



VALIDATION REPORT

for the CDM Project Activity

SSL Wind Power Project

in
India

Report No. 01 997 9105051114

Version No. 03, 2010-06-03

TÜV Rheinland Japan Ltd.

I. Project description:**Project title:** SSL Wind Power Project**Host Country:** India**Methodology:** AMS I.D. version 15

Large Scale



Small Scale

Annual average emission reductions (estimate): 23,814 tCO₂e/yr**GHG reducing measure/technology:**

Party	Project Participants	Party considered a project participant
India (Host)	Suma Shilp Limited	No

II. Validation:**Contract party:** Suma Shilp Limited**Validation Team:**

Role	Full name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Dr. Manfred Brinkmann (till 31 May 2009)	1, 3, 4, 5, 6, 10, 11, 12, 13	TÜV Rheinland Japan Ltd.
	Mr. Asim Kumar Jana (from 1 June 2009)	1, 2, 3, 4, 5, 11, 12, 13	TÜV Rheinland India Ltd.
Trainees	S Srinivasan Raj Kumar Deka	- -	TÜV Rheinland India Pvt. Ltd. TÜV Rheinland India Pvt. Ltd.
Technical Reviewer	Mr. Zhou Kai	1, 5	TÜV Rheinland (Guangdong) Ltd

Validation Phases:

- ☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues

Validation Status:

- ☐ Corrective Actions / Clarifications Requested
☒ Full Approval and Submission for Registration
☐ Rejected

III. Validation Report:

Report No.: 01 997 9105051114	Current revision No.: 03	Date of current revision: 2010-06-03	Date of first issue: 2009-12-21
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Final approval: <input checked="" type="checkbox"/>	Released: On: 2010-06-14 By: Dr. Manfred Brinkmann	Designated Operational Entity (DOE): TÜV Rheinland Japan Ltd. Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama, JAPAN 222-0033 Tel.: +81 45 470 1850, Fax: +81 45 470-2361 E-mail: cdm@tuv.com
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Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland Japan Ltd.) concludes that the CDM Project Activity “SSL Wind Power Project” in India, as described in the PDD (version-07, dated 03/06/2010), meet relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM project activities (Marrakesh Accords), the simplified modalities and procedures for SSC-CDM project activities and the subsequent decisions by the COP/MOP and CDM Executive Board and host country criteria. The selected baseline/monitoring methodologies are applicable to the project and correctly applied. The DOE therefore requests the registration of the project as a CDM project activity.

The project participant is Suma Shilp Limited approved by the Designated National Authority (DNA) of the host Party India. No Annex I Party has yet been involved. India fulfils the relevant participation criteria for the CDM. Approval of voluntary participation from the DNA of India and confirmation that the project assists in achieving sustainable development has been obtained through its letter of approval dated 16/09/2009.

The project aims to utilize the wind resource to generate zero carbon emission electricity and partially displace the fossil fuel dominated power in the NEWNE grid of India.

The project correctly applies AMS-I.D (Version 15) - “Grid connected electricity generation from renewable sources”. By generating renewable energy which will displace fossil fuel based grid electricity, the project results in the reductions of CO₂ emissions that are real, measurable and give long term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would have occurred in the absence of the project activity.

The project is likely to result in an average emission reduction of 23,814 t CO₂e per annum over the selected fixed crediting period of ten years. The emission reduction forecast has been checked and is deemed likely that the stated amount would be achieved given the underlying assumptions do not change.

The monitoring methodology has been correctly applied. The monitoring plan makes sufficient provision for monitoring relevant project and baseline emission indicators. Detailed responsibilities and authorities for project management, monitoring and reporting and QA/QC procedures have also been addressed.

TABLE OF CONTENTS

1	INTRODUCTION	5
1.1	Objective	5
1.2	Scope	5
2	METHODOLOGY	6
2.1	Desk Review of the Project Design Documentation	6
2.2	Follow-up Interviews with Project Stakeholders	8
2.3	Resolution of Outstanding Issues	9
2.4	Internal Quality Control	12
2.5	Validation Team	12
3	VALIDATION FINDINGS	12
3.1	Approval and participation	12
3.2	Project Design Document	13
3.3	Project Description	13
3.4	Baseline and Monitoring Methodology	14
3.5	Additionality	20
3.6	Monitoring	27
3.7	Sustainable Development	30
3.8	Environmental Impacts	30
3.9	Local Stakeholder Consultation	30
3.10	Comments by Parties, Stakeholders and NGOs	31

Appendix A: Validation Protocol

Appendix B: Certificates of Competence

1 INTRODUCTION

M/s Suma Shilp Limited has commissioned the DOE TÜV Rheinland Japan Ltd. to perform a validation of the CDM Project Activity “SSL wind power project” in India (hereafter called “the project” or “the project activity”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures; the simplified modalities and procedures for small-scale CDM project activities and the subsequent decisions by the COP/MOP and CDM Executive Board.

1.1 Objective

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

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual, employed a rules-based approach as required by the UNFCCC criteria.

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

2 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design documents
- II on-site visit and follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

2.1 Desk Review of the Project Design Documentation

The following tables outline the documentation reviewed during the validation:

Documents provided by the project participant(s):

- /P01/ PDD [initially published version], Version-01, Date-06-03-2009
- /P02/ PDD Version-07, Date-03-06-2010
- /P03/ Host Country Approval: India, Ministry of Environment and Forest, Letter No:4/5/2009-CCC, 16/09/2009
- /P04/ Modalities of Communication: dt 02/02/2010
- /P05/ Spread sheets for emission reduction calculations
- /P06/ Spread sheets for Investment analysis and benchmark
- /P07/ Proof of starting date: 25/05/2006 (based on the purchase order issued by SSL)
- /P08/ Proof of commissioning date:
 - a) J105 and K297, date of commissioning 16/08/2006, J102 and J103, date of commissioning 19/08/2006 (commissioning certificate by MSEDCL dt-22/08/2006)
 - b) K256, date of commissioning 19/09/2006 (commissioning certificate by MSEDCL dt-30/09/2006)
 - c) J111, J125, K241, K273 and K280, date of commissioning 29/09/2006, K296, date of commissioning 30.09.2006 (commissioning certificate by MSEDCL dt-30/09/2006)
 - d) K274, date of commissioning 15/11/2006 (commissioning certificate by MSEDCL dt-27/11/2006)
- /P09/ Proof of Serious consideration of CDM (in accordance with the UNFCCC guidelines provided in EB 49 ANNEX 22
 - a) Board Resolution approving the windmill purchase and developing the project as CDM activity dt. 17/02/2006
- /P10/ Proof of the implementation timeline presented in the PDD in accordance with the UNFCCC guidelines provided in EB 49 ANNEX 22
 - a) Board Resolution approving the windmill purchase and developing the project as CDM activity dt 17/02/2006
 - b) Appointment of M/s Shah and Kirtane Associates for CDM advisory services - Work order dt. 19/04/2006 .

- c) M/s Shah and Kirtane seek proposal from MITCON for CDM process, Letter dt 08/06/2006
- d) Appointment of MITCON as consultant for CDM process - Board resolution – dt 03/05/2007
- e) Repealing of appointment of MITCON – Board resolution – dt 15/10/2008
- f) Appointment of DOE, M/s TUV Rheinland (Japan) Co. Ltd. - Work order, dt 20/10/2008
- g) Appointment of M/s. Ernst and young as CDM consultant, dt 26/11/2008

- /P11/ Proof of delay of one and half month in-between the CDM process
- Insurance claims and FIR
- /P12/ Letter from the equipment manufacturer for the life time of the equipments.
- /P13/ Evidences against all Techno-economic input data and assumptions used in Investment analysis
- a) Purchase orders issued for each component of project cost (as provided in /P07/ above)
 - b) Commencement of Generation certificate (as provided in /P08/ above)
 - c) Loan sanction letters
 - Karnataka Bank Ltd. dt. 31/08/2006
 - Bank of Maharashtra dt 21/08/2006
 - d) O&M agreement (as provided in /P14/ below)
 - e) Letter dated 19/04/2006, from PP to Bank confirming the net generation per WEG per year at the evacuation point at the time of loan application, from which the PLF considered by the PP in the loan application to the bank is calculated.
- /P14/ O and M agreement
- a) O & M agreement for K 297, J 102, J 103 & J 105 dt. 19/08/2006
 - b) O & M agreement for K 241, K 256, K273, K 280, K 296, J 111 and J 125 dt. 29/08/2006
 - c) O & M agreement for K 274 dt. 15/07/2007
- /P15/ Relevant proofs of local stakeholder consultation process
- a) Invitation for stakeholder meeting dt 05/01/2009
 - b) Attendance register and feedback form supplied during the meeting dt 20/01/2009
- /P16/ Single line diagram of all 7 feeders where the PP's WEGs (and Non PP WEG's) are connected to the grid.
- /P17/ Training and plan and records of the O & M and data management
- /P18/ Actual generation data of the project activity
- a) Joint meter reading report for 6 WEGs of the project dt 15/04/2009
 - b) WEG Controller reading for the project activity showing.
- /P19/ Letter from C-WET for type approval/certificate for the Model S-70
<http://www.newenergyindia.org/Wind%20turbine%20manufacturers.pdf>

- /P20/ Power Purchase Agreement
a) Wind energy purchase agreement for 6.25 MW dt. 25/07/2006
b) Wind energy purchase agreement for 8.75 MW dt. 18/12/2006
- /P21/ Memorandum of association and Articles of association
- /P22/ Procedure for JMR and Credit Report for Wind Mill generation - Letter issued by MSEDCL to O & M contractor dt. 29/12/2008.
- /P23/ Infrastructure clearance for setting-up of the project activity,

Background investigation and other referred documents/websites:

- /B01/ CDM Validation and Verification Manual (Version 1.1)
- /B02/ Approved Baseline & Monitoring Methodology: AMS-I.D., version 13 and version 15
- /B03/ Tool to calculate the emission factor for an electricity system, version 1.1.
- /B04/ CO2 Baseline Database for Indian Power Sector -User Guide, Version 4 dated October 2008 (covering data vintage 2005-06, 2006-07 & 2007-08) and Version 3 (covering data vintage 2001-01 to 2006-07) published by CEA. The same was assessed by TUV Rheinland in accordance with Tool to calculate the emission factor for an electricity system, version 1.1
- /B05/ UNFCCC: Guidelines for Completing the Project Design Document (CDM-SSC-PDD) and the template for the CDM-SSC-PDD, version 05
Relevant CDM requirements (CDM M & P and decisions by the CMP and documents released by CDM EB) published on the UNFCCC CDM website.
- /B06/
 - UNFCCC, CDM-SSC-PDD–Project Design Document form for Small-Scale project activities, Version 03, EB 28, Annex 34
 - Annex 22 of EB 49; Guidance on the demonstration and assessment of prior consideration of the CDM, version 5.2
 - Annex 58 of EB 51; Guidance on the assessment of Investment analysis, version 3.1.
 - Annex 45 of EB 41; Guidance on the assessment of Investment analysis, version 2
 - Attachment A to Appendix B of simplified modalities and procedures for small-scale CDM project activities.
- /B07/ Web sites referred

www.cea.nic.in (for referring baseline emission factor)
<http://cdmindia.nic.in/> (for validating the Host Country Approval)
<http://envfor.nic.in/> (for validating the applicability of EIA notification for the project activity)
<http://cdm.unfccc.int> (for referring to applicable latest guidelines)
<http://www.mercindia.org.in/> (for referring to the input values from the tariff order)
<http://www.powermin.nic.in/> (for verifying incentives provided by the Government of India)
<http://www.mahaurja.com> (for verifying list of projects installed in Maharashtra)
<http://mnes.nic.in/> (for verifying incentives provided by the Government of India)
<http://www.taxmann.net/> (for tax and corporate laws for the project activity)

- /B08/ Letter from C-WET for type approval/certificate for the Model S-70
(<http://www.newenergyindia.org/Wind%20turbine%20manufacturers.pdf>)
- /B09/ Global Stake Holder Comments received
- /B10/
- S.O. 60 (E), Environment Impact Assessment Notification, Ministry of Environment and Forests, Govt. of India dated 27th January 1994.
[http://envfor.nic.in/legis/eia/so-60\(e\).pdf](http://envfor.nic.in/legis/eia/so-60(e).pdf)
 - Amendments made on 13th June 2002 vide S.O. 632 (E), Ministry of Environment and Forests, Govt. of India.
- /B11/ Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006

The changes between the PDD version published for the 30 days stakeholder commenting period /P01/ and the final version submitted for registration /P02/ are addressed in the table 2 of the validation protocol as a part of this report.

2.2 Follow-up Interviews with Project Stakeholders

In order to reach a Validation Opinion an interview was planned for 21/04/2009. During the visit number of identified stakeholders was interviewed. Prior to the interview salient points to be discussed were planned. Date of interview, interviewee and points discussed are given in the following table.

Sr.No	Date	Name	Organization	Topic
/I-01/	2009-04-21	Mr. Promad Naralkar	Managing Director, Suma Shilp Limited	Seriousness of CDM consideration, Additionality
/I-02/	2009-04-21	Ms. Ashwini Oak	Director, Suma Shilp Limited.	Additionality, Sustainability Criteria
/I-03/	2009-04-21	Mr. B S Prasad	Manager Finance, Suma Shilp Limited	Stakeholder consultation done by Suma Shilp, Additionality
/I-04/	2009-07-24	Mr. Bharat Naik	Asst. Manager – CRM, M/s Suzlon Windfarm Services Limited.	Stakeholder consultation done by Suma Shilp, Additionality
/I-05/	2009-07-24	Mr. Dilip Namde	Local farmer	Stakeholder consultation done by Suma Shilp.
/I-06/	2009-07-24	Mr. Ramesh Pimpale	Local farmer	Stakeholder consultation done by Suma Shilp.

Validation Team considered the views obtained in these interviews while arriving at Validation Opinion.

2.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues, which need be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in

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.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for this project is enclosed in Appendix A to this report.

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

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

A request for clarification (CL) was raised where additional information is needed to fully clarify an issue.

A forward action request (FAR) was raised to highlight issues related to project implementation that require review during the first verification of the project activity.

Validation Protocol Table 1: Validation Requirements				
Checklist Question	Reference	Means of verification (MoV)	Findings, comments, references, data sources	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions (incl. mandatory requirements for CDM project activities) the project should meet. The checklist is organised in different sections, following the logic of the CDM VVM manual Ver 1. Each section is then further sub-divided with numeric numbering system.	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). A request for clarification (CL) is used when the validation team has identified a need for further clarification. A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity.

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests					
CL/CAR No	Observations	Reference	Summary of project owner response	Revised section(s)/Annexe(s) of the PDD	Validation team conclusion
CL/CAR- XX	If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.	Reference to the checklist question number in Table 1 where the CAR or CL is explained.	The responses given by the project participants during the communications with the validation team should be summarised in this section.		This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final Conclusion".

Validation Protocol Table 3: List of forward action requests (FARs)				
FAR Number	Observations	Reference	Summary of project owner response	Validation team conclusion
FAR-XX	If the conclusions from the draft Validation are FARs, these should be listed in this section.	Reference to the checklist question number in Table 1 where the FAR is explained.	The responses given by the project participants during the communications with the validation team should be summarised in this section.	This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final Conclusion".

Figure 1. Validation protocol tables

2.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a local technical review before being submitted to the project participants.

The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification.

2.5 Validation Team

Role	Full name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Dr. Manfred Brinkmann (till 31 May 2009)	1, 3, 4, 5, 6, 10, 11, 12, 13	TÜV Rheinland Japan Ltd.
	Mr. Asim Kumar Jana (From 1 June 2009)	1, 2, 3, 4, 5, 11, 12, 13	TÜV Rheinland India Ltd.
Trainees	Mr. S Srinivasan	-	TÜV Rheinland India Ltd.
	Mr. Raj Kumar Deka	-	TÜV Rheinland India Ltd.
Technical Reviewer	Mr. Zhou Kai	1, 5	TÜV Rheinland (Guangdong) Ltd

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation /P02/.

3.1 Approval and participation

The project is a unilateral project. The table given below summarizes the project participants and parties involved. The authenticity of the letter of approval /P03/ has been validated by referring the same to the official website of the DNA (www.cdmindia.nic.in) and the letter was found valid.

The LoA is therefore regarded as valid and meeting the requirements.

Project participants	Suma Shilp Limited
Parties involved	India (host)
APPROVAL	
LoA received	Yes
Date of LoA	16/09/2009
Reference to document	Letter No:4/5/2009-CCC
LoA received from	PP
Validation of authenticity	Valid. It is confirmed from the official website of the DNA (http://cdmindia.nic.in/cdmin)

	dia/projects/1404-09.pdf)
Validity of LoA	Valid
PARTICIPATION	
Party is party to Kyoto Protocol	Yes. India ratified the Kyoto protocol in August 2002.
Voluntary participation	Yes. In statement 2 of LoA.
Diversion of official development aid towards host country	No. There is no Annex I party involved.
Project contribution to SD	Yes. In statement 3 of LoA.

3.2 Project Design Document

The validation team validated that the Project Design Document is based on the currently valid CDM-SSC-PDD template, Version 03 /B06/ and is correctly applied in accordance with the applicable guidance document /B05/.

3.3 Project Description

The project activity involves 12 x 1250 kW Wind Electric Generators (S-70 type) supplied by Suzlon Energy Ltd. The project is implemented and operational and also found matching with the technical features and physical locations as mentioned in the PDD. The generated electricity is being sold to State Electricity Board (under PPA /P20/ conditions) through state grid, which is interconnected to NEWNE regional grid of India. The operation and maintenance of the project activity is sub-contracted to Suzlon Windfarm Services Limited.

The PP has given specifications of the individual WEG in the PDD and detailed specifications are mentioned in the PPA/P20/ separately as Exhibit A. Following documents were reviewed in-order to validate the same.

- Purchase order /P13a/ is checked for the type and model of the WEG
- Layout plan of WEGs at Sakri taluka in Dhule district, Maharashtra (showing the physical locations of all WEGs)/P21/
- Single line diagram for each feeders as evidence /P16/.

