B.2.4. Is the baseline selection compatible with the available data?	1	DR	Refer B 2.2	CAR 3	OK
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1,2	DR	Yes Refer B.5 of PDD	OK	OK
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	1	DR	Starting date not as per format i.e. in DD/MM/YYYY Starting Date is indicated in PDD as August 2001.	CAR 4	OK
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals)	1	DR	10 years. - 'With no renewal is missing'	CAR 5	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
or 10 years with no renewal)?					
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	1,2	DR	The monitoring methodology is as per "Metering the electricity generated" as indicated in Appendix B of simplified modalities and procedures for small-scale CDM projects.	OK	OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	1,2	DR	The reasons for choosing this monitoring methodology are appropriately justified in the item D.2 of the PDD	OK	OK
D.1.3. Is the application of the monitoring methodology transparent?	1,2	DR	The data is being monitored by Rajasthan Vidyut Prasaran Nigam Limited (State Electricity Utility), which is transmitting the generated electricity. The electricity is metered at the grid inter-connection point against which the payment is to be made on monthly basis on the basis of joint meter reading carried out by RVPNL and RSMML representative.	OK	OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	1	DR	This methodology is reliable as long the energy meter provided by the state electricity utility is in un-interrupted operation. The monitoring includes	CAR 6	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
achieved emission reductions?			three step metering and has appropriate back-up provision. Reliability is not explained		
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	1	DR	Not applicable – No project emission in case of Wind mill project.	OK	OK
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1	DR	Not applicable.	OK	OK
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1	DR	Not applicable.	OK	OK
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	1	DR	Not applicable.	OK	OK
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	1	DR	Not applicable.	OK	OK
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage	1	DR	Not applicable.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
indicators?					
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1	DR	Not applicable.	OK	OK
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1	DR	Not applicable.	OK	OK
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1	DR	Reasonable and as per approved monitoring plan in Appendix B.	OK	OK
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1	DR	Yes. NRLDC and CEA data has been used to determine the base line and the same can be measured on the basis of annual performance report of the plants operating in Northern grid and are contributing towards total grid generation in particular year.	OK	OK
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1	DR I	Energy meters are logged on to the to Central Monitoring System through SCADA. The measuring technique and frequency comply with good manufacturing practices. However collection of data during failure of energy meter is not defined in PDD	CAR 7	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Refer D.5.9.		
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1	DR	Data is being collected in electronic and paper. Archiving provision is put in place and the data will be preserved for period of minimum two years beyond end of crediting period. Refer D.3 Monitoring table.	OK	OK
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	1	DR	The management structure is not defined in the PDD. Refer D.5 of PDD	CAR 8	OK
D.5.2. Is the authority and responsibility for monitoring measurement and reporting clearly described?	1	DR 	The authority and responsibility for monitoring measurement and reporting is not defined in the PDD. Refer D.4. of PDD.	CAR 8	OK
D.5.3. Are procedures identified for training of monitoring personnel?	1	DR 	Procedures for training of monitoring personnel are identified. They are a part of the certified quality and environmental management systems of M/s Suzlon Windfarm Services Ltd.	OK	OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1	DR 	The procedures for emergency preparedness for cases have been identified.	OK	OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	1	DR 	The calibration of monitoring equipment is being done by State Electricity Utility and there is evidence of this being done at regular basis	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			evidence of this being done at regular basis.		
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1	DR I	Procedures for maintenance of monitoring equipment and installations are identified. They are a part of the certified quality and environmental management systems of M/s Suzlon Wind Farm Services Ltd.	OK	OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	1	DR I	Net electricity output is being monitored by the RVPNL.	OK	OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1	DR I	Data logging through Central Monitoring system is in place.	OK	OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1	DR I	The payment of electricity is made against the electricity meter at Grid Interconnection point. RVPNL makes payment against lowest meter reading among the two check meters. In case if the Grid Interconnection Meter records higher generation against the check meter, the Grid Interconnection Meter is replaced by RVPNL. Possible monitoring data adjustments and uncertainties and collection of data during failure of energy meter is not defined in PDD	CAR 9	OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1	DR I	Yes, M/s Suzlon Wind Farm Services Ltd follows ISO 9001 certified Quality management System and ISO 14001 Environmental management system.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5.11. Are procedures identified for project performance reviews?	1	DR I	Monthly performance reporting to RSMML is in place. Daily performance report is available through internet at Suzlon web site.	OK	OK
D.5.12. Are procedures identified for corrective actions?	1	DR I	Yes, M/s Suzlon Wind Farm Services Ltd follows ISO 9001 certified Quality management System and ISO 14001 Environmental management system	OK	OK
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	1	DR	Not applicable	OK	OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	1	DR	Not applicable	OK	OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1	DR	Not applicable	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.1.4. Are the calculations documented in a complete and transparent manner?	1	DR	Not applicable	OK	OK
E.1.5. Have conservative assumptions been used?	1	DR	Not applicable	OK	OK
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	1	DR	Not applicable	OK	OK
E.2. Leakage It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	1	DR	Not applicable	OK	OK
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	1	DR	Not applicable	OK	OK
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	1	DR	Not applicable	OK	OK
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	1	DR	Not applicable	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2.5. Have conservative assumptions been used (if applicable)?	1	DR	Not applicable	OK	OK
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	1	DR	Not applicable	OK	OK
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	1	DR	Yes refer B.4 of PDD	OK	OK
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1	DR	Yes	OK	OK
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	1	DR	Yes.	OK	OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1	DR	Yes. $BE_y \text{ (tCO}_2\text{/yr)} = EG_y \times E_{fy}$. $BE_y \text{ (tCO}_2\text{/yr)} = \text{Baseline emissions in year } y$ $EG_y \times E_{fy} = \text{Electricity Generated by project in Year } Y \times \text{Emission factor for year } Y.$	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3.5. Are the calculations documented in a complete and transparent manner?	1	DR	Yes. The PDD has used base line emission factors for the current year whereas the project was implemented in year 2001. The basis of such a consideration is not clear.	CL 2	OK
E.3.6. Have conservative assumptions been used?	1	DR	The PDD envisages use of gross generation instead of net generations and use of operating heat rate instead of design heat rate. Additionally the data incorporated for base line determination is country specific and not IPCC default values. Both criteria described above indicate conservative assumptions. Refer B.2.2 of PDD	OK	OK
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	1	DR	Uncertainties in the baseline emissions estimates have not been appropriately addressed	CAR 10	OK
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	1	DR	While the total reduction in GHG emissions has been shown as 133523 tCO ₂ e for a ten year period, the annual calculated average also shows the same figure. Refer 4.3.1	CAR11	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	1	DR I	Not required. Refer F.1.	OK	OK
F.1.2. Does the project comply with environmental legislation in the host country?	1	DR I	Not required. The proposed project doesn't fall under the list of activities requiring EIA as it will not involve any negative environmental impacts, because the WEGs installed for generation of power use wind (cleanest possible source of renewable energy). Clearance from following departments are have been obtained: 1-For Land: Revenue Department, Government of Rajasthan 2- For Power Evacuation: RVPNL. 3- For Operating Windfarm: Air Force, Ministry of Defence, Govt. of India.	OK	OK
F.1.3. Will the project create any adverse environmental effects?	1	DR	No.	OK	OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	1	DR	Not required. Refer F.1.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
G. Comments by Local Stakeholder					
Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	1	DR I	<p>The project site is located in a desert. . There is no habitation in the approximately five Kilometre radius. The land is declared to be as barren land and is not utilised for any other purpose prior to implementation of wind farm.</p> <p>Ownership of the land lies with State Revenue department and the necessary lease of land for specific purpose of wind farming has been obtained. There is remote possibility of any other economic activity as well as human settlement in the area.</p> <p>The villagers in the near vicinity were contacted before the implementation of the proposed project activity and were apprised about the execution of wind farm project. The local stakeholders raised no issues, thus no action were required.</p> <p>There is however no documentation regarding interaction with local state holders.</p> <p>Refer G.1. and G.2. of PDD.</p>	OK	OK
G.1.2. Have local stakeholders used appropriate media to invite comments?	1	DR	As above.	OK	OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation	1	DR	Not required.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
process been carried out in accordance with such regulations/laws?					
G.1.4. Is a summary of the comments received provided?	1	DR	As per G.1.1	OK	OK
G.1.5. Has due account been taken of any comments received?	1	DR	As per G.1.1.	OK	OK