However flow diagram presented in section B.3 of the PDD needs to be revised to show metering and monitoring points. Hence CL 06 (1) was raised. The PDD is revised to address this CL and the revision was found appropriate and hence CL 06 (1) was closed.

The PP has employed S-70 model - geared, pitch regulated and with dual and asynchronous generator. The model has obtained the necessary type approval/ certificate from the MNES, Government of India and has been tested and certified as per the guidelines of the MNES by Centre for wind energy Technology. It was verified from the document/B08/. Hence the validation team was able to conclude that the project activity uses safe and sound technology. However, the validation team found that the description is not sufficient in the PDD. Hence CAR-02 (3) was raised requesting PP to include a description of how environmentally safe and sound technology is used in the project activity and age and life

time of the WEGs employed, in Section A.4.2 of PDD. The necessary request has been addressed in the revised PDD /P02/ and hence the CAR-02 (3) was closed. The project duration and crediting time are presented in the table below.

<i>Starting date of project</i>	<i>Expected project operational lifetime</i>	<i>Crediting period</i>
25/05/2006 (Date of placement of 1 st Purchase Order)	20 years/P12/	10 years Starting date: 15 July 2010 or the date of registration, whichever is later.

The validation team verified the starting date from the purchase orders placed by the PP /P07/ and expected project operational lifetime from the letter of undertaking from the WEG manufacturer /P12/.

The operation and maintenance of the project activity is outsourced to M/s Suzlon Windfarm Services Limited. To ensure proper operation and maintenance of the project activity, M/s Suzlon Windfarm Services Limited. has made provisions for personal training needs. The validation team has verified the training requirement and training schedule by reviewing the O & M manual of the contractor during the site visit.

In summary, according to clause 64 of VVM /B01/, by means of document review and on-site interviews with stakeholders, the validation team considers that the project description in PDD/Version 04 is accurate and complete.

3.4 Baseline and Monitoring Methodology

3.4.1 Applicability of the selected methodology to the project activity

The project correctly applies the approved small-scale baseline methodology AMS-I.D “Grid connected renewable electricity generation” version 15. The applicability of this methodology is justified since:

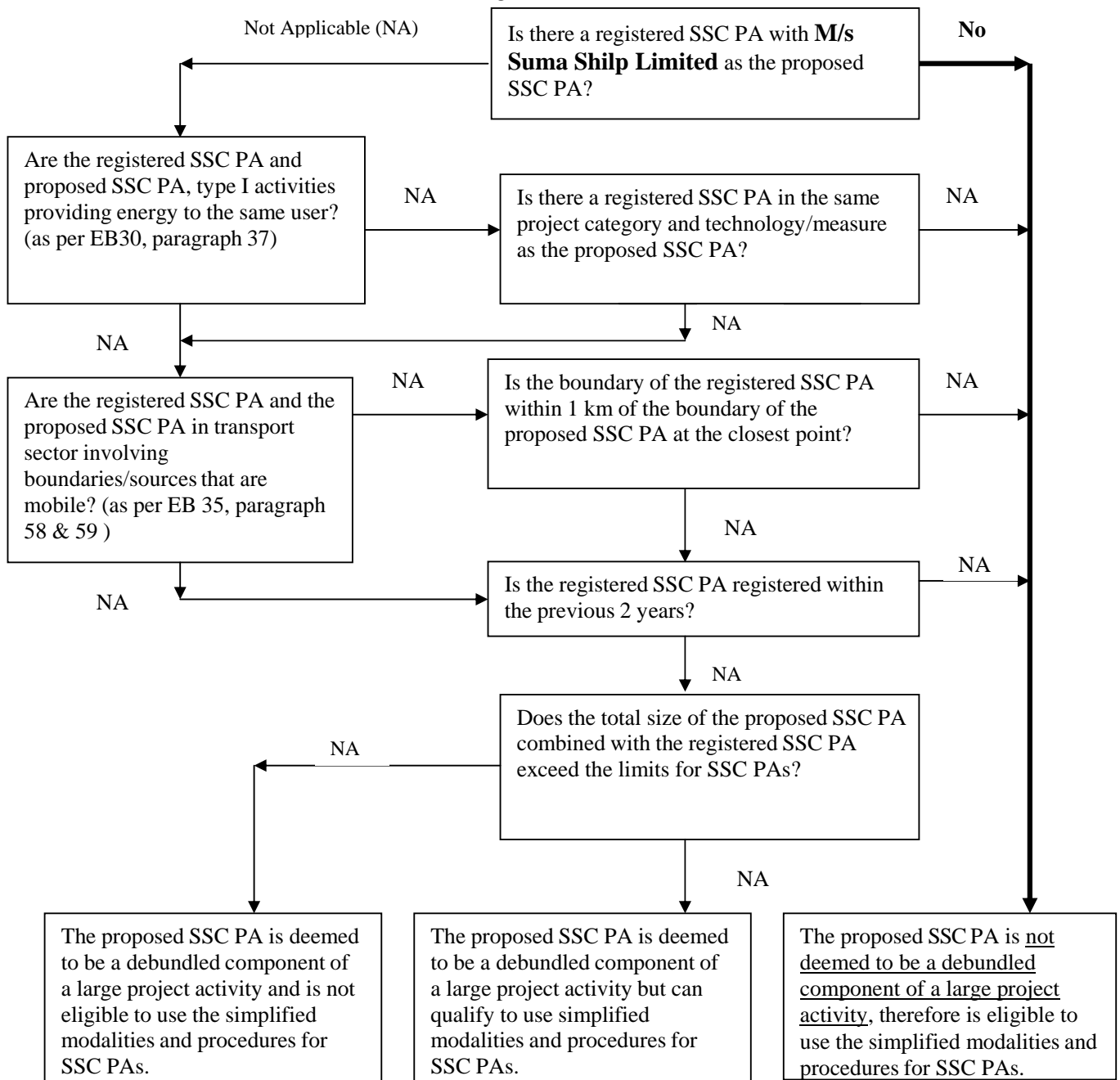
- i) The project activity involves wind based power generation and would supply electricity to the regional power grid, i.e. NEWNE, which is dominated by fossil-fuel fired power plants;/B04/
- ii) The total installed capacity of the project, as validated from the purchase order placed on Suzlon is 15 MW, and satisfies the requirement that the capacity of the project should be within the limits of 15 MW for a small-scale CDM project.

However, the validation team while reviewing the information contained in the PDD /P01/ in section B.2 noted that justification is needed to be provided for each of the applicability conditions defined in the methodology. Also, in section B.1, not all tools, which the approved methodology draws upon, were indicated, e.g., “Tool...emission factor....” In this context CAR 02 (6), (7) and (8) were raised. The PP has addressed the requested changes and the validation team reviewed the same and found them to be appropriate.

Thus the validation team considers that the project participant has correctly applied the approved small scale category, methodology and all the tools referenced therein for the project activity.

De-bundling

It is also noted during site visit and during interview with the stakeholders and referring to the UNFCCC website that there is no CDM project activity or no application to register another CDM project activity within one kilometer of the proposed project activity by the same project proponent in previous two years. Above validation is as per clarification¹ on determining the occurrence of bundling given in EB 47, Annex 32, Guidelines on assessment of de-bundling for SSC project activities. The chart provided in the Annex 32 of EB 47 is reproduced here to determine the occurrence of de-bundling.



Following analysis was performed in order to validate this part.

¹ http://cdm.unfccc.int/Reference/Guidclarif/Clarifs_deter_occur_debundling.pdf clarification on determining occurrence of bundling

1. 01-11-2009: checked UNFCCC interactive map: too many projects submitted in the area in order to properly check debundling.
2. Checked CDM Pipeline: too many wind projects (other than this one) submitted in Maharashtra, India under the same project category and technology measure (AMS-I.D and ACM0002), but none by the project proponent.

There are no projects by the PP other than the project activity that are applying to register for CDM in UNFCCC.

From the above analysis and by interview with the PP's representative, the validation team noted that there would be no provision of the any fossil fuel fired generator at the project location for power supply to the plant or on grid as back-up or emergency purposes. Apart from this, the validation team realizes that there would be no other major sources of project emission which are not addressed by the AMS.I.D/Version 15. Therefore the validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are not addressed by the applied methodology, i.e. AMS.I.D./Version 15 is deemed to contribute less than 1% of the overall expected average annual emissions reductions. Please refer to Section 3.4.4 for the detailed discussion.

This assertion ensures that the project activity is not de-bundled project activity of a large Project activity in accordance with the rules defined in Appendix C of Annex II to Decision 4/COP.1 and EB 47, Annex 32.

3.4.2 Project Boundary

Project activity boundary is identified as physical boundary of the project activity based on the guidance of the applicable methodology and is adequately described in the PDD in Section B.3. These boundaries are covering all activities related to the project activity. The project's system boundary includes the terminal points of electricity generation; transport to state utility grid and for the purpose of baseline emission calculation, NEWNE region grid of India is also included in the project system boundary.

The validation team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology and can be seen in the Table below. Hence a clarification of revision to or deviation from the approved methodology is not requested.

	GHGs involved	Description
Baseline emissions	CO2	Major emission source, which is emitted from the electricity generation by fossil fuel-fired power plants connected to NEWNE grid
Project emissions	N/A	Project emission is regarded as zero as the project is a renewable energy (wind source) project.
Leakage	N/A	There are no leakages that need to be considered in applying this methodology.

3.4.3 Baseline Identification

The project applies the approved baseline methodology AMS-I.D, version 15 titled “Grid connected renewable electricity generation”/B02/. The methodology is applicable to the project since the project activity involves grid-connected wind energy generation and the geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.

The alternative baseline scenarios have been identified as below²:

- a) No project activity – Continuation of current situation.
- b) The proposed project activity undertaken without being registered as a CDM project activity;

Both the above alternatives are in compliance with the laws and regulations of India and could be considered as baseline scenarios. The validation team considers the above list of alternatives as realistic and credible and to be complete. However, as per the investment analysis discussion presented in section 3.5.2 below, Alternative (b) is not a realistic and credible alternative since it is not financially attractive without support of CDM revenues.

Therefore, the most plausible baseline scenario as per the AMS-I.D is the electricity from the regional grid. This is justified as the 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. Since the project activity supplies power to the NEWNE grid of India, the combined margin emission factor of the NEWNE grid has been used in this case.

The validation team ascertains that the methodology is applied correctly to identify the baseline scenario. All assumptions and data used by the project participants are listed in the PDD, and all the references and documents used are relevant for establishing the baseline scenario and correctly quoted and conservatively interpreted in the PDD. As a detailed explanation on this acceptance, following is noted:

² As per Additionality Tool (Ver 05.2) a coal-fired power station or hydropower may not be an alternative for an independent power producer investing in wind energy (p.4) . Accordingly, the only two alternatives to the project activity are status quo and the project being set up as a non-CDM activity

The Maharashtra government has implemented policies providing comparative advantage to renewable power sector technologies over more emissions-intensive technologies since 2003, when the Government of India enacted Electricity Act, 2003. The validation team has checked the same and the details provided in the references in the PDD, section B.4 and concluded that the description in the PDD is correctly quoted. Hence, the validation team was able to conclude that the existing provincial and sectoral policies can be treated as E-technology policies that decrease GHG emissions. Also, the validation team noted that these policies have been implemented after 11 November 2001. Hence the PP has not considered this E- policy in developing the baseline scenario for the project activity. Instead the baseline scenario is the generation of equivalent electricity by the connected grid, i.e., continuation of current situation (E+ technology policy as mentioned in the PDD). Hence the selection of baseline scenario confirms to para 7(a) Annex 3 of EB 22.

The approved baseline methodology applicable to the project - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.1
PDD includes all assumptions and data used by project participants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.1
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.3
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.3
All relevant policies / regulations considered are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.3
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.3
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.3
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Details in Section 3.4.3

3.4.4 GHG Emission Reductions

Project Emissions: As per para 14 of the methodology, project emissions for this project activity is correctly considered as zero 0.

Baseline Emissions: This has been calculated by multiplying the net electricity supply to the grid and the emission factor of the NEWNE regional grid. As stated in section 3.4.3, grid

emission factor has been fixed ex-ante for the entire first crediting period. The net electricity supplied to the grid will be monitored ex-post and the same will be used for baseline emission calculations during the crediting period. For estimation of baseline emissions, the PP has assumed the net electricity generation as 26,280 MWh. The baseline emission was estimated to be 23,814 tCO₂ per year, based on an *ex-ante* fixed baseline emission factor of 0.9062 tCO₂e/MWh. The PP has used the values of OM and BM from the data published (version 4 /B04/) by Central Electricity Authority under Ministry of Power, Government of India for calculating the baseline emission factor. The validation of the same is provided in section 3.4.3 above. The validation team was able to confirm that this data was available at the time of PDD submission for validation.

The simple OM and BM for the calculation on CM is taken from the CEA published data. CM is correctly calculated using the “Tool to calculate the emission factor for an electricity system, Version 1.1” as described in Annex 3 of the PDD.

The internal assessment of the grid emission factor against the “Tool to calculate the emission factor for an electricity system/Version 1.1” is deemed correct by the validation team.

The electricity generation at the evacuation point is estimated at 26,280 MWh/year (the net electricity generation figure) and is based on a PLF of 21.05 % based on the data provided to the bank /P13e/ at the time of loan application. This figure is used in the estimation of the emission reductions and in arriving at the net electricity figure, 5 % T & D losses have been considered in line with the O & M agreement. The validation of the same is provided in Section 3.5.3.

Leakage: Leakage has been considered as zero for the project activity in accordance with para 15 of AMS-I.D, version 15 as the energy generating equipment is not being transferred from another activity.

The summary of GHG emission reduction is as follows:

All assumptions made for estimating GHG are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Section B.6
All data used by project participants are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Annex 3 Baseline Information & Section B.6
Their references and sources are also listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Annex 3 Baseline Information & Section B.6
Formula, parameters, values are complete, accurate, transparent and conservative	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Annex 3 Baseline Information & Section B.6
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Annex 3 Baseline Information & Section B.6
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per AMS-I.D, version 15 and methodological tool, “Tool to calculate the emission factor for an electricity system/Version 1.1”

All the emissions of baseline emissions can be replicated using information provided in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per AMS-I.D, version 15 and methodological tool, "Tool to calculate the emission factor for an electricity system/Version 1.1"
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3.5 Additionality

The project is small scale in size. Therefore, in accordance with § 28 of the simplified modalities and procedures for small-scale CDM project activities, the additionality of the project activity has been demonstrated using *Attachment A to Appendix B* (additionality tool for small scale project activities) and Guidance given vide Annex 58 of EB 51. As all requirements specified vide § 28 of the simplified modalities and procedures are complied with by the project activity, this approach has been assessed to be appropriate for the additionality assessment for this project activity.

3.5.1 Serious consideration CDM benefits

Starting date of project	Justification of and evidences (references) on the starting date of project	Date of CDM consideration
25/05/2006	The PP has placed purchase orders for the WEGs with the WEG manufacturer, Suzlon Energy Ltd. It is the earliest date at which real action of the project activity begun, and concludes that it is in accordance with the definition in "Glossary of CDM terms" and CDM VVM (§97)	17/02/2006

PP informed the validation team that they were aware of the Clean Development Mechanism as the WEG supplier and the Consultant had informed the PP about the entitlement of the project activity to CDM benefits even before the placement of order.

PP presented the proof of CDM consideration at the time of project conceptualization in the form of copy of resolution passed in the meeting of Board of Directors held on 17/02/2006 /P09/. On this day, the Board had taken the decision to approve the project with the consideration of CDM benefits. The decision to go ahead with the project was taken by the Board of Directors of the PP. The validation team verified the authority of the Board to take such decisions from the PP's Memorandum and Articles of Association /P21/ and is convinced that the Board is authorised to take such decisions. Hence the validation team was able to conclude that the CDM was seriously considered prior to start of the project activity. In this regard CAR 06(6) was raised and successfully closed.

Validation Team observed from the resolution of the Board of Directors that CDM benefits were the decisive factor in the decision to go ahead with the implementation of the project in as much as the resolution clearly states, "Further Resolved that the proposal for purchase of windmills is approved with the following conditions: (a) The income from power sale alone is insufficient to make the project viable; and (b) Carbon Benefits have to be availed in order to make the project viable"

The start date of the project activity is 25/05/2006, (which is before 2nd August 2008)- the date on which PP placed purchase orders for the WEGs with Suzlon Energy Ltd. The validation team noted that it is the earliest date on which real action of the implementation of the project activity had begun, and concludes that it is in accordance with the definition in "Glossary of CDM terms" and CDM VVM (§97).

The PP has furnished a chronology of events in Sec. B.5. The Board took the investment decision and considered the imperativeness of CDM benefits in the meeting held on 17/02/2006, which is evidenced by the copy of resolution dt. 17/02/2006 /P10a/. The PP appointed a CDM consultant to undertake preliminary assessment and screening of the project to ascertain and provide requisite guidance to develop the project activity as a CDM project, to identify CDM-PDD developers and to advice on the sale of CERs. This was validated from the work order given to M/s Shah and Kirtane dt 19/04/2006/P10b/. The purchase orders for the implementation of the project were placed on 25/05/2006 /P07/. The M/s Shah and Kirtane, sought proposal from MITCON for consultancy on CDM process for the project activity on 08/06/2006, which was validated from the letter from M/s Shah and Kirtane to the MITCON consultancy on the same date/P10b/. The Board took a decision to appoint MITCON on 03/05/2007 which was validated from the extract of resolution passed in the Board of Directors meeting held on the same date /P10c/. The DOE was appointed on 20/10/2008 /P10d/. The validation team noted that there is a gap of one year and 5 months between the appointment of the CDM consultant³ and the appointment of the DOE. Though the time gap is less than 2 years and it confirms to the guidelines of EB 49 Annex 22, the validation team raised a CAR 06(7) to explain the reason for this delay in the appointment of the DOE. The PP has responded that there were thefts and fire damage at the site incurring financial losses for the PP, requiring the PP to devote attention to solving those problems and this delayed the CDM process. To validate the above statement, the validation team checked the insurance claims and First Information Report (FIR) lodged with the Police /P11/ and found that the PP had suffered financial losses due to thefts and fire damages during the period between the appointment of CDM consultant and the appointment of DOE. The validation team accepts the justification for the delay and concluded that since the gap between each of the events are less than 2 years, the PP had shown continual efforts to secure CDM status for the project activity in accordance with EB 49 Annex 22 and hence CAR 06(7) was raised and successfully closed.

In the above background, Validation Team concludes

- a) the PP was aware of the CDM benefits at the time of decision making;
- b) CDM benefits were decisive factor in the decision to go ahead with the investment; and
- c) real and continuing actions were taken by the PP to get the project registered as CDM activity in parallel with the implementation of the project activity in as much as the gap between any two CDM activity has been less than 2 years.

Therefore, the project activity is in conformity with all the three conditions stipulated vide paragraph 6 (a) and (b) of Annex 22 of EB 49 and hence the CDM benefits were seriously considered by the PP.

3.5.2 Alternatives

The PP has identified the following alternative baseline scenarios as follows:

³ Appointment of MITCON as CDM consultant was terminated on 15/10/2008 and Ernest & Young was appointed as CDM Consultants on 26/11/2008

- a) No project activity – Continuation of current situation;
- b) the proposed project activity undertaken without being registered as a CDM project activity;

In the PDD /P01/, the identification of credible alternatives to the CDM project activity in order to determine the baseline was not presented. Hence CAR 06 (8) was raised. The PP has modified the relevant section in the revised PDD /P02/. The validation team reviewed the changes and it was found to be appropriate and hence the above CAR 06(8) was closed.

The DOE considers both are realistic/credible alternatives for supplying the same service i.e., the electricity, and that both are in compliance with the laws and regulations of India. The list of alternatives includes the project activity being undertaken without being registered as a CDM project activity as one of the options and is presented as alternative (b). (However, the validation team noted that as per the investment analysis discussion presented in section 3.5.3 below, alternative (b) is not a realistic and credible alternative since it is not financially attractive without support of CDM revenues). In order to validate alternative (a) as a plausible baseline scenario, the validation team verified the relevant laws and regulations such as Electricity Act and concludes that construction of a fossil-fuel based power plant with similar capacity is allowed, and known reserves of fossil fuels are available to the PP in the vicinity and hence the alternative (a) is a plausible baseline scenario. In order to validate alternative (a) as a plausible baseline scenario, the validation team noted that in the absence of the project activity, the same amount of electricity would have been generated by the operation of grid-connected power plants and by the addition of new generation sources and thus the alternative (a) is also a plausible baseline scenario.

Thus validation team considers the above list of alternatives as realistic and credible and to be complete. The project therefore conforms to paragraph 102 of VVM.

3.5.3 Investment analysis

Since the project activity generates revenues by the sale of electricity generated, simple cost analysis cannot be used. The PP has selected project IRR as financial indicator for investment analysis and benchmark analysis to demonstrate the additionality of the project. Since the high investment behoooves a commensurate return and since the project is funded both by equity and debt, the validation team concluded that the financial indicator selected is appropriate for the project type and decision making context. Therefore, the selected financial indicator is in conformity with the Additionality Tool (Ver. 05.2)

Since there are no alternatives to the project activity except that of generating equivalent amount of energy by the project grid electricity system through its currently running power plant and by new capacity addition to the grid, investment comparison analysis is not possible. In the ultimate analysis, the choice boils down to “invest or not to invest”. Hence, the validation team has concluded that the benchmark analysis selected by the Project Proponent is the most appropriate method of demonstrating the additionality of the project activity and is also in conformity with the Guidance (16) of Annex 58 of EB 51.

Investment analysis: Benchmark selection

In the PDD web-hosted for GSC, the PP had used equity IRR as the financial indicator and accordingly cost of equity as the benchmark. Since the project is funded both by equity and debt, a CAR 06 (2) was raised questioning the appropriateness of using equity IRR as financial indicator and cost of equity as the benchmark to demonstrate additionality having regard to the fact that the project has been funded by a mix of debt and equity. . Consequent upon the CAR, the project participant had changed the financial indicator to project IRR and accordingly, the benchmark to Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type⁴, Use of project IRR as financial indicator is approved by the Additionality Tool (Ver. 05.2) and the benchmark is in conformity with paragraph 6(a) of Sub-step 2b of Additionality Tool. Thus, both financial indicator and the benchmark are in conformity with Additionality Tool. Since the benchmark selected represents the minimum return (as explained in the next paragraph) that a project should earn to merit consideration and is in conformity with Additionality Tool, the benchmark conforms to paragraph 110 (a) of VVM

Benchmark involves computation of two variables, viz., Government bond rate and suitable risk premium to reflect the project type. Yield to Maturity (YTM) of Government Securities during the decision making period has been selected to represent the Government bond rate. Risk premium has been computed as the difference between the market return and risk free return. While the YTM has been used as a proxy for Risk free return (R_f), return on BSE 500⁵ has been used as proxy for Market return (R_m). The risk of the project type⁶ has been computed by using beta. Since there is only one wind energy company listed and traded in the stock exchange as on the date of decision making, all power generating companies which have a trading data for atleast three years as on the cut off date (December 2005) have been selected and the beta of all these companies have been computed. The computed betas have been unlevered using Hamada's equation in order to eliminate the leverage risk from the business risk. The unlevered beta, therefore represents the *risk of the project type*, which is in conformity with paragraph 110 (b) of VVM. Of the beta so computed, PP has selected the lowest beta to arrive at the risk premium. Based on the above computations (details of which are given in the worksheet), the expected/required return works out to 14.65%, which is less than the benchmark selected by the PP in the web-hosted PDD, (16.17%). The computations are correct⁷ and since the benchmark is much less than the return recommended by SERC (16%), validation team considers the calculated benchmark, 14.65 %, as conservative, appropriate and acceptable. Moreover, considering the fact that the company has been earning returns much higher than 20% in the past and that the project IRR with CDM benefits exceeds the benchmark, validation team is convinced that no investment would have been made at a return less than the benchmark. Therefore, the benchmark conforms to paragraph 110 (c) of VVM also

Investment analysis: Input parameters

All input data and assumptions used in IRR computation have been checked against the evidences provided by the PP, published information available, Indian Taxation Law and the standard accounting principle. The detailed assessment incorporating the means of validation is provided below.

⁴ Though Additionality Tool states private investment and/or project type, VVM vide paragraph 110 (b) has restricted the risk premium to project type only.

⁵ BSE 500 which consists of 500 stocks and account for more than 80% of market capitalization.

⁶ VVM restricts the risk premium to project type only.

⁷ PP has also submitted a certificate on the correctness of the data considered and the computation from a Professor of Finance , an independent financial expert as required by the Additionality Tool

Project Operation Parameters	Values used	Source for values adopted in financial model	Validation team's conclusion
Plant Load Factor	21.05 %	Based on data provided to the bank at the time of project financing. Separate spreadsheet has been provided for determination of the same.	O.K. checked the document/P13e/ and the spread sheet. Correctly adopted as per Annex 11 of EB 48.
Capital Cost / MW	INR 7672.37 Lakhs	Supply Orders – Suzlon Energy Ltd; Suzlon Towers and structures Ltd; Suzlon Infrastructure Ltd;	O.K. Correctly adopted
Insurance Charges @ % of capital cost	0.97 Lakhs/WEG	Insurance premium receipts	O.K. Correctly adopted
Operation & Maintenance Cost as % of capital cost	For 1st 2 years: Nil. From 3rd year to 10th year: 10.5 Lakhs/WEG with annual escalation of 5% over previous year.	Agreement with EPC contractor – Suzlon	O.K. Correctly adopted
Annual O & M Escalation	5%	Project EPC contractor – Suzlon	O.K. Correctly adopted
Transmission and Distribution (T & D) Losses (from WTG meter to the evacuation point, SEB authorized meter)	5%	Clause 6.3 of O & M agreement	O.K. Checked the document /P14a,b & c/. Correctly adopted
Tariff (INR/kWh)	3.50 with 0.15 raise every year over the previous year until the 13 th year.	Power Purchase Agreement (Exhibit C)	O.K. Correctly adopted

PPA duration	13 years	Power Purchase Agreement (Exhibit C)	O.K. Correctly adopted
Income Tax Depreciation Rate (Written Down Value basis)			
On Wind Energy Generators	80%	As per Income Tax Rules	O.K. Correctly adopted
Book Depreciation Rate (Straight Line Method basis)			
On all assets	5.28% Straight Line Method	Schedule XIV of Companies Act, 1956.	O.K. Correctly adopted
Income Tax			
Income Tax rate	30%	Income Tax Act[2]	O.K. Correctly adopted
Surcharge	10%	Finance Bill (Union Budget)	
Cess	2%	Finance Bill(Union Budget)	
Baseline Emission Factor for the NEWNE Grid (tCO ₂ /GWh)	906.2	CEA Database for Grid Baseline: Version 4	O.K. Correctly adopted

Validation Team examined in depth, *inter alia*, the following input parameters:

Investment cost: The project cost has been estimated at Rs.767.24 mn., i.e., Rs. 51.15 mn per MW. The order was placed for the windmills in May 2006. This is in contrast to the cost of Rs.40 mn. per MW recommended by MERC way back in November 2003. During the interregnum, there had been an increase in steel price by about 10% p.a. and the consumer price index had gone up by 5% p.a.. That apart, the Validation Team also ascertained the reasonableness of the cost by comparing with other projects which had applied for CDM registration. The Validation Team observed that the cost ranged between Rs.50 mn./MW in respect of project which placed order in September 2005 (Project No. 3139) to Rs. 65 mn./MW for project which placed order in January 2008 (Project No. 2770). Even in the case of a large sized projects (ONGC with an installed capacity of 51 MW - project No. 2856 and GPECPL with an installed capacity of 50.4 mn.– project No. 2925), for which orders were placed in March 2007 and July 2007 respectively, the cost was Rs.61 mn./MW and Rs.53 mn./MW respectively. In contrast to this, the project cost in this instant case was Rs.51.15 mn./MW only, which the validation team considers reasonable. Moreover, PP had submitted the purchase order evidencing the purchases and also the bank statement evidencing the release of payment. In the above background, Validation Team is convinced that the project cost is appropriate, correct and dependable.

Net Exports to Grid: The second issue, which the Validation Team examined net power exports to grid. The PLF assumed by the PP conforms to Annex 11 of EB 48 in as much as it is evidenced by the copy of the letter (acknowledged by the bank) /P13.e/ from the PP to the bank confirming the net generation per WEG per year at the evacuation point at the time of loan application. PLF considered by the PP is calculated based on the net electricity value provided to the bank at the time of loan application. The gross generation assumed in the projections yield a PLF of 21.05%. After accounting for transmission and distribution losses of 5%, net export to grid yields a PLF of 20%. The generation is in conformity with the generation recommended by MERC. MERC has recommended the PLF after conducting an exhaustive study over a long period on the wind pattern, velocity. PP has submitted that windmills in Maharashtra in general and Dhule District in particular, do not achieve more than 20% PLF. Validation Team cross checked this submission with projects already registered (for example project No. 3130, 2543 and 2342) and found that they have all assumed a PLF of 20% only. Even the data published by MEDA seems to indicate that the windmills in Dhule District, Maharashtra (where this project is located) do not achieve more than 20% PLF. In the above background, Validation Team considers the PLF of 20% assumed as appropriate and valid.

Life of the project: The life of the project activity conforms to the directions given by EB vide Annex 15 of EB 50 and the tariff takes into consideration the concern expressed by EB vide paragraph 48 of the minutes of 49th meeting of EB.

Tariff: MERC released the tariff order for wind energy projects in November 2003 and since then all the wind energy projects located in Maharashtra are given the same tariff and no other project located either in the same district or anywhere in the State of Maharashtra has been given higher tariff since November 2003. Hence, the question of project IRR exceeding the benchmark by application of higher tariff does not arise, in as much as no other project has been given higher tariff. In fact, MERC has fixed a lower tariff for all older projects⁸ of late. It is in the above background that the validation team is convinced that the tariff considered is appropriate and the concern expressed by the EB vide paragraph 48 of the minutes of 49th meeting of EB has been taken care of.

O&M cost: O&M cost is based on purchase order, copy of which has been submitted to DOE, which was verified. Suzlon, who is the supplier of WEGs provides O&M contract and follows standard O&M cost policy. For 1.25 MW WEG it has been charging Rs.1.05 mn. and the cost assumed in the worksheet is in agreement with the O&M cost charged by Suzlon to other clients as well. O&M cost works out to about 2.05% of the project cost. Validation Team checked and found that it has charged the same cost to Project No. 2950, which got registered recently, In the case of ITC Wind power project (No. 3035), O&M cost works out to 2.04%. As stated in the sensitivity analysis assessment, O&M cost is not very critical in determining the additionality of the project (as only a ~40% reduction would render the project non-additional).

⁸ MSEDCL (Power purchasing company) had filed a petition on 23 July 07 demanding that it should be allowed to purchase wind power from wind power generating companies under group II (i.e. projects commissioned after 27 Dec 1999 and before 1 April 2003) at the rate of 90% of lowest HT Industrial Energy Tariff, i.e., at the fixed rate of Rs. 1.17 per kWh, with no variation. This implied reduction of rate from Rs. 3.50 to Rs. 1.17. MERC has not refuted the claim of MSEDCL. It ruled that the rates cannot be revised from 2007-08 as the EPA tenure for such project vary from 27 Dec 2007 to 31.3.2011. (please see Case 33 of 2007 dt. 20.11.2007). It is for this reason that the PP had considered conservatively a tariff of Rs.3.50/kWh from the 14th year onwards, i.e., after the end of PPA, though there is no guarantee that the PP will get even this tariff

Interest rate: Interest rate assumed in the financial indicator calculations are based on the actual interest payable by the project and is based on the sanction letter. This is in conformity with guidance 11 of Annex 58, EB 51, which states, "In cases where a post-tax benchmark is applied the DOE shall ensure that actual interest payable is taken into account in the calculation of income tax". Since the interest is based on the sanction letter, it represents the actual interest payable by the project activity. Incidentally, this was the commercial interest rate prevailing at the time of decision making⁹.

Besides cross checking the input parameters with the quotation/purchase orders, the validation team also compared the cost with other projects and found the input parameters used to be appropriate. Nevertheless, in the course of this assessment some inconsistencies were found in between the stated figure in the PDD and the evidences. In this regard, CL-03A and CAR-06A were raised and satisfactorily closed. The details of the validation team's findings and conclusion can be found in Table 2 of Appendix A. Thus, Validation Team had taken into consideration the directions given vide paragraph 112 of VVM in validating the project.

Investment analysis: Calculation and conclusion

The assessment involves checking the data input taken from quotations/purchase orders/documents, adoption of correct accounting principle and arithmetical accuracy. As mentioned above, the validation team checked the quotations/purchase orders and ensured that right input value is taken in the project cost and projections. The accounting principles adopted with respect to depreciation and tax computation were checked and found to be in order. The arithmetical accuracy was also found to be correct.

The IRR calculations have been provided in a transparent spreadsheet and verified by the validation team. IRR has been computed for 20 years of operations, which is the life time of the project and is in conformity with the guidance issued by EB vide Annex 58 of EB 51. As required by Annex 58 of EB 51 the expected profit on the sale of assets at the end of the operating life has been taken as *salvage value* in the terminal year. The project developer has taken into account profit after tax, depreciation, tax shield and salvage value (in the terminal year) in the computation of IRR. The principle adopted in making projections and computing IRR conforms to the accepted and standard accounting and taxation principles. In the above background, Validation Team concludes that underlying assumption are appropriate, accounting principles adopted in calculations and calculations per se are correct and the guidance vide paragraph 112 of the VVM has been taken care of.

Based on the above, the project IRR works out to 13.45% which is less than the benchmark of 14.65%. The project IRR crosses the benchmark value with support of revenues from CDM and thus makes the project viable. In the above background, the validation team is convinced that the project is additional.

Investment analysis: Sensitivity analysis

The Guidance on Assessment of Investment Analysis requires the robustness of the conclusion arrived at above, viz., that the project is additional, should be proved through a sensitivity analysis by varying the critical assumptions (which constitute more than 20% of either total project costs or total revenues) to a reasonable variation. The Guidance also

⁹ Please see RBI Weekly Statistical supplement (10th Feb, 2006)., <http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/68724.pdf>

states that all the variables need not be subjected to variations to cover a range of +10% and –10%, if this is not deemed appropriate in the context of the specific project circumstances. In the above background, three parameters have been identified for conducting sensitivity analysis, viz., project cost, PLF and O&M cost and these 3 parameters were subjected to 5% variation on either side. It has been noted that the above three parameters are the only factors, which are likely to affect the Project IRR significantly because of variation.

Regarding the sensitivity for tariff, the validation team noted that the tariff is based on PPA and it remained the same since the year 2003, when the Electricity Act was introduced in India and Maharashtra Energy Development commission issued its first tariff order. It is the highest tariff existed in the region since the year 2002.

The generation data has been sourced from the data provided by the PP to the bank at the time of project financing (based on which the financial assistance was sanctioned by the bank). The PP has subjected this generation data to +5 % variations. Validation team considers that such an increase in generation is highly unlikely to happen considering the fact that the project has achieved a PLF of only 17 % in 2008-09 in contrast to 21.05 % considered in the IRR computation. The actual PLF was validated from the actual generation from the joint meter readings as evidenced from the document /P18/.

The project cost is taken at actuals /P13a/ and hence any reduction in the project cost is highly hypothetical. The PP has subjected this cost also to -5 % variations. The Project IRR crosses the benchmark in this case. But the occurrence of this situation is ruled out as the cost is based on the actual cost incurred.

The O & M cost is also taken at actuals from the O & M agreement /P14/ and considering the inflation rate of the country; it is not expected to reduce any further. So a variation of -5% is highly unrealistic.