 VALIDATION REPORT

Table 3 Resolutions of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR 1 Project boundary is not specifically defined in PDD. Information on Latitude, Longitude and the revenue land information (Khasra no.) is not furnished in PDD.	A 2.1	The necessary changes in the PDD have been carried out (refer page number 6 of PDD).	The information given is considered sufficient and the corrective action request is closed
CAR.2 Average OM and Average BM has been calculated. However the basis of calculation (consistent with year of commissioning of the project) is not provided in PDD. Also It is not clear whether the chosen baseline is conservative. Low - Cost and Must – Run plants have also not been identified.	B.2.2. & E 3.6	The baseline has been revised using three year vintage data (which is although not the standard for AMS 1D, but is required for large scale projects using ACM 002) the new baseline is the most conservative possible baseline for the project. Additionally in AMS 1D, the low-cost and must-run portfolio has been clearly indicated, the same criteria has been used to identify low-cost	The information given is considered sufficient and the corrective action request is closed The calculations were checked and found okay



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		and must-run installations. Nuclear projects – Must Run Run-of-river Hydro – Must Run Storage based multipurpose hydroelectric projects – Low Cost The changes have been made on page 19 of the PDD	
CAR 3 Date of completion not in the format DD/MM/YYYY refer B.5 of PDD	B 2.4	Starting Date is indicated in PDD as August 2001.	The information given is considered sufficient and the corrective action request is closed
CAR .4 Starting date of Project is not as per format.	C 1.1	The indicated changes have been made in the PDD on page 21	The information given is considered sufficient and the corrective action request is closed
CAR .5 10 years. However “with no renewal” word is missing.	C 1.2	The indicated changes have been made in the PDD on page 21	The information given is considered sufficient and the corrective action request is closed
CAR 6 This monitoring methodology is reliable as long the energy meter provided by the state electricity board is in un-interrupted operation. The methodology does not include back-up provision and its	D.1.4	The necessary changes have been brought in on page 24 of the PDD and the complete monitoring of the project activity has been explained.	The information given is considered sufficient and the corrective action request is closed



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
reliability.			
CAR 7 Energy meters can be logged on to the central computers thro ' SCADA' This is not defined in PDD'	D 4.3	The indicated corrections have been made in the monitoring details (as explained in previous CAR)	The information given is considered sufficient and the corrective action request is closed
CAR 8 The management structure is not defined in the PDD. Refer D.5 of PDD	D 5.1 & D 5.2	Management structure has now been defined.The complete monitoring plan has been rewritten and all necessary details have been inducted	The information given is considered sufficient and the corrective action request is closed
CAR 9 Collection of data during failure of energy meter is not defined in PDD	D 5.9	The indicated corrections have been carried out and following text has been inducted in the PDD on page no. 23	The information given is considered sufficient and the corrective action request is closed
CAR 10 Uncertainties in the baseline emissions estimates have not been appropriately addressed	E 3.7	The baseline has been revised using three year vintage, thus it is most conservative and the chances of uncertainties have been already factored in (by using three year vintage installed of one year – as	The information given is considered sufficient and the corrective action request is closed



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		prescribed in AMS 1D)	
CAR 11 While the total reduction in GHG emissions has been shown as 133523 tCO ₂ e for a ten year period, the annual calculated average also shows the same figure.	E 4.1	The decimal point was missing which is inadvertent error. The annual average works to 13352.30t CO ₂ e.	The information given is considered sufficient and the corrective action request is closed
CL1 Mention of sale to third party indicated in A.2 of the PDD is not clearly defined.	A 2.2	The project proponent initially sold part of the generated electricity to Hindustan Zinc Limited, which later on was stopped, as the state government has withdrawn the permission to sell electricity directly to the third party. Evidence is provided	The information given is considered sufficient and the clarification request is closed
CL2 The PDD has used base line emission factors for the current year whereas the project was implemented in year 2001. The basis of such a consideration is not clear.	E 3.5	This has been clarified by UNFCCC that the baseline of the year of project validation would be considered for estimation of CERs and not the baseline of the year of commissioning. This clarification has been given for all the prompt start projects claiming retroactive CERs	The information given is considered sufficient and the clarification request is closed



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion

Ref .1: Guidelines for completing CDM-SSC-PDD and F-CDM-SSC-Subm Version: 1

Ref. 2: Appendix B of the simplified modalities and procedures for small scale CDM project activities Version 06-02-03