An independent evaluation made by the Validation Team reveals that the project would become non additional, if the PLF increases by 5.5% (over 21.05% assumed in the base case i.e., 22.21%) or the O&M cost goes down by 40%. Both the events are unlikely to happen. As mentioned earlier, the project has been achieving a PLF of only 17% since inception. Hence to achieve a PLF of 22.21% on sustained basis for the next 20 years is not feasible. Likewise, a reduction in the O&M cost by as much as 40% over the life time of the project (when the country is experiencing inflation of 5%) is also equally impossible. In this context, Validation Team has observed that even if the O&M cost is not subjected to any escalation, the project would remain additional.

In the above background, validation team concurs with the PP that the project activity is financially not viable without the benefits from CDM. DOE is, therefore, convinced that the project is additional and would continue to be additional even under the most optimistic conditions.

3.6 Monitoring

The project correctly applies the approved monitoring methodology AMS I.D, version 15. The selected monitoring methodology is applicable for the project and monitors the following parameter.

1. Net electricity supplied by the project activity to the NEWNE regional grid of India.(EG BL,y)

It was verified that the project participant will monitor the monthly net electricity supplied to the NEWNE grid. The combined margin emission factor is determined ex-ante based on the most recent information available at the time of PDD submission.

During the site visit, the validation team verified that the PP has installed 12 WEGs spread in 7 different feeders (connection point to the grid) in same location (i.e. in the same wind farm) under the project activity. The details of the WEGs and all the feeders along with the corresponding main and check meter number are provided in table below.

WEG number	Feeder Name/number	Main Meter	Check Meter
K 256, K273	Valve Feeder no. 1	4725793	4725788
K274, K 280, K 296, K 297	Valve Feeder no. 2	4725786	4738064
J111	Jamde Feeder no. 3	4862465	4725796
J 125	Jamde Feeder no. 9	4725791	4763795
J 102	Jamde Feeder no. 10	4890562	4863441
K 241	Jamde Feeder no. 11	4725805	4725799
J 103, J 105	Jamde Feeder no. 12	4725806	4725809

All the details of the above table are verified during the site visit and as per the details /P18/ provided by the manufacturer (Suzlon Energy Limited).

It was observed from during the site visit and from the details provided by the manufacturer that the feeders identified above also connected to other WEGs (Non-PP). In this context CL 06 (5) was raised by DOE as it was unclear from hosted PDD, whether the meters (main and check meters) are dedicated to the project activity or shared with other WEGs (Non PP). PP has satisfactorily replied to the CL raised by providing all the details in a transparent manner in Annex 4 of the PDD. Hence the CL raised was closed successfully. The net electricity supplied by the project activity to the NEWNE regional grid will be jointly recorded by both MSECDL and PP's representative, M/s Suzlon Windfarm Services Limited. This was verified from the PPA and the joint meter reading report. As WEGs belonging to both PP and Non-PP are connected to each of the feeders, the net electricity supplied by the WEGs of the PP is calculated by apportioning method. As per the signed PPA /P20/ (clause 11.05) the relevant data for apportioning of net electricity export will be provided by the O & M Company (M/s Suzlon Windfarm Services Limited). MSECDL is responsible for calculation of apportioned net electricity supplied. MSECDL provides a detailed monthly report on net electricity /P18/ supplied by the PP, which includes the total export, total import, net export, period of billing etc. This monthly report by MSECDL serves the basis for the commercial invoicing. This procedure is validated from the document /P22/.

The meters are located at 33 kV line in Jamde and Valve substations and under the control of MSECDL. The electricity measurement at metering points is continuous and joint recording of monthly reading at the last day of each calendar month is being practiced. This was verified from the JMR reports /P18/.

The accuracy (0.2s) as noted from the meter confirms the description contained in B.7.1 of the PDD. As per clause 11.02 of the PPA the testing and calibration of the meters are under the control of MSECDL. The accuracy class and the method and frequency of the installed on grid electricity meters confirming to the Central Electricity Authority (Installation and

Operation of Meters) Regulations, 2006/ B11/. This also compiles with para 12 of the general guidelines of the small scale project activities.

Net ~~Power~~ electricity supplied to the grid ($EG_{BL,y}$) is the data required to be monitored as per section B.7.1 of the PDD. $EG_{BL,y}$ will be monitored from the monthly net export report by MSEDCL to PP, which is a commercial document. After details verification of the submitted documents /P14/, /P17/, /P18/, /P20/, /P22/, validation team concludes that the monitoring arrangement described in the monitoring plan is feasible and the PP is capable to implement the monitoring plan and monitor $EG_{BL,y}$ with the desired level of accuracy.

The project will displace fossil fuel-based electricity generation from NEWNE grid. While the project emissions are zero. Details of the data to be collected, frequency of data recording, and the project management responsibilities are clearly defined. All the relevant data necessary for the estimation of the GHG emissions over the entire fixed crediting period has been covered under monitoring plan.

3.6.1 Parameters determined ex-ante

The project adopts the ex-ante calculation of emission factor of the grid. The parameters for determining the GHG emissions reductions have been clearly demonstrated in section B.6.2. of the PDD. The combined margin emission factor for NEWNE grid of India has been calculated to be 0.9062 tCO₂e / MWh. This has been calculated using the source from the Central Electricity Authority CO₂ Baseline Database. Central electricity Authority (CEA) (under Ministry of Power, Government of India) have worked out baseline emission factor for various grids in India and made them publicly available. The DNA of the host party (India) has also given a link to the CEA. The data from CO₂ Baseline Database for the Indian Power Sector User Guide - Version 4.0 is considered to be valid because it is the most recent data at the time of submission of CDM-PDD for validation (Cp p4 of tool to calculate emission factor of an electricity system, version 01.1). Validation team has checked the calculation of the combined margin grid emission factor and confirmed that the applied value of the emission factor follows the tool. And the values of OM and BM incorporated in the PDD is taken from publically available database i.e by CEA (Govt of India)

Never the less, following stepwise procedures have been followed to validated the calculation of combine margin emission factor.

Step 1 - In line with the requirements specified in the tool, the PP has used a regional grid definition as applicable for large countries like India having layered electricity dispatch systems. The Indian power system is divided in two grids, the Northern, Eastern, Western and North- Eastern (NEWNE) Grid and Southern Grid. The project activity is connected to NEWNE grid and hence for the purpose of estimation of baseline emission factor the consideration of NEWNE Grid is appropriate and correct.

Step 2 - Simple OM method, out of the four methods provided in the tool for calculating the operating margin ($EF_{grid,OM,y}$) is selected. The tool specifies that the simple OM method can only be used if the low-cost/must-run resources constitute less than 50% of total grid generation in :1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production. The Simple OM method selected is justified and appropriate as

the average proportion of low-cost/must run resources is less than 50%. The ex-ante option for determining the simple OM is opted by the PP.

Step 3 - The PP has considered the national published data (CEA database, ver 04) for simple OM (This is in conformation with the para 2, section B.6.1 of *Specific guidelines for completing CDM-SSC-PDD*, version 5). The simple OM emission factor calculated by the CEA (1.009 tCO₂/MWh) is the generation weighted average CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must power plants (Cp page 6, User Guide – CO₂ Baseline Database for the Indian power sector).

The value of simple operation margin for each year and the data for the calculation of $EF_{grid, simpleOM,y}$ is published by the CEA and is publically available. However, validation team has carried out independent calculation to reproduce the published value of simple OM from the data available in CEA, version 4 and found the value are is correct and inline with the tool.

Step 4 - Option (b) the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently has been considered by CEA and the same has been selected in the PDD.

Validation team checked independently and confirm that the selection of the options is correct. This conclusion has been made based on the analyzing both the options, and it was found that the set of power as per option (b) comprises of larger annual generation and hence confirm the requirement of the tool. In validating this step, validation team further confirms that:

- (i) the identified power capacity additions comprise 20% of the system generation for the year under consideration.
- (ii) none of the considered power capacity additions considered under (i) above have been built more than ten years earlier.

PP has fixed the Build Margin emission factor as ex-ante for the whole crediting period.

Step 5 - The PP has considered the national published data (CEA database, ver 04) for BM (This is in conformation with the para 2, section B.6.1 of *Specific guidelines for completing CDM-SSC-PDD*, version 5).

The CEA database provides BM value for the NEWNE grid as 0.5977. As part of validation of Step 5 of the tool, Validation team through independent calculations confirmed, the BM (tCO₂/MWh) for the year 2007-08 is correct.

Step 6 of the tool requires calculation of the combined margin emission factor as per the following equation:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times w_{OM} + EF_{grid,BM,y} \times w_{BM}$$

According to the tool on selecting alternative weights, the default weights applicable for wind projects are $w_{OM} = 0.75$ and $w_{BM} = 0.25$ for the first and subsequent crediting period have been applied. The combined margin emission factor has been calculated as; $EF_y = 0.9062$ tCO₂e/MWh (The official published data for simple OM and BM is considered for calculation of CM). Hence the validation team confirms that the PP has correctly calculated the combined margin grid emission factor and is inline with the tool to calculate emission factor.

3.6.2 Parameters monitored ex-post

The only data required to be monitored ex-post is the net electricity supplied to the NEWNE grid. The net electricity supplied to the NEWNE grid will be monitored by both MSEDCL the PP's representative. The PDD has mentioned the monitored parameter in section B.7.1. It is not clear from the hosted PDD whether the meters are dedicated to the project activity or shared with other WEGs (=Non PP) in the context of joint metering as mention in Annex 4, of the PDD. Hence CL-06 (point no.5) was raised. The PP has responded that $EG_{BL,y}$ corresponds to the net annual electricity being supplied to the grid by all the 12 WEGs from 7 feeders. The net energy supplied to the grid, $EG_{BL,y}$, will be measured by the meters installed at the substation which are two-way meters measuring import and export. It is also further explained in Annex 4 of PDD along with details of metering arrangement. The validation team has verified the metering arrangements during the site visit and reviewed the net electricity export report from the MSEDCL to PP. Thus the validation team was able to conclude that the measurement method is clearly stated for each value to be monitored and deemed appropriate and hence CL-06 (point 5) was closed. The meter calibration intervals are identified and justified satisfactorily in Annex 4 of PDD. They are deemed appropriate.

Hence, the validation team was able to conclude that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered, clearly described and the value of the parameters are real, measurable and conservative. The monitoring plan confirms the requirement of para 121 and 122 of VVM, version 01.1.

3.6.3 Management system and quality assurance

The responsibility of overall project management lies with the PP. The project operation and maintenance is outsourced to M/s Suzlon Windfarm Services Limited. The O & M contractor has made provisions for personal training needs and the validation team verified the same by reviewing the O & M manual of the contractor and training schedule during the site visit.

All indicators of importance for controlling and reporting of project performance such as net electricity supplied to the grid are incorporated in the monitoring plan. The joint electricity measurement will be carried out once in a month in presence of both parties (the PP's representative and officials of the state power utility). Both parties will sign the recorded reading. The meters will be tested for accuracy and calibration of the meters would be taken care of. The monthly electricity sales receipts will also be archived until 2 years after the crediting period to facilitate cross-checking during the crediting period. However, CAR 09 (7, 8, 9) was raised, in-order to discuss the frequency, responsibility and authority for registration, monitoring, measurement and reporting activities more elaborately. The PP has revised the relevant sections in the revised PDD/P02/. The validation team reviewed the same and found that the description is sufficiently provided and hence the CAR was closed.

3.7 Sustainable Development

The validation team noted that the LoA from the Host country DNA /P03/ contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party. The PDD indicates additional environmental benefits of the project, other than GHG emission reductions, like resource conservation and zero harmful impact on human health. The justifications provided by the PP to substantiate them are

acceptable to the validation team as the project activity is based on renewable resource, wind energy technology.

3.8 Environmental Impacts

The PP has provided description of environmental impacts in section D.1 of the PDD, covering the project activity's Impact on Land use, soil use, Air Environment and Transboundary impacts. The validation team reviewed and concluded that the description is sufficient. The validation team checked the description for its appropriateness and confirms that the project is not likely to create any adverse environmental effects.

According to Ministry of Environment and Forests Environment, Government of India, Impact Assessment Notification /B10/ a new project having investment of less than INR 1000 million and which does not appear in schedule 1 of the notification is not required to carry out an Environment Impact Assessment (EIA). Thus EIA is not found necessary for the project activity as per the laws of India. The validation team has checked the relevant notification (mentioned above) issued by Ministry of Environment and Forest (MoEF) to verify the information. Hence the validation team is able to confirm that the project complies with the environmental regulations in India.

3.9 Local Stakeholder Consultation

The comments were invited from local stakeholders like office bearers of neighbouring village bodies, panchayat people, for problems on environment and socio-economic effect. The validation team noted that all the relevant stakeholders were identified and invited.

The PP has utilized appropriate media to invite these stakeholders. The PP had invited the stakeholders through inviting letter on 05/01/2009 to provide their general feedback on the project activity including its effect on the environment and its socio-economic effect. The validation team have verified the related documents and found acceptable /P15/. Also, this date is prior to the publication of the PDD on the UNFCCC website i.e., on 12/03/2009. Considerations of the above comments are taken into account by the PP.

The project participant has made a presentation of the project activity on 20/01/2009, in unbiased manner. This was verified during onsite visit by interviewing some of the attendees of the stakeholder meeting. During the meeting, the PP invited comments of the stakeholders on the project. The project has not received any adverse comments. The validation team has checked the summary of comments received during the meeting and it has verified the same by way of interviews with some local stakeholders during the site visit.

The validation team can confirm that the process for conducting the local stakeholders meeting is adequate and credible.

3.10 Comments by Parties, Stakeholders and NGOs

The PDD version 01 of "06/03/2009" was made publicly available on (<http://cdm.unfccc.int/Projects/Validation/DB/C9OFRDS0MB0OXNB14473718HZK8V11/view.html>) from "12/03/2009 – 10/04/2009" in order to invite comments from public stakeholders.

A total of three (3) comments were received from two (2) individual stake holders and are given (in unedited form) in the below text box with their names and contact details which appear to be authentic.

Comment by: A.R.Ravi Kumar, rattravanam@yahoo.co.in

☐ Accredited NGO ☐ Party ☒ Stakeholder

Provided on: 16/04/2009

Subject: CDM consideration

Comment	Consideration / response from DOE
<p>1. CDM consideration is very weak in this project. It is rather surprising to note that a project of this size 15 MW with 12 WTG's of 1.2 MW is taken up and the PDD comes up after 3 years of the start date of the Project. Hence in my assessment CDM consideration is weak and seems to be an after thought. DOE and validating agency need to verify and make sure that PP justifies the delay as regards to CDM consideration.</p> <p>2. The PP does not give the justification for delay in CDM consideration by means of chronology of events. The starting date of the project has not been mentioned in the PDD. Further, in the PDD, it has been mentioned that during first year of operation 2007-08, the PLF achieved is about 13%. Hence there is no justification to assume during the entire project period a PLF of 25.72% even though the PP has observed much lower PLF. This needs a scientific approach and proper correction.</p>	<p>Both the comments have been considered during the course of validation (Cp CL 03, CAR 06 (6, 7) of Table 2 of the protocol).</p>

Comment by: S.K.GUPTA, kamal@kecindustries.com

154-F, GHANDHI DHAM , NEAR BUS STAND JAGADHRI-135003
MOBILE 9810467564

☐ Accredited NGO ☐ Party ☒ Stakeholder

Provided on: 10/04/2009

Subject: Investment analysis and sharing of CER

Comment	Consideration / response from DOE
<p>How project proponent has considered the income tax reabate/benefit of 100 % provided by the govt of india, in IRR calculation.</p> <p>Further how the benefit of CDM revenue will be shared with state electricity board who is buyer of generation. DOE is also requested to clarify above points is comments.</p>	<p>This comment is already considered during the course of validation (CAR 07A of Table 2 of the protocol)</p> <p>The benefit of CDM revenue will not be shared with the state electricity board as per PPA. The same was also confirmed by PP during interview.</p>

Appendix A

CDM VALIDATION PROTOCOL

”SSL Wind Power Project”

in India

REPORT No. 01 997 9105051114

Table 1: Validation requirements

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB44)

Checklist question	Ref.	MoV ¹⁰	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Approval					
1.1 Have Letters of Approval have been provided from all involved Parties? If yes, indicate: <ul style="list-style-type: none"> – when and by which Party the LoA has been issued, with a clear reference to the LoA itself and any supporting documentation; – whether the LoA was provided to the DOE by the project participants or directly by the DNA; – the means of validation employed to assess the authenticity of the document; and – by a clear statement, that the DOE considers the LoA to be valid. 	UNFCCC CDM rules. /B05/	I	The Letter of Approval from the host party has not been obtained. Hence CAR-01 is raised.	CAR-01	OK
1.2 Are all Parties, who issued the LoA, Parties to the Kyoto Protocol <u>and</u> is this stated in the LoA?	UNFCCC CDM rules. /B05/	I	Same as above	CAR-01	OK

¹⁰ MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

1.3	Is every LoA from the Parties involved issued by an organisation listed as Designated National Authority (DNA) on the UNFCCC web site? <i>Indicate the official name of the DNA and contact person name.</i>	UNFCCC CDM rules. /B05/	I	Same as above	CAR-01	OK
1.4	Is the participation in the CDM project activity voluntary <u>and</u> is this stated in all LoAs? <i>Indicate the source of proof.</i>	UNFCCC CDM rules. /B05/	I	Same as above	CAR-01	OK
1.5	Is the LoA unconditional with respect to 1.2 to 1.4?	UNFCCC CDM rules. /B05/	I	Same as above	CAR-01	OK
1.6	Is the title of the CDM project activity as given in the PDD identical with the title given in all LoAs and Modalities of Communication? <i>Provide Yes/No answer, and include details into Tables 2 and 3 accordingly.</i>	PDD(A.1) UNFCCC CDM rules. /B05/	I	Same as above	CAR-01	OK
1.7	If any of provided LoAs contains additional specification of the CDM project activity (PDD version number, validation report version number, amount of ER, etc.) are those specifications valid and consistent with other documents?	UNFCCC CDM rules. /B05/	I	Same as above	CAR-01	OK
1.8	Does the project activity involve any public funding from Annex I Parties? <u>If yes</u> , has Annex I Party provided a written confirmation that the use of such funding does not lead to the diversion of the official development assistance.	UNFCCC CDM rules. /B05/	DR	There is no Annex I party involved in the project activity. However CL-01 has been raised to address this in the section A.4.5 and Annex 2.	CL-01	OK
2. Participation (VVM E.2)						

2.1	Are the Parties and project participants (PP) listed in the section A.3 of the PDD correct <u>and</u> are this information consistent with the contact details provided in Annex 1 of the PDD?	PDD(A.3, Annex 1)	DR	Yes. The information is correct and consistent with Annex 1 of the PDD.	O.K	OK
2.2	Has every Party involved approved the participation of each corresponding PP, either by means of a LoA or by a separate written document?	PDD	DR	Refer Question 1.1 above.	CAR-01	OK
3. Project Design Document (VVM E.3)						
3.1	Is the PDD presented for validation based on the latest template available at the UNFCCC website? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2 and 3 accordingly.</i>	PDD /B05/	DR	Yes, the PDD is presented based on the latest template available at the UNFCCC website.	OK	OK
3.2	Has the PDD been established in accordance with the CDM requirements for completing PDDs issued by the CDM EB?	PDD /B05/	DR	The PDD has not established the requirements for completing PDDs issued by the CDM EB. Hence CAR-02 is raised.	CAR-02	OK
4. Project Description (VVM E.4)						
4.1	Does the PDD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	PDD	DR	The PDD contains a description of project activity and its technical aspects of its implementation. During interview with the PP it was found that the description contained in the PDD is having missing information. In this context, CL-01, CL-02, CL-03, CAR-02 (1, 3), CAR - 03 are raised.	CL-02 CL-03 CL-04 CAR-02 (1, 3) CAR-03	OK

<p>4.2 In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals?</p> <p><i>Provide Yes/No answer and indicate the documents which have been reviewed in relation to the issue.</i></p>	PDD		<p>Yes, the project activity is a green field project and the PP has given specifications of the individual WEG in the PDD and detailed specifications separately. Following documents were reviewed.</p> <ul style="list-style-type: none"> Purchase order is checked for the type and model of the WEG and detailed technical specifications of WEG, are provided separately. <p>However following documents have not been submitted.</p> <ul style="list-style-type: none"> Layout plan of all WEGs (PP) at the project site showing the physical locations of all WEGs Single line diagram of evacuation layout showing details of main meter and evacuation substation. <p>Hence CAR 03 and CAR 09 (1) is raised.</p>	<p>CAR 03 CAR 09(1)</p>	OK
<p>4.3 Does the project activity reflects current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country?</p> <p><i>Provide the description of how validation has been carried out and what comparisons have been made.</i></p>	PDD(A.4.2)	DR	<p>The PDD does not describe whether the project activity reflects current good practices, uses state of the art technology. Hence CL 02 and CAR 02(3) is raised.</p>	<p>CL 02 CAR 02(3)</p>	OK

4.4 In cases where the project activity involves the alteration of an existing installation or process, does the PDD provide a clear description of the differences between the project and the pre-project scenario? <i>Please, provide Yes/No answer and update Tables 2 and 3 accordingly, if there is anything unclear in the provided description.</i>	PDD	DR, I	No, the project is a greenfield project activity. Hence it does not involve any alteration of an existing installation.	OK	OK
5. Baseline and Monitoring methodology					
5.1 General requirements					
5.1.1 Is the methodology used in the project activity approved by the CDM EB <u>and</u> is the selected version still valid?	UNFCCC website, PDD	DR	Yes. The project activity applies the methodology AMS I.D ver 15. The PDD was hosted in version 13 however at the time of resubmission of the PDD due to issues raised during completeness check, the version 13 is no more valid. CAR 10 was raised to revised the PDD to the latest available version.	CAR-10	OK
5.2 Applicability of the selected methodology(VVM F.2)					
5.2.1 Does the project activity qualify under the criteria for small-scale CDM project activities set out in § 28 of Decision 1/CMP.2 (Further guidance relating to the clean development mechanism)? <i>Please provide Yes/No response and description of how this was validated.</i>	UNFCCC website, PDD	DR	The installed capacity is 15 MW, which is eligible to apply under Type I of small-scale category. The justification of chosen project type and category of the project activity is not provided under the section B.2 of PDD in an adequate manner. Hence CAR-02(6,7) and CAR 04 are raised.	CAR-02 (6,7) CAR-04	OK

5.2.1.1 If yes, does the PDD extensively demonstrates and confirms that the small-scale project activity is not a debundled component of a larger project? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures taken and data found during the procedure. Otherwise amend the Tables 2 and 3 accordingly.</i>	PDD(A.4.5) /B05/	DR	No, the PDD does not demonstrates and confirms that the small-scale project activity is not a de-bundled component of a larger project. Hence CL 05 is raised.	GL-05	OK
5.2.2 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures. Otherwise amend the Tables 2 and 3 accordingly.</i>	UNFCCC website, PDD	DR	No, each of the applicability conditions (incl footnotes) of the applied methodology (Cp CDM-SSC-PDD filling guidelines) and applicable conditions included in the referred tools are required to be justified in section B.2 of the PDD. In section B.1, not all tools, which the approved methodology draws upon, are indicated, e.g., Tool...emission factor....(Cp guidelines for completing the CDM-SSC-PDD, AMS I.D, pg 2/11). Hence, CAR 02(6, 7) and CAR 04 are raised.	CAR 02(6, 7) CAR 04	OK
5.2.3 Is the selection of the applied baseline and monitoring methodology justified?	UNFCCC website, PDD	DR	Same as above	CAR 02(6, 7) CAR 04	OK
5.2.4 Is the selected methodology correctly quoted in all related documents?	UNFCCC website, PDD	DR	Yes.	OK	OK

5.2.5 Does the PDD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? <i>Provide Yes/No answer. Indicate the sources or sinks of GHG, which were proved to be negligible. Otherwise amend the Tables 2 and 3 accordingly.</i>	PDD, Meth(/B02/)	DR	No, the PDD does not describe all the GHG emission sources or sinks. In this regard, CAR 02 (14) is raised.	CAR 02 (14)	OK
5.3 Project boundary					
5.3.1 Does the PDD correctly describe the project boundary? <i>Provide Yes/No answer. And amend the Tables 2 and 3, if needed.</i>	PDD, /P21/, /B02/	DR	No, the PDD does not describe the project boundary correctly. Also the electricity monitoring points are not clear. Hence CL 06(1) and CAR 05 are raised.	CL 06(1) CAR 05	OK
5.3.2 Does the PDD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	PDD,		See question No 5.2.5 above.	CAR 02 (14)	OK
5.3.3 In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, is the choice explained and justified by PPs?	PDD,		See question No 5.2.5 above.	CAR 02 (14)	OK
5.4 Baseline identification					

5.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the PDD?	PDD(B.4), Meth /B02/	DR	Yes, the PDD has correctly selected the baseline scenario i.e., the status quo of electricity generation through grid. However CAR 02 (9) is raised to provide explanations and justifications of the key assumption and rationale, in transparent manner in a tabular form.	CAR 02 (9)	OK
5.4.1.1 Is the identified baseline scenario plausible?	PDD(B.4), Meth /B02/	DR	Yes, the PDD has correctly selected the baseline scenario. However CL 04 is raised to clarify, is Western Regional Grid as mentioned in various sections in the PDD is isolated from NEWNE grid?	CL 04	OK
5.4.1.2 Are all assumptions stated in a transparent and conservative manner?	PDD(B.4), Meth /B02/	DR	The basis for selecting the electricity generation and net export for CER estimation is not addressed conservatively in the PDD. In this context, CL 03 is raised.	CL 03	OK
5.4.2 Does the selected methodology require the use of tools <u>and</u> does PDD reflects that correctly?	UNFCCC website, PDD	DR	In section B.1, not all tools, which the approved methodology draws upon, are indicated, e.g., tool...emission factor...(Cp guidelines for completing the CDM-SSC-PDD, AMS I.D, pg 2/11). Also the reference (ACM 0002, ver 8) of the tool is incorrect. Hence CAR 02(6) and CAR 08 are raised.	CAR 02(6) CAR 08	OK
5.4.2.1 Were all the tools applied correctly?	UNFCCC website, PDD	DR	The tool to calculate the emission factor for an electricity system is not fully adopted. Hence CAR 02(10,12) and CAR 04 are raised.	CAR 02(10,12) CAR 04	OK

5.4.3 In case the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, have all scenarios been considered <u>and</u> have no reasonable alternative scenario been excluded?	UNFCCC website, PDD	DR	The applied methodology (AMS I.D, Ver 15) does not required identification of alternative scenarios to identify the most reasonable baseline scenario.	OK	OK
5.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	PDD(B.4, B.5), Meth /B02/	DR	Yes, the choice of the baseline scenario has been done using conservative assumptions. However CL 04 is raised to clarify, is Western Regional Grid as mentioned in various sections in the PDD is isolated from NEWNE grid.	CL-04	OK
5.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the PDD and other reference sources?	PDD(B.4, B.5), Meth /B02/	DR	No the identified baseline scenario is not reasonable according to the assumptions, calculations and rationales used in the PDD and other reference sources. Hence CAR 02(9) is raised.	CAR-02(9)	OK
5.4.5 Does the PDD describe how the national and sectoral policies relevant to the baseline scenario have been identified and considered in the PDD?	PDD(B.5)	DR	The compliance of EB22 Annex 3 is not described in the PDD. Hence CAR 06 (4) is raised.	CAR-06 (4)	OK
5.4.6 Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the project activity?	PDD(B.4, B.5), Meth /B02/, /P20/	DR	The generated electricity from the project activity is being sold to the State electricity under PPA. Hence the baseline scenario description is found authentic.	OK	OK
5.5 Algorithm and/or formulae used to determine emission reductions					
5.5.1 Are all calculations applied and documented according to the selected methodology and in a complete and	PDD (B.6.1)	DR	The PDD does not provide the procedure, equitation used to calculate the emission reduction in a	CAR-02 (10,12) CAR-07	OK

transparent manner?			transparent manner. The symbols used in the equations for emission reduction calculations (in whole PDD) should be consistent with the applied meth and tools. Moreover the units of the values should follow SI system through out the PDD. Hence CAR-02 (10,12), CAR 07, CAR 09(10) is raised.	CAR 09(10)	
5.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?	PDD (B.6.1)	DR	Explanation and justification of all relevant methodological choices is not clearly mentioned in the PDD. Also equations of the applied meth and tools in calculating emission reductions are not clearly stated. Hence CAR 02(10,12) is raised.	CAR 02(10,12)	OK
5.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed CDM project activity and conservative?	PDD(B.6.2, Annex 3) /B03/,/B04/, /P09/	DR	The grid emission factor is taken from the published official data source (CEA Ver 4). As per the PDD the simple OM and BM are selected to remain fixed through out the crediting period. However, as the CM is calculated from the officially published data of OM and BM and meth provided default weightage factor, the same is not required to be tabulated in B.6.2 of the PDD. Hence, CAR 02 (11) is raised.	CAR 02 (11)	OK
5.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters reasonable?	PDD(B.7.1, Annex 3) /B03/,/B04/, /P09/	DR	The description for $EG_{BL,y}$ in section B.7.1 is inconsistent with the explanation in section B.6.3 of the PDD. Hence CAR 09(2) is raised.	CAR 09(2)	OK

5.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the PDD?	PDD(B.7.1, Annex 3) /B03/,/B04/, /P09/	DR	The emission reduction for this type of project activity is equal to baseline emission, which is the direct product of expected electricity generation and grid emission factor. As grid emission factor is fixed, the net electricity export is the only variable having certain degree of uncertainty as it is commercially cross checked.	OK	OK
5.6 Leakage					
5.6.1 Has the leakage been identified and calculated according to the approved methodology?	Meth /B05/	DR	Not applicable for this project activity as this is a Greenfield project and there is no transfer of equipment (Cp para 15 of the applied Methodology). However for more clarity in the PDD CL 06 (3) is raised.	CL-06 (3)	OK
5.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?	Meth /B05/	DR	Same as above	OK	OK
5.6.3 Are uncertainties in the leakage emission estimates properly addressed?	Meth /B05/	DR	NA, see above	-	
6. Methodology-related issues for afforestation or reforestation CDM project activities					
Add specific A/R requirements – if applicable!			NA	-	-
7. Additionality					
7.1 Prior consideration of the CDM (VVM E.6.III.a)					

7.1.1 Is there documented evidence provided by the project participant on how and when the decision to proceed with the project activity was taken?	/P11/ /B05/	DR	The proof of CDM consideration at the time of project conceptualization is presented in the form of minutes of Board Meeting held on 17 Feb 2006. The resolution states clearly that the project is unviable without CDM benefits and that CDM benefits are imperative to make the project financially viable (subject to closure of CAR-06 (3)). The company has also applied for bank loan taking into consideration CDM benefits. The bank had sought clarifications on the CDM benefits and the PP has submitted relevant clarifications. The validation team has verified all the documents and found them to be satisfactory.	CAR-06 (3)	OK
7.1.2 Is the starting date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms" <u>and</u> CDM VVM (§97)?	/P07/ /B05/	DR	The start date of the project activity is 25 May 2006, when the PP placed purchase orders for the WEGs on Suzlon and it is the earliest date at which real action on the project activity had begun, which is in accordance with the definition given in "Glossary of CDM terms" and CDM VVM (§97).	OK	OK
7.1.3 Is the date stated in the provided evidence consistent with other available evidence (e.g. dates of construction, purchase orders for equipment)?	/P07/, /P08/, /P11/, /B05/	DR	The date stated in the evidence for CDM consideration is 17 Feb 2006 and is consistent with purchase orders for equipment (25 May 2006) and first commissioning of the WEGs (22 August 2006). The provided evidences are also found not counterfactual.	OK	OK

7.1.4 If the project was not published and the starting date is on or after 2 nd August 2008, was it possible to receive from UNFCCC secretariat and/or DNA a written confirmation that PPs previously informed the above entities on commencement of the project activity and of their intention to seek CDM status?	/P07/	DR	NA since the starting date of the project is before 2nd August 2008.	OK	OK
7.1.5 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were previously aware of CDM?	-	-	The evidence supporting awareness of the CDM prior to decision making is yet to be provided by the PP and hence CAR 06 (7) is raised.	CAR 06 (7)	OK
7.1.6 For the project activities with a starting date before 2 nd August 2008 and before the actual publication, was there enough evidence presented to prove that CDM benefits have been a decisive factor in the decision to proceed with the project activity?	/P10/ /P11/ /B05/	DR	The proof of CDM consideration at the time of project conceptualization is presented in the form of minutes of Board meeting held on 17 Feb 2006. The validation team reviewed the evidence wherein it is mentioned that "The income from power sale alone is insufficient to make the project viable. Carbon benefits have to be availed in order to make the project viable" (subject to closure of CAR 06 (3)). The company has also applied for bank loan taking into consideration of CDM benefits.	CAR 06(3)	OK
7.1.7 Does the individual or body that took the decision to proceed with the project activity have/had the authority to do so?	/P21/	DR, I	The decision to go ahead with the project was taken by the Board of Directors of the PP and is authorised to take such decisions. It was validated from the Memorandum & Articles of Association of the company.	OK	OK

7.1.8 For the project activities with a starting date before 2 nd August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were taking continuing and real actions to secure CDM status for the project in parallel with its implementation?	PDD (B.5) /P11/ /P12/ /B05/	DR	It is not evidenced from the PDD whether the PP has taken continuing and real actions to secure CDM status for the project in parallel with its implementation. Hence PP is requested to provide a Table in Section B.5 for Timeline of actions taken to achieve CDM registration. Hence, CAR-06 (7) is raised.	CAR-06 (7)	OK
7.1.9 In case there is a significant gap between the start date of the project activity and the commencement of validation, how was it possible for the project participant to commit funds to the project in advance of receiving a positive validation opinion?	Validator's professional judgement	DR, I	A detailed time line of actions was not provided in the PPD. Hence CAR-06 (7) is raised.	CAR-06 (7)	OK
7.2 Identification of alternatives					
7.2.1 Does the PDD identify and list credible alternatives to the CDM project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?	PDD (B.4)	DR	No, the PDD did not identify and list credible alternatives to the CDM project activity. Hence CAR 02 (13) was raised.	CAR-02 (13)	OK
7.2.2 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a CDM project activity?	PDD (B.4)	DR	See question 7.2.1 above	CAR-02 (13)	OK

7.2.3 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity? <i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i>	PDD (B.4)	DR	See question 7.2.1 above	CAR-02-(13)	OK
7.2.4 Is the exclusion of the alternatives for legal reasons justified? <i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i>	PDD (B.4)	DR	See question 7.2.1 above	CAR-02-(13)	OK
7.3 Investment Analysis					
7.3.1 Are all sources of revenues (including savings) have been considered in the PDD and all calculations?	PDD(B.5) /P10/	DR	Not all possible revenues for the project are considered in the PDD and hence CL-07 is raised.	CL-07	OK
7.3.2 Is the type of investment analysis selected correctly in the PDD?	PDD(B.5) /B03/	DR	Yes, the investment analysis selected is in conformity with Guidance 15 of Annex 45 of EB 41. However, CAR 06 (3) is raised.	CAR-06-(3)	OK
7.3.3 Is the selected financial indicator chosen and applied correctly?	/B03/	DR	No. The financial indicator chosen was not appropriate and hence CL 03A (1) and CAR 06 (2) is raised.	CL-03A-(1) CAR-06-(2)	OK

7.3.4 Is the guidance on IRR calculation and assessment correctly applied? <i>Note: Means of validation should be recorded.</i>	PDD(B.5) /P10/ /B03/	DR	. No. The guidance on IRR calculation and assessment was not appropriate. Hence CL 03A and CL-07, CAR 06A have been raised.	CL-03A CL-07 CAR-06A	OK
7.3.5 In case project participants use values from Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?	PDD(B.5) /P10/ /B03/	DR	NA The values have not been used from FSR.	-	-
7.3.6 Are all the values consistent between FSR and PDD <u>and</u> are inconsistencies properly justified?	PDD(B.5) /P10/ /B03/	DR	Same as above.	-	-
7.3.7 Were all the values from FSR applicable and valid at the time of the investment decision?	PDD(B.5) /P10/ /B03/	DR	Same as above.	-	-
7.3.8 Is it 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 or some verifiable circumstances that have lead to a change in the benchmark?	/P23/	I	The previous investment decisions by the project participants, in construction activities (core business of PP), are yielding return on investment of more than 28 %, which is higher than the selected benchmark. Hence without CDM benefit the PP would not have incurred the investment in the project activity. This is also evidenced by the fact that with CDM benefits, the project IRR crosses the chosen benchmark indicating that CDM benefits were imperative for the project to merit consideration	OK	OK

7.3.9 Is the Investment Analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB?	PDD /P10/ /B03/		No the investment analysis and the corresponding values does not reflect full compliance with the latest version of the "Guidance on the Assessment of Investment Analysis". Hence CL 03A, CL 07, CAR 06 and CAR 06A are raised.	CL-03A CL-07 CAR-06 CAR-06A	OK
7.4 Barrier analysis					
7.4.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis?	-	-	PP has not used barrier analysis.	-	-
7.4.2 Do the listed barriers exist <u>and</u> is their existence substantiated? Note: (a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or (b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?	-	-	Same as above	-	-
7.4.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?	-	-	Same as above	-	-
7.5 Common practice analysis					

7.5.1 If the PPs claim in the PDD that CDM project activity is the “first of its kind”, is it justified? <i>Refer applicability conditions of common practice analysis as per EB 41 Annex 2 (Draft guidance). Also, keep eye on the expected endorsement of common practice analysis guidance by EB.</i>	-	-	It is not presented in the PDD. As per Attachment A of Appendix B of the simplified modalities and procedures for small-scale CDM project activities, common practice analysis is not required.	-	-
7.5.2 Are the geographical boundaries for the common practice analysis identified correctly?	-	-	Same as above.	-	-
7.5.3 Does the PDD provide an explanation why this region was selected and deemed more appropriate <u>and</u> is this explanation traceable and reliable?	-	-	Same as above.	-	-
7.5.4 Are there similar operational project activities, other than CDM activities, “widely observed and commonly carried out” in the defined region? <i>Note: Use official sources and local and industry expertise.</i>	-	-	Same as above.	-	-
7.5.5 In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?	PDD(B.4), Relevant websites	DR	Same as above.	-	-
8. Monitoring					
8.1 Monitoring plan					

8.1.1 Are all parameters required by the selected approved methodology or tool identified <u>and</u> listed in the PDD?	PDD /B03/ /B04/	DR	Yes, all the parameters required by the selected approved methodology or tool are identified and listed in the PDD. However for clarity in the PDD, CAR 09(2) are raised.	CAR 09 (2,10)	OK
8.1.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?	PDD /B03/	DR	The calculation of net electricity supplied by the project activity to the grid is found inconsistent in various section of the PDD. Also it is unclear from the PDD that the meters installed are dedicated meter to the project activity or a shared one with non-project WEGs. Hence CL 06 (2,4,5) and CAR 09 (2,7) are raised.	CL 06 (2,4,5) CAR 09 (2,7)	OK
8.1.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?	PDD /B02/ /B04/ /B06/	DR	The OM and BM values have been taken correctly from CEA database, Ver 4. However CAR 02(11) is raised in context of the PDD filling guidelines.	CAR 02(11)	OK
8.1.4 Is the measurement equipment for each parameter described and deemed appropriate?	PDD /P20/	DR	The details of the measuring instrument are not provided clearly in the PDD. Hence CAR 09 (11) is raised.	CAR 09 (11)	OK
8.1.5 Is the measurement accuracy addressed and deemed appropriate?	PDD /P20/	DR	Same as above.	CAR 09 (11)	OK

8.1.6 Are procedures in place on how to deal with erroneous measurements <u>and</u> are the corrective actions identified?			The net electricity measurements will be jointly taken by PP's authorised personnel and state electricity board. As the reading will be used for commercial invoicing purpose, QA/QC associated with measurement error will be taken care by state electricity board under their QA/QC procedures as stated in the PDD. The PDD describes the procedure to deal with error in meter reading of the main and the check meters. However for more clarity CL 06(4) is raised.	CL 06(4)	OK
8.1.7 Is the frequency of measurement identified and deemed appropriate?	PDD(Annex 4)	I	The electricity measurement is continuous and joint recording of monthly reading at the first day of each calendar month for the preceding month is being practiced.	OK	OK
8.1.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	PDD(B.7.1, annex 4), /B02/,/B05/	DR	Neither Annexure 4 nor section B.7.2 clearly describe the operational and management structure for monitoring of emission reductions. It does not indicate the responsibilities and institutional arrangements for data collection and archiving. Also, the monitoring plan does not reflect good monitoring practice appropriate to the project activity. Hence CL 06 (2,4,5) and CAR 09 (3,4,7) are raised.	CL 06 (2,4,5) CAR 09 (3,4,7)	OK

8.1.9 Are the sampling, measurement methods and procedures defined?	Onsite visit /P20/	DR	The continuous electricity measurement is carried in the main and check meters, which is under the statutory and operational maintenance and calibration control of state electricity board. This is governed by PPA. Joint electricity meter reading is carried out by authorised representative of PP and MSEDCL. However the sampling points are not clearly defined in the PDD. Hence CL 06 (1,2,4,5), CAR 09 (1,7) are raised.	CL 06 (1,2,4,5), CAR 09 (1,7)	OK
8.1.10 Are procedures identified for maintenance of monitoring equipment and installations?	PDD(Annex 4) /B02/,/B05/	DR	The net electricity measurements will be jointly taken in the main and check meters. As the reading will be used for commercial invoicing purpose, QA/QC associated with measurement error will be taken care by state electricity board under their QA/QC procedures as stated in the PDD. Also the individual monitoring system for each WEG is out source to Suzlon Private Limited. However for more clarity CL 06 (6) and CAR 09 (3) are raised.	CL 06 (6) CAR 09 (3)	OK
8.1.11 Are the equipment calibration intervals identified and justified?	PDD(annex 4) /P20/	DR	No the Calibration frequency is not indicated clearly in the PDD. In the same context, CAR-9 (6) is raised.	CAR 09(6)	OK
8.1.12 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	I, DR	The day-to-day procedure and record handling including storage area of records and how to process performance documentation is not stated clearly in the PDD. Hence CL 06(2) and CAR 09 (3,4) are raised.	CL 06(2) CAR 09 (3,4)	OK

8.1.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	PDD	DR	The description of the monitoring arrangement in the PDD is not adequate. In the flow diagram of the project boundary in Section B.3 of PDD, the electricity monitoring points are not clear. The role and responsibility of the monitoring team mentioned in the PDD is unclear. Hence CL 06 (3,4,5) CAR 09 (1,3,4,7) are raised.	CL 06 (3,4,5) CAR 09 (1,3,4,7)	OK
8.1.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	PDD (7.1, 7.2 and annex 4), /B02/, /B05/	DR	The QA/QC procedure for monitoring of the emission reduction is not completely addressed as per the requirement of UNFCCC guidelines. Also the roles and responsibility of the monitoring team is unclear for the implementation of the monitoring plan. Hence CAR 09 (3, 4) is raised.	CAR 09 (3,4)	OK
8.1.15 Do the PPs make provisions for personnel training needs?	PDD(Annex 4) /B05/	DR	The operation, maintenance and data recording of this project activity are subcontracted to WEG manufacturer, Suzlon Windfarm Services Limited. However the training requirement of the responsible personals are on the addressed in the PDD. Hence CAR 09 (8) is raised.	CAR 09 (8)	OK
8.1.16 Is the authority and responsibility of overall project management clearly described?	PDD (7.2) /B05/	I, DR	The flow chart and the description provided in section 7.2 of the PDD is unclear in context of the Hierarchical role and responsibility of the monitoring team. Hence CAR 09(4) is raised.	CAR 09(4)	OK

8.1.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	PDD(Annex 4)	DR	The deviation in the reading of the main and check meter is monitored during joint meter reading for its tolerable limit of 0.5%. The PDD describes the procedure for any deviation in the tolerable limit of the meters to deal with any unintended emissions as a part of emergency preparedness plan.	OK	OK
8.1.18 Are procedures identified for review of reported results/data?	PDD (7.2)	DR	No, the procedure is not clearly defined for review of reported results/data. Hence CAR 09 (4) is raised.	CAR 09 (4)	OK
8.1.19 Is the data archiving period for this project activity stated in the PDD and appropriate? <i>Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.</i>	PDD, /B02/, /B05/	DR	The data archiving period for this project activity is stated in the PDD. However the mode of data archiving is not addressed as per the UNFCCC guidelines. (Cp Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories). Hence CAR 09 (9) is raised.	CAR 09 (9)	OK
8.2 Monitoring of the leakage					
8.2.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	PDD. Meth	DR	Not applicable for this project activity as this is a Greenfield project and there is no transfer of equipment (Cp para 15 of the applied Methodology). However for more clarity in the PDD CAR 09 (5) is raised.	CAR 09 (5)	OK

8.2.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise shall also be considered.</i>	-	-	Same as above	-	-
8.2.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?	-	-	Same as above	-	-
9. Sustainable development					
9.1 Does the LoA from the Host country DNA contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party?	-	DR	LoA from the Host country DNA has not been obtained yet. In this context, CAR-01 is raised.	CAR-01	OK
9.2 If PDD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	PDD /B06/	DR	The view of the PP on the contribution of the project activity to sustainable development does not fully demonstrate the requirements under sustainable development criteria of host country in section A.2 of PDD. Hence CL-08 is raised.	CL-08	OK
10. Stakeholders' consultation and comments					
10.1 Were the stakeholders identified in appropriate and complete manner?	PDD, /P15/	DR	The stakeholders are sent invitation letters by PP for the stakeholder consultation meeting. The identification process of the stakeholders is not clearly explained in the relevant section of the PDD. Hence CL 09 (1) is raised	CL-09 (1)	OK
10.2 Are the identified stakeholders plausible?	PDD, /P15/	DR	Same as above	CL-09 (1)	OK

10.3 Does PDD describe the means being used to invite local stakeholder's comments?	PDD, /P15/	DR	Same as above	CL-09 (1)	OK
10.4 Were those means appropriate?	PDD, /P15/	DR	PP had send notices/letters to the Identified stakeholders. However the validation of identification process is pending as per CL 09 (1).	CL-09 (1)	OK
10.5 Was the project presented to the stakeholders in unbiased manner?	PDD, Vedio CD of the stakeholder consultation meeting	I, DR	The project participant has made a presentation of the project activity in unbiased manner. This was verified by means of the Video CD of the stakeholder consultation meeting, which was provided to the validator.	OK	OK
10.6 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?	-	-	The stakeholder consultation process is not required by regulations/laws in the host country for this type of project activity.	OK	OK
10.7 Is a summary of the stakeholder comments provided in the PDD?	PDD(E.2)	DR	The summary of the stakeholder comments is not provided in transparent manner. Hence CL-09 (2) is raised.	CL-09(2)	OK
10.8 Has due account of any stakeholder comments been taken by PPs and reflected in the PDD?	PDD(E.3)	DR	The report of how due account of any stakeholder comments been taken by PP is to be provided. Hence CL-09 (2) is raised.	CL-09(2)	OK
11. Environmental impacts					

11.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the PDD?	PDD	DR	No documentation was supplied by the PPs regarding environmental impacts. However, in the section D.2, the environmental impacts are discussed. The details address all related environmental impacts of the project activity and they are satisfactory.	OK	OK
11.2 Is an environmental impact assessment (EIA) required for the CDM project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	/B06/	DR	The environmental impact assessment (EIA) is not required for the CDM project activity. The validation team has checked the relevant notification issued by Ministry of Environment and Forest (MoEF) to verify the above information	OK	OK
11.3 In case an EIA is required, has the EIA has been approved by local authorities and is the outcome accurately reflected in the PDD?	/B06/	DR	See question 11.2 above	OK	OK
11.4 Does the PDD include a brief description of the environmental effects of the project, including transboundary?	PDD	DR	See question 11.1 above	OK	OK
11.5 Are those effects properly addressed in the design of the project activity?	PDD	DR	See question 11.2 above	OK	OK
11.6 Does the project comply with environmental legislation in the host country?	/B06/	DR	See question 11.2 above	OK	OK

Table 2: Resolution of Corrective Action and Clarification Requests

CL/CAR No	Observations	Reference	Summary of project owner response	Revised section(s)/ Annex(e)s of the PDD	Validation team conclusion
CL 01	Since there is no Annex I party involved in the project activity, the diversion of Official Development Assistance (ODA) does not arise (Cp guidelines for completing the CDM-SSC-PDD). Accordingly section A.4.4 and Annex 2 of the PDD needs revision.	1.8	The same has been revised in the PDD.	Section A.4.4 Annex 2	OK. Accepted. This CL is closed.
CL 02	Section A.4.2 of the PDD described that PP has adopted modern and efficient technology for the project activity. PP is requested to further elaborate on these contexts.	4.1, 4.3	The same has been revised in the PDD.	Section A.4.2	OK. Accepted. This CL is closed.
CL 03	The guaranteed (by WEG provider) generation of 2800 MWh per WEG (Cp section A.4.2 of the PDD) does not correspond to 31920 MWh of electricity to be exported from the project activity consisting of 12X1.25MW WEGs. Clarification is requested. Moreover, the aggregated value of the electricity at the generation point (s) and the net electricity exported to grid at the commercial metering point which serves as the basis for CER calculation are required to be	4.1 5.4.1.2	The guaranteed generation, as per the PO issued to the technology provider, is 2800 MWh. However, it is only for one year. Moreover, the penalty clause in the Purchase agreement is conditional subject to the availability of the machine and other factors. Hence this figure cannot reasonably represent the generation during the entire project period. Hence, while estimating the electricity	Section A.4.2	The explanation is acceptable to the DOE. The PLF (21.05%) is the ratio of expected net generation at the evacuation point to the maximum possible net generation in a year by the WEG at the evacuation point. This value of the PLF (21.05%) was provided to the Bank during the loan application. This has been evident from

	clearly and conservatively determined. These two electricity figures (generated and net exported) should be used consistently through out the PDD.		exported to the grid, the data provided to the bank at the time of project financing has been considered. The same has been made consistent in the PDD.		the copy of the letter /P13.e/ provided by the PP to the bank, which was also acknowledged by the bank. The net export by the project activity i.e. 26280 MWh/year per WEG was estimated considering 5% T & D losses. It is correctly calculated and confirms to the requirement of the Annex 11 of EB 48. This figure is consistently used across the PDD, in Investment analysis and in the estimation of the CER. Hence this CL is closed.
CL 03A	1. PP should explain how the equity IRR is a suitable financial indicator for demonstrating the additionality of this project activity which is funded >75% by term loan.	7.3.3 7.3.4 7.3.9	1. The return on the project activity has been taken into account for the investment analysis.	Section B.5	1. Project IRR has been considered as financial indicator. CL is closed
	2. The objective of sensitivity analysis stated vide p.18 of PDD, is not in conformity with the objective stated in the guidance 16 and 17 of		2. Sensitivity analysis has been made in line with the objectives stated in Annexure 45 of EB 41.	Section B.5	2. O.K. Accepted. CL is closed.

	Annexure 45 of EB 41.				
	3. The statement, "Thus it is evident from financial estimates that the rate of return does not meet required benchmarks set by financial institutions" is misleading as the benchmark chosen is not set by financial institutions.		3. The same has been removed from the B.5 section of the PDD.	Section B.5	3. It has been removed. CL is closed (12/10)
	4. Benchmark is not acceptable for the following reasons: a. Use of BSE 200 as proxy for Rm is not acceptable as it does not represent fully diversified portfolio		a. Proxy for Rm is now changed to BSE 500.	Section B.5	a) BSE 500 has been used as proxy for Rm. CL is closed.
	b. While BSE 200 is used as proxy for Rm, stock prices (for \square computation) seems to have been regressed on Sensex;		b. Now, the beta of the selected companies has been computed using 3 years trading data by regressing the stock return on BSE 500.	Section B.5	b) Beta has been obtained by regressing stock returns on BSE 500. CL is closed
	2. At least in one case (Tata Power), while Sensex has been used as independent variable, NSE price has been used for stock prices;		c. It has been corrected now.	Section B.5	c) BSE prices have been used. CL is closed
	3. All listed and traded power companies in the power sector do not seem to have been included in the beta computation;		d. Beta has been computed for all power generating companies listed and traded in the stock exchanges and having a trading track record of a minimum of 3 years.	Section B.5	d) All listed and traded power generating companies seem to have been included. CL is closed.

	a. Reasons for giving equal weight to all the companies in beta computation does not appear to be conservative		e. Lowest beta has been taken into consideration instead of average beta.	Section B.5	e) O.K. Accepted. CL is closed.
	b. Average beta has been computed based on unlevered equity beta of companies, which implies that the leverage of listed companies and the project activity is the same, which does not appear to be true;		f. Now the asset beta has been used, which removes the leverage risk totally leaving only project risk"	Section B.5	f) O.K. Accepted. CL is closed.
	c. The basis for Rf is not known, nor is there a reference.		g. Yield to Maturity of central Government securities for the four month period ended November 2005 has been chosen as proxy for Government Bond rates ¹¹ . This works out to 7.46% ¹² .	Section B.5	g) The YTM of G-sec. With 20 years maturity has been used as proxy for Rf. CL is closed.
	d. Screen shots given and the raw beta used in p.69 of PDD have no relationship.		h. The screen shots are removed now and instead separate spreadsheet is provided for the calculation of Beta for each of the	Section B.5	h) O.K. Accepted. CL is closed.

11 Government securities are Government bonds and at the time of decision making, December 2005 issue of Reserve Bank Of India Bulletin was the latest issue available, which provides data on Yield to Maturity (YTM) of Govt. Securities with various maturity. 20 year maturity has been chosen (in line with the operating life of the project) and the last four months average YTM was considered as suggested by CRISIL Study (<http://www.cercind.gov.in/rep1304.pdf> P.29)

12 <http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/68273.pdf> (Average of last four months)

			companies considered in the calculation.		
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	e. When the decision is taken on 17.2.2006 and Rm has been computed upto January 2006, it is not known on what basis 28.1.2007 has been selected as the cut off date for beta computation.		i. The cut-off data is now revised to Dec 2005 in line with the decision making context.	Section B.5	i) O.K. Accepted. CL is closed.
	f. A ROE of 28.06% as against the MERC recommended ROE of 16% cannot be considered conservative.		j. The benchmark computation is now revised.	Section B.5	j) O.K. Accepted. CL is closed.
	g. While in the worksheet MAT rate has been used in the initial years, regular tax rate has been used in the computation of WACC resulting in contradiction.		k. Tax rate has been made consistent in benchmark and the investment analysis.	Section B.5	k) O.K. Accepted. CL is closed.
	h. By assuming the rate of interest, debt equity ratio and ROE applicable to project the benchmark arrived at represents the risk of the project and not project type, which is not consistent with VVM.		l. Since the benchmark has been computed based on Asset beta now, this CAR is no more applicable.	Section B.5	l) O.K. Accepted. CL is closed.
	5. Wind Power Generation Data 2007-08 cited as reference for 'Technical barrier' is not acceptable as the reference		5. The section has been removed from the PDD.	Section B.5	5. The section has been removed. CL is closed.

	pertains to the post decision making period.				
	6. PP is required to furnish the project cost break up specifying, cost of land, civil works, WEG, evacuation cost, etc.		6. The same is incorporated in the revised IRR calculation sheet and the supporting documents are submitted for ready reference.	Section B.5	6. Project cost break up has been furnished. CL is closed.
	7. Interest computation should conform to loan sanction letter		7. The same has been revised in the IRR calculation sheet.	Section B.5	7. Interest computation has been revised. CL is closed.
	8. Financial years should be used in 'Loan Repayment' worksheet instead of 1,2,3		8. The same is revised in the IRR calculation sheet.	Section B.5	8. Financial years have been used. CL is closed.
	9. O&M cost and the starting period of O&M payment should be in conformity with the O&M contract signed by the PP		9. The same is revised in the IRR calculation sheet.	Section B.5	9. O&M cost has been revised. CL is closed.
	10. Since PLF is quantifiable and already forms part of investment and sensitivity analyses, technical barrier is not acceptable.		10. The same has been removed from the barrier analysis section provided in the PDD	Section B.5	10. Technical barrier has been removed. CL is closed.
CL 04	In certain sections of the PDD the name of the regional grid is mentioned incorrect, ie, Western Regional Grid (Cp the classification of regional grid of India as per CEA Ver 4).	4.1, 5.4.1.1, 5.4.3.1	The PDD has been revised, and name of the grid has been changed to the North East West North-East (NEWNE) Grid.	PDD	OK. This CL is closed.

CL 05	PP has not clearly demonstrated that the said project activity is not a de-bundled fragment of a large-scale project in section A.4.5 of the PDD.	5.2.1.1, 12.4	The PDD has been corrected in line with the guidance given for defining a small scale project as a de-bundled component of a large project activity to highlight that the project is a not a de-bundled activity.	Section A.4.5	The project activity is not a de-bundled component of a large scale project. This was verified during site visit and web research. Section A.4.5 is revised for more clarity. Hence this CL is closed.
CL 06	Following clarifications are related to monitoring plan 1. In the flow diagram of the project boundary in Section B.3 of PDD, the electricity monitoring points are not clear (Cp PDD filling guidelines).	5.3.1, 5.6.1, 8.1.2, 8.1.6 8.1.8, 8.1.9, 8.1.10, 8.1.12, 8.1.13	1. The project boundary diagram has been corrected.	Section B.3	O.K. The diagram is appropriate. CL is closed.
	2. PP is requested to clarify the following terminologies – “Primary recording, incoming feeder, dual metering system, secondary monitoring” in pg 36, Annex 4 of PDD.		2. The passage has been modified to address clarity.	Annex 4	O.K. The description is appropriate. CL is closed.
	3. In Section B.6.3 and B.7.2, the PP is requested to clarify for the said Greenfield project activity how leakage is applicable in view of applied methodology and EB 44 meeting report para 50.		3. As there is no equipment transfer occurring as a result of the project activity, leakage has been considered as Zero. The PDD has been revised as per para 50 of EB 44 and applied Methodology.	Section B.6.3 and B.7.2	OK. Accepted.
	4. In Annex 4, the para 4 under		4. All the 12 WTGs, which	Annex 4	The details of all the 7

	Testing of metering equipment “ If during test, any of the main meters... the main meter” does not indicate quantitative information of the number of meters installed.		are under the project activity are installed in 7 different feeders. The details of the feeders are provided in Annex 4. Periodic testing will be carried out for all the 7 main and check meter as per PPA.		feeders are provided transparently in the PDD (Annex 4). The same had been verified by DOE during site visit. Hence this part of the CL is closed.
	5. It is not clear whether the meters are dedicated to the project activity or shared with other WEGs (=Non PP) in the context of joint metering as mentioned in Annex 4, the para 3 of the PDD.		5. The WEGs (12 nos,) are connected to 7 different feeders. Other WTGs (Non PP) are also connected to those 7 feeders. The details of the feeders, WTGs (PP) and WTGs (Non PP) are provided in Annex 4. The joint meter reading and apportioning of the net electricity export by PP is the responsibility of MSEDCL (Ref Clouse 11.05 of PPA). During monitoring period CER will be calculated as per the report “Energy Delivery at MSEDCL Grid” provided by MSEDCL to Suma Shilp Limited.	Annex 4	The meter is not dedicated to WEGs in consideration under project activity. Other WEGs (Non PP) are also connected to all the 7 feeders. The details of all the 7 feeder are provided transparently in the PDD (Annex 4). The same had been verified by DOE during site visit. CER will be estimated as per Energy Export report “Energy Delivery at MSEDCL Grid” provided to PP by MSEDCL and the procedure has been validated from the document /P22/. The report clearly indicated the net export by each WEGs. DOE has

					verified the above mentioned documents and found authentic. Hence this part of the CL is closed.
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	6. In page 35 of PDD, under management services indicate the full company name and the exact certification of ISO. Also, provide a copy of the certificate to the validation team.		6. The company providing O&M services is Suzlon Windfarm Services Limited. Their O&M services have been certified as ISO 9001:2000 by Det Norske Veritas (DNV). The same has been revised in the PDD.	Annex 4	OK. CL is closed.
CL 07	<p>Following clarifications are related to additionality of the project activity:</p> <p>1. In section B.5, the other barriers as presented, relating to theft happened after the implementation of the project. How this barrier was predicted (at the time of investment decision) before the implementation of the project activity.</p>	7.3.1, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.9, 12.6, 12.6.1, 12.6.2, 12.6.4	1. The other barriers have been removed in the PDD now.	Section B.5	1. O.K. Accepted. CL is closed.
	2. The IRR calculation should include the fair value of the project activity assets at the end of the assessment period as a cash inflow in the final year (Cp Para 3 and 4 of Guidance on the assessment of Investment Analysis).		2. Though the project is fully written off, in conformity with Annex 45 of EB 41, salvage value has been considered at 5% of the cost in the terminal year.	Section B.5	2. IRR calculation includes fair value of assets in the terminal year. CL is closed.

CL 08	The view of the PP on the contribution of the project activity to sustainable development does not fully demonstrate the requirements under sustainable development criteria of host country (Cp www.CDMindia.com) in section A.2 of PDD.	9.2	The PDD has been revised accordingly to indicate relevant criteria as well as the measures taken to achieve the same vis-à-vis environmental, social, technological and economic well being.	Section A.2	The validation team noted that the LoA from the Host country DNA/P03/ contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party. The PDD indicates additional environmental benefits of the project, other than GHG emission reductions. The justifications provided by the PP to substantiate them are acceptable to the validation team as the project activity is based on renewable resource, wind energy technology. Hence this CL is closed.
CL 09	Following clarifications are related to Local stakeholder consultation: 1. PP is requested to clarify whether stakeholders were identified in appropriate and complete manner.	10.1, 10.2, 10.3, 10.4, 10.7, 10.8	1. Stakeholders were identified in an appropriate and complete manner, as they were the relevant parties involved directly and indirectly with the project, and are also the people who would be most likely	Section E.1	O.K. The validation of the same is provided in section 3.9 of this report. CL is closed.

			impacted		
	2. PP is requested to provide the summary of the stakeholder comments in a transparent manner and also describe how due comments were addressed by the PP.		2. A copy of the comments received has been submitted to the DOE previously. No adverse comments were received by the PP with respect to the project activity.	Section E.2	OK. Accepted.

CAR 01	LoA from host country, India has not yet been obtained. It's a prerequisite for submission for registration.	1.1,1.2, 1.3,1.4, 1.5,1.6, 1.7,2.2, 9.1	The same is submitted to the DOE.	-	This has been submitted. It was verified with the original copy of LoA.. The CAR is closed.
CAR 02	Following Corrective Action Requests are related to completeness of CDM-SSC-PDD. 1. Section A.2 of the PDD, 1 st para "Electricity generation Climate Change" is not in line with the requirements as per CDM-SSC-PDD filling guidelines.	3.2, 4.1, 4.3,5.2, 5.2.2, 5.2.3, 5.4.1, 5.4.2, 5.4.2.1, 5.4.4, 5.5.1, 5.5.2, 5.5.3, 8.1.3, 12.1, 12.2, 12.3	1. The paragraph in question has been removed from the PDD.	Section A.2	O.K. This part of CAR is closed.
	2. Section A.2 of the PDD does not describe about how the project activity reduces the emission of GHG (Cp CDM-SSC-PDD filling guidelines).		2. The requisite addition on how renewable energy technology helps to displace GHG emissions from fossil fuel sources has been made in the PDD	Section A.2	O.K. This part of CAR is closed.
	3. Section A.4.2 of the PDD does not addresses how the project activity has implemented environmentally safe and sound technology and age and lifetime of the equipments used in the technology.		3. The same has been addressed in A.4.2 section of the PDD	Section A.4.2	O.K. This part of CAR is closed.
	4. The title of each column in all three (3)tables (sections A.3, A.4.3,B.6.4) should match with		4. The corrections have been made in the PDD as per the prescribed template.	Sections A.3, A.4.3,B.6.4	O.K. This part of CAR is closed.

the prescribed template given in CDM-SSC-PDD filling guidelines.				
5. The reference stated in section B.1 of the PDD is incorrect.		5. The reference given is correct; it has been modified to include the reference given in the SSC PDD filling guidelines, which refers to the same	Section B.1	O.K. This part of CAR is closed.
6. Section B.1 of the PDD is not filled as per filling guidelines and provides irrelevant information. This section should also include applicable tools with proper version number referred in the methodology.		6. The required change has been done in the PDD to provide information about the methodology, its reference, its applicability as well as the emission factor tool used in the PDD.	Section B.1	O.K. This part of CAR is closed.
7. Section B.2 should address all the applicability condition as per methodology and with implicit and explicit criteria to justify the project activity is a small scale project.		7. The requisite addition has been made to include all the criteria necessary for demonstration of the small scale criteria for the project activity in the PDD	Section B.2	O.K. This part of CAR is closed.
8. The section B.2 of the PDD does not clearly demonstrate that the project activity will remain small scale for the crediting period (Cp CDM-SSC-PDD filling guidelines).		8. The proponent has no intention to alter the project activity's capacity during the crediting period, and this has been added to the PDD.	Section B.2	O.K. However, this may be verified during the crediting period by the verifier. This part of CAR is closed.
9. In section B.4, "The combine Marginfor project activity" is irrelevant as per PDD filling guidelines. Instead provide		9. The required correction has been performed on the PDD to include information about the E+ and E-	Section B.4	O.K. This part of CAR is closed.

	explanations and justifications of the key assumption and rationale, illustrated in transparent manner preferably in a tabular form.		technologies and the relevant guidelines for development of baseline in the PDD		
	10. In section B.6.1 of the PDD does not provide the procedure, equation used to calculate the emission reduction. The explanation and justification of the methodological choice and options used to calculate combine margin is not included.		10. The procedure for calculation of baseline emissions has been included in the PDD	Section B.6.1	O.K. This part of CAR is closed.
	11. In section B.6.2, calculated values (combine margin) with equation provided in the approved category should not be included in the table. Explain and justify the choice for the source of data		11. The calculated value for combined margin has been removed from the PDD	Section B.6.2	O.K. This part of CAR is closed.
	12. In section B.6.3, the ex-ante calculation for baseline emission is not demonstrated transparently and the reproduction of the calculation could not be ensured.		12. The requisite changes have been made in the PDD to highlight the calculation for baseline emissions	Section B.6.3	O.K. This part of CAR is closed.
	13. In section B.4, the PP needs to identify and list credible alternatives to the CDM project activity in order to determine the most realistic baseline scenario.		13. The list of credible alternatives is presented in the section B.4 of PDD now.	Section B.4	O.K. The validation of the same is provided in section 3.4.3 of this report. This part of CAR closed.
	14. In section B.3, the PP should describe GHG emission sources		14. The GHG emission sources and sinks are now	Section B.3	O.K. The validation of the same is provided in

	or sinks occurring as a result of project activity.		provided in the section B.3.		section 3.4.2 of this report. This part of CAR is closed.
CAR 03	The PP should submit detailed drawing of the WEGs describing all the WEGs locations with evacuation to the grid/metering points (also refer CL 06 point 1).	4.1, 4.2	Detailed drawing as provided by the O & M contractor, for all the 7 feeders are submitted to the DOE.	-	The submitted details of the feeders transparently describe the WEG locations and metering points. Hence this CAR is closed.
CAR 04	Explanation and justification of all relevant methodological choices must be provided in section B.6.1 of PDD. Also clearly state which equations of the applied methodology and tools will be used in calculating emission reductions (Cp Guidelines for completing the CDM-SSC-PDD)	5.2.1, 5.2.2, 5.2.3, 5.4.2.1, 12.1, 12.2, 12.3	The justification for all relevant methodological choices has been incorporated into the PDD.	Section B.6.1	OK. The justification is appropriate. The CAR is closed.
CAR 05	In section B.3, the sentence "However for the purpose delineated below" is out of context according to applied methodology para 6. Also the diagram provided in the PDD contradicts from the explanation.	5.3.1	The statement and the diagram are made in line with the requirement and the PDD has been revised accordingly.	Section B.3	OK. This CAR is closed
CAR 06	Following CARs are related to Additionality 1. In section B.5, the wrong reference is cited. (Cp filling guidelines for CDM-SSC-PDD)	5.4.5, 7.1.1, 7.1.5, 7.1.6, 7.1.8, 7.1.9, 7.3.2, 7.3.9,	1. The reference has been corrected in the PDD as per the CDM-SSC-PDD filling guidelines.	Section B.5	OK.

	2. In section B.5, the financial indicator should be appropriate to the project activity as per EB 41, Annexure 45.	12.6.1, 12.6.2, 12.6	2. The benchmark has been changed to weighted average cost of capital, so that it is in conformity with Annex 45, EB 41	Section B.5	O.K
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3. In section B.5, Provide Justification for the selection of benchmark and provide calculation for the same.		3. The justification for the selection of benchmark is provided in the PDD and the separate spreadsheet has been submitted to the DOE for the calculation of benchmark.	Section B.5	O.K.
4. The compliance of national and sectoral policies (E+ and E-policies) is not described in Section B.5 of the PDD (Cp filling guidelines for CDM-SSC-PDD and EB 22, Annex 3)		4. The compliance requirement has been added as required in the PDD with respect to the E+ and E- technologies	Section B.4	O.K It is appropriate and confirms to EB 22, Annex 3. CAR is closed.
5. Provide a separate table in section B.5 for all techno-economic parameters and assumptions used in the investment analysis, with a separate column indicating reference for the source. Also, justify and/or cite assumptions.		5. The various parameters used in the investment analysis have been listed out in a table in the PDD, and their sources have also been listed	section B.5	O.K. It is found appropriate. CAR is closed.
6. In section B.5, discuss how the incentive from CDM was seriously considered in the decision to proceed with the project activity (Cp Annex 46 EB 41). This is also asked by a global stakeholder commenter, which is provided in Section 3.2 as Comment 1.		6. A chronology matrix has been incorporated into the PDD to highlight the same.	Section B.5	O.K. The validation of the same is provided in section 3.5.1 of this report. CAR is closed.
7. In section B.5, provide an implementation timeline of the proposed CDM project activity		7. The timeline has been provided as required.	Section B.5	O.K. The validation of the same is provided in section 3.5.1 of this

	with timeline of events and actions, which have been taken to achieve CDM registration, with description of the evidence used to support these actions. The implementation timeline of the project activity should indicate that continuing and real actions were taken to secure CDM benefits (incl awareness about CDM prior to making board decision) in parallel with the project's implementation (Cp Annex 22 EB 49). Also, state delay reasons with reference to evidences. This is also asked by a global stakeholder commenter, which is provided in Section 3.2 as Comment 1.				report. CAR is closed.
	1. The Service Tax should be 12.24% and not 12.36%	7.3.4 7.3.9	1. The same has been corrected both in the PDD as well as the IRR calculations	Section B.5	1. Service tax has been corrected. CAR is closed.

	2. First year of operation should be 2006-07 as the order was placed in May 2006. First year generation, revenue and costs should be <i>pro rata</i> to the number of days the WEGs operated during that year.		2. The same has been done in the financial calculations.	Section B.5	2. The first year of operation has been corrected. CAR is closed.
	3. Tax holiday available u/s 80IA has not been accounted for.		3. Tax holiday has been taken care of correctly now.	Section B.5	3. O.K CAR is closed.
	4. Net Cash flow for IRR calculation should include evacuation deposit refund by the State Utility.		4. The evacuation deposit refund has been accounted for in the IRR sheet.	Section B.5	4. Evacuation deposit has been accounted correctly now. CAR is closed
	5. Since the P.O was issued in May 2006, the project must have been commissioned before March 31, 2007. Hence, the cash outflow should be netted with cash inflow during that year		5. The requisite corrective action has been performed	Section B.5	5. Cash flow has been netted. CAR is closed (12/10)
	6. Sensitivity analysis should conform to Annex 45 of EB 41		6. The sensitivity analysis has been corrected as required	Section B.5	6. Sensitivity analysis conforms to Annex 45 of EB 41 now. The validation of the same is provided in section 3.5.3 of this report. CAR is closed.
	7. The start date of various WEGs given in the PDD (vide serious consideration) is at variance with the number of		The number of days of operation in the work sheet is now consistent with the commissioning date of each	Section B.5	O.K. Checked the worksheet and found appropriate. CAR is closed.

	days of operation given in worksheet.		of the WEGs.		
	8. PLF has been brought down from 25.57% given in the web hosted PDD to 21.05 % now. Web hosted PDD arrived at the PLF of 25.27% after providing for wind factor correction, machine availability and line losses. Hence, the explanation is incorrect. Moreover, any deviation from web hosted PDD is not acceptable.		The PLF in web-hosted PDD is based on the estimated generation, as per the PO issued to the technology provider. And that too for only one year. This is backed by conditional guarantee. This is evident from the fact that the project activity achieved only 13% PLF in the first year. Hence this figure cannot reasonably represent the generation and that too during the entire project period. Hence, while estimating the PLF, the data provided to the bank at the time of project financing has been considered. This is in conformity with Annex 11 of EB 48	Section B.5	<p>The explanation is acceptable to the DOE. The calculation of the PLF is based on the net electricity generation presented to the bank at the time of project appraisal. It is correctly calculated and confirms to the requirement of the Annex 11 of EB 48. This figure is consistently used across the PDD, in Investment analysis and in the estimation of the CER.</p> <p>Hence this CAR is closed.</p>
	9. Project cost has gone up by Rs.30.69 lakhs as compared to earlier presentation. Once the worksheet is submitted to DOE, no changes can be made in the basic assumptions unless requisitioned by DOE.		The project activity's financials had been revised as per the first draft validation report's clarifications and corrective action requests	Section B.5	<p>O.K. The same is checked with the supporting documents as per evidence /P13/. CAR is closed.</p>

	10. O&M cost does not seem to include Service Tax. This may be checked and corrected, if need be.		O&M cost include the service tax and the same has been revised in the work sheet	Section B.5	O.K. Accepted.
	11. Land cost has been amortised for 5 WEGs only. It appears that the land for the remaining 7 WEGs is owned as the salvage value has been provided. This may be confirmed.		Land cost is amortized for 5WTGs only which are on forest department land. While other WTGs are owned and the salvage value has been provided as salvage value in the terminal year.	Section B.5	O.K. Checked and found appropriate.
	12. Evacuation deposit is a cash flow item and inclusion of it in profit and loss account is not in conformity with accounting principles.		The same has been revised in the worksheet by considering the evacuation deposit in the cash flow item.	Section B.5	O.K. Accepted.
	13. Providing 5% deration in 11 th year is not correct, as the WEGs were operational only for 194 days and hence, this tantamount to providing deration after 9.5 years		During conceptualization the exact commissioning dates of WTGs were not Known. There fore the 5 % deration from 11 th year has been assumed	Section B.5	O.K. Accepted.
	14. Cash flow for IRR computation does not include evacuation deposit refund and land amortisation cost.		The same has been revised in the worksheet by considering the evacuation deposit refund and land amortization cost in the cash flow item.	Section B.5	O.K. Accepted.
	15. Computation of book depreciation does not appear		Book depreciation has been revised in the work sheet by	Section B.5	O.K. Accepted.

	to be correct as the cost depreciated includes evacuation deposit which is refundable and has to be accounted for as a cash flow item. Moreover, though it makes no difference, applying 5.28% depreciation on all assets does not seem to conform to Schedule XIV of Companies Act.		including the evacuation deposits in the cash flow item. Moreover depreciation on all assets is taken care off in the revised worksheet.		
	16. Computation of IT depreciation does not appear to be correct as the cost depreciated includes evacuation deposit. Moreover, providing accelerated depreciation on all assets does not seem to be in conformity with IT Act.		Evacuation deposits are taken into cash flow item. Where as accelerated depreciation on all assets are taken care off and the same is revised in the worksheet	Section B.5	O.K. Accepted.
	17. Of the 12 WEGs one WEG was installed in 2008-09. One WEG was operational for less than 180 days. To provide for depreciation at 80% on this asset is not in conformity with IT Act.		All the WTGs were commissioned during the year 2006-07. The depreciation of the WTG has taken as 40% on this asset which is in conformity with IT Act.	Section B.5	O.K. Accepted.
CAR 07	The units mentioned in various sections of the PDD should follow SI system.	5.5.1	The SI units have been incorporated as required throughout the PDD	-	OK. This CAR is closed.
CAR 08	In Section B.4, incorrect reference (ACM0002, ver. 8) is	5.4.2	The correct reference has been incorporated in	Section B.4	OK the correct reference is

	provided for the value of OM and BM. (Ref. AMS I.D. Ver 13, Para 9(a)).		section B.4 of the PDD.		incorporated in the PDD. Further more the revision also complies to AMS I.D ver 15. This CAR is closed.
CAR 09	<p>Following CARs are related to monitoring plan</p> <p>1. Detailed single line diagram from generation to evacuation indicating Export and Import metering points and generation individual WEGs should be submitted to the DOE.</p>	<p>4.2, 5.5.1, 5.5.4, 8.1.1, 8.1.2, 8.2.1, 8.1.4, 8.1.5, 8.1.8, 8.1.9, 8.1.10,</p>	<p>1. Single line diagram for each of the 7 feeders showing the details of the WEGs (PP), WEGs (Non PP) and metering point as provided by the O & M company is submitted to the DOE.</p>	-	<p>1. The single line diagram is submitted/P16/. It transparently describes the WEGs (Both PP and Non PP) and its metering points. The same has been verified during onsite visit. Hence this CAR is closed.</p>

	<p>2. AS per B.6.3 and B.7.1, the net electricity would be calculated from the arithmetic difference of the metered electricity Export and the metered electricity import. In this context the relevant sections in monitoring is required to be corrected and made consistent.</p>	<p>8.1.11, 8.1.12, 8.1.13, 8.1.14, 8.1.15, 8.1.16, 8.1.18, 8.1.19</p>	<p>2. The net electricity exported to the grid by project activity is the difference of total export and total import as recorded from the main meter. However there are 12 WEGs under the project activity distributed in 7 feeders (details of the feeders are provided in Annex 4). Other WTGs (Non PP) are also connected to those 7 feeders. The joint meter reading and apportioning of the net electricity export by PP is the responsibility of MSEDCL (Ref Clouse 11.05 of PPA). During monitoring period CER will be calculated as per the report "Energy Delivery at MSEDCL Grid" provided by MSEDCL to Suma Shilp Limited.</p>	<p>Section B.6.3 and B.7.1</p>	<p>2. The estimation of net electricity export is provided in transparent manner in Annex 4 of the PDD.</p> <p>The meter is not dedicated to WEGs in consideration under project activity. Other WEGs (Non PP) are also connected to all the 7 feeders. CER will be estimated as per Energy Export report "Energy Delivery at MSEDCL Grid" provided to PP by MSEDCL. The report clearly indicated the net export by each WEGs. DOE has verified the above mentioned documents and found authentic. Hence this part of the CL is closed</p>
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	3. The QA/QC procedure and aspects should be properly described in section B.7.1 and Annex 4 of the PDD (Cp filling guidelines and Para 12 of general guidelines).		The requisite additions to the QA/QC procedures on data archiving have been made in the PDD	Section B.7.1 Annex 4	OK. Hence this part of the CAR is closed.
	4. In section B.7.2, description in the para "Project Proponent... of this document" is unclear, not traceable and not project specific. Also, the flow chart and section does not clearly indicate the roles and responsibilities and institutional arrangements for data collection and archiving. The management review procedure should be clearly defined.		The requisite changes have been made in the PDD to present an elaborate view of the monitoring plan. The roles and responsibility of the PP and the O & M company is described in section B.7.2 of the PDD	Section B.7.2	Section B.7.2 and annex -4 are revised and the roles and responsibility of PP and O & M company is transparently presented. Hence this part of the CAR is closed.
	5. In Annex 4, the sentence "the project requires.... Leakage... will be the only...monitored" is inconsistent with section B.7.1 of the PDD.		Leakage is not applicable as per the applied methodology. The requisite changes have been made in section B.7.1 and Annex – 4 of the PDD.	Annex 4	OK. Hence this part of the CAR is closed.

	<p>6. In Annex 4, para 3 under “Testing of monitoring equipments” should indicate clearly the frequency of calibration.</p>		<p>The requisite changes have been made in the PDD to highlight the testing and frequency conditions laid out by MSEDCL in the energy purchase agreement</p>	Annex 4	<p>The testing for accuracy of all the meters will be done with a portable standard meter on annual basis. The calibration of the meters depends on the testing results. If any of the meters found to have an error more than 0.5 %, the meter will be immediate calibrated. This is validated as per the signed PPA. Hence this part of the CAR is closed.</p>
	<p>7. PP should provide a monitoring table indicating the following WEG Identification No, Details of the meter installed with meter TAG No, monitoring and recording frequency, unit of measurement, responsible person (for meter reading, recording, calibration), and calibration frequency.</p>		<p>The requisite addition of table highlighting the WEG identification number, details of the meter installed, monitoring, calibration frequency and recording frequency as well as the unit of measurement and responsible personnel has been made in the PDD</p>	Annex 4	<p>OK. This part of the CAR is closed.</p>
	<p>8. As a part of the good monitoring practices (Cp section 7.2 of the PDD filling guidelines) the training requirement of the person responsible for O & M of WEG and Meters from both PP</p>		<p>The requisite addition has been done in Annex – 4 of the PDD to indicate the training undertaken by employees of the O&M</p>	Annex 4	<p>OK. This part of the CAR is closed.</p>

	and Subcontracted Company is to be implemented and documented. A brief description of the procedure should be incorporated in the PDD.		contractor		
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	9. The PDD should clearly indicate the mode and procedure of data archiving system in the relevant sections of the PDD.		The same has been corrected in the PDD to incorporate the procedure of data archiving done by Suzlon and SSL. All the relevant data will be archived electronically.	Section B.7.2	OK. This part of the CAR is closed.
	10. Symbols used in the equations in section B.6.3 and the Tables provided in section B.7.1 should be consistent with the applied methodology and tool.		10. The formulae have been corrected in the PDD	Section B.6.3 Section B.7.1	OK. This part of the CAR is closed.
	11. PP should incorporate the detail of all the measuring instrument in the relevant section of the PDD and provide all reference documents to DOE for validation.		The Main and Check Meters are of 0.5 % accuracy class and comply with the requirements of local electricity regulations. The meters installed at the Metering Point are four quadrants, three phase, and four wire, with provision for on-line reading and time slots as required. The same has been incorporated in Annex- 4 of the PDD	Annex 4	OK. This part of the CAR is closed.
CAR-10	The project activity applied AMS.I.D Version 13 could not be submitted to CDM EB for requesting registration due to the issue raised regarding incomplete submission and the expire of the validity of the methodology as per para 13 and 14 of Annex 60 EB	5.1.1	The relevant sections of the PDD has been modified by applying AMS.I.D version 15 (latest) and resubmitted to DOE.	Several sections of the final PDD	The PDD is appropriately modified in accordance with AMS. I.D version 15. The compliance check of additional or modified requirements (applicable to this given

	48. The relevant sections of the PDD should be modified by applying the latest applicable version of AMS.I.D.				project activity) of AMS.I.D, Ver 15 in compassion with AMS.I.D, Ver 13 is addressed in Table-3 of this report. The closure of previous version validation findings along with the closure of this finding lead to no open points.
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Table 3: Compliance check of additional or modified requirements (applicable to this given project activity) of AMS I.D, Ver 15 in compassion with AMS I.D, Ver 13

Additional and /or modified requirements * (applicable to this given project activity) of AMS I.D Ver 15	PDD compliance with AMS I.D Ver 15	Validation team conclusion
Para 7 (under “Boundary”) The physical, geographical site of the renewable generation source delineates the project boundary.	The B.3 section is appropriately modified.	OK
Para 10 (under “Baseline”) For all other systems, the baseline emissions are the product of electrical energy baseline “ $EG_{BL,y}$ ” expressed in kWh of electricity produced by the renewable generating unit multiplied by an emission factor. $BE_y = EG_{BL,y} * EF_{CO_2}$ Where: BE_y = Baseline Emissions in year y; t CO ₂ $EG_{BL,y}$ = Energy baseline in year y; kWh EF_{CO_2} = CO ₂ Emission Factor in year y; t CO ₂ e/kWh	The B.4 section addresses these changes and the B.6.1 section incorporates the methodology prescribed equation for calculating baseline emissions.	OK
Para 11 (under “Baseline”) The Emission Factor can be calculated in a transparent and conservative manner as follows: (a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the ‘Tool to calculate the Emission Factor for an electricity system’. OR (b) The weighted average emissions (in kg CO ₂ e/kWh) of the current generation mix.	The B.4 section addresses these changes.	OK

Additional and /or modified requirements * (applicable to this given project activity) of AMS I.D Ver 15	PDD compliance with AMS I.D Ver 15	Validation team conclusion
The data of the year in which project generation occurs must be used. Calculations must be based on data from an official source (where available) and made publicly available.		
Para 15 (under “Leakage”) If the energy generating equipment is transferred from another activity, leakage is to be considered.	The section B.6.1 is appropriately modified.	As this is green field project involving no transfer of equipment from another activity within host country, hence the PDD is OK.
Para 16 (under “Emission reductions”) Emission reductions are calculated as follows: $ER_y = BE_y - PE_y - LE_y \quad (13)$ Where: ER_y Emission reductions in year y (t CO ₂ e/y) BE_y Baseline Emissions in year y (t CO ₂ e/y) PE_y Project emissions in year y (t CO ₂ /y) LE_y Leakage emissions in year y (t CO ₂ /y)	The B.6.1 section of the PDD follows this equation.	OK
Para 17 (under “Monitoring”) Monitoring shall consist of metering the net electricity supplied by the project activity to the grid. Measurement results shall be cross-checked with records for sold electricity. Hourly measurement and monthly recording are required.	This provision of monitoring is taken into account in section B.7.1 of the PDD	The monitoring plan complies this requirement. Hence OK.

*The certain editorial/reworded changes and irrelevant (non project specific) changes which can be spotted in the yellow highlighted versions of methodologies, ie, Annex 23 of EB 48 containing AMS.I.D Ver 13 to 14 changes and Annex 29 of EB 50 containing AMS.I.D Ver 14 to 15 changes are not covered in the above table. Nevertheless, the net applicable (to the project activity) changes (from version 13 to version 15) reflect completely in the final PDD.

Appendix B

CERTIFICATES OF COMPETENCE

Qualification

Brinkmann, Manfred /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☒ yes

EAC Scopes:
(EAC Branchen)

CDM 03 – Energy demand
CDM 04 – Manufacturing industries
CDM 05 – Chemical industry
CDM 10 – Fugitive emissions from fuels (solid; oil and gas)
CDM 11 – Fugitive emissions from production and consumption
of halocarbons and sulphur hexafluoride
CDM 12 – Solvents use
CDM 01 – Energy industries (renewable – / non-renewable
sources)
CDM 06 – Construction
CDM 13 – Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment: 2004/03/03
(Erstberufung)

Valid to: 2010/03/03
(Gültig bis)

Remarks:

Languages:

German
English
French

Experience Exchange

Date

Location

Remarks

Accredita

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2004-03-05
Change: EAC CDM, CDM added

By: Klaus-Dieter Fritsch
Reason:

Date: 2004-03-03
Change: EAC CDM, CDM, CDM, CDM, CDM, CDM added
By: Klaus-Dieter Fritsch
Reason: Qualification is based on the applicant's ISO 14001 auditor qualification.

History

Created: 2003/12/11 14:27:13 -
Modified: 2007/11/22 12:00:46 Manfred Brinkmann/Jpn/TUV

Qualification

Jana, Asim Kumar /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level:
(Qualifikationsstufe)

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)
CDM 03 – Energy demand
CDM 04 – Manufacturing industries
CDM 12 – Solvents use
CDM 02 – Energy distribution
CDM 11 – Fugitive emissions from production and consumption of
halocarbons and sulphur hexafluoride
CDM 13 – Waste handling and disposal
CDM 05 – Chemical industry

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

2009/06/02

Valid to:
(Gültig bis)

2012/06/01

Remarks:

Languages:

Hindi
English

Experience Exchange

Date

Location

Remarks

Accreditation(s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next Monitoring:
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date:

2009-06-03

Change:

EAC CDM, CDM, CDM, CDM added

By: Manfred Brinkmann
Reason: scope 4 limited to fuel switch

History

Created:	2009/04/21 22:54:07	Asim Kumar Jana/Ind/TUV
Modified:	2010/01/05 12:54:54	Manfred Brinkmann/Jpn/TUV

Qualification

Zhou, Kai /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level:
(Qualifikationsstufe)

Auditor

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)
CDM 05 – Chemical industry

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

2008/08/24

Valid to:
(Gültig bis)

2011/08/23

Remarks:

Languages:

Chinese simplified
English
German

Experience Exchange

Date

Location

Remarks

Accreditation(s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next Monitoring:
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2008-09-25

Change: EAC CDM, CDM added

By: Manfred Brinkmann

Reason: 1st project to be accompanied by an appointed team leader for 'monitoring' and mutual exchange of experience & knowledge

Appointment for scope 1 based on project experience (almost exclusively Hydropower), therefore limited to renewable energies; other projects subject to case-by-case decision.

History

Created:	2008/09/01 18:27:46	Kai Zhou/Gz/Chn/TUV
Modified:	2008/09/01 18:28:58	Kai Zhou/Gz/Chn/TUV