



VALIDATION REPORT

“3 MW WIND POWER PROJECT IN MADHYAPRADESH” IN INDIA

REPORT No. 2012-0999

REVISION No. 01

DET NORSKE VERITAS



VALIDATION REPORT

Date of first issue: 20 July 2012	ConCert Project No.: PRJC-389240-2012-CCS-IND
Approved by: Hendrik W. Brinks	Organisational unit: DNV KEMA Energy & Sustainability Accredited Climate Change Services
Client: Kohinoor Hatcheries Pvt Ltd	Client ref.: Mr. D.Raghava Rao

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Summary:

Project Name: 3 MW Wind power project in Madhyapradesh

Country: India

Methodology: AMS-I.D

Version: 17

GHG reducing Measure/Technology: Grid connected electricity generation from renewable energy source (wind)

ER estimate: 5 717 tCO₂e per year (average)

Size

☐ Large Scale

☒ Small Scale

Validation Phases:

☒ Desk Review

☒ Follow up interviews

☒ Resolution of outstanding issues

Validation Status

☐ Corrective Actions Requested

☐ Clarifications Requested

☒ Full Approval and submission for registration

☐ Rejected

In summary, it is DNV's opinion that the project activity "3 MW Wind power project in Madhyapradesh" in India, as described in the PDD, version 02 of 19 November 2012, meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology AMS-I.D, version 17. Hence DNV requests the registration of the project as a CDM project activity.

Report No.: 2012-0999		Subject Group: Environment	
Report title: "3 MW Wind power project in Madhyapradesh" in India			
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Date of this revision: 17 December 2012	Rev. No.: 01	Number of pages: 27	
Indexing terms Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism			
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<i>Table of Content</i>	<i>Page</i>
1 EXECUTIVE SUMMARY – VALIDATION OPINION	1
2 INTRODUCTION	2
2.1 Objective	2
2.2 Scope	2
3 METHODOLOGY	3
3.1 Document review	3
3.2 Follow-up actions	6
3.3 Closing out of validation findings	7
3.4 Internal quality control	9
3.5 Validation team	9
4 VALIDATION FINDINGS	10
4.1 Comments by Parties, stakeholders and NGOs	10
4.2 Approval, authorization and contribution to sustainable development	10
4.3 Modalities of communications	10
4.4 Project design	10
4.5 Application of selected baseline and monitoring methodology	11
4.6 Project boundary	12
4.7 Baseline scenario identification and description	12
4.8 Algorithms and/or formulae used to determine emission reductions	13
4.9 Additionality	14
4.10 Monitoring plan	24
4.11 Environmental impacts	27
4.12 Local stakeholder consultation	27
Appendix A Validation Protocol	
Appendix B Curricula vitae of the validation team members	



Abbreviations

BM	Build Margin Emission factor
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Agency
CL	Clarification request
CM	Combined Margin Emission Factor
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas Climate Change Services AS
DNA	Designated National Authority
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GPS	Global Positioning System
GWP	Global Warming Potential
IOB	Indian Overseas Bank
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of approval
MPERC	Madhya Pradesh Electricity regulatory Commission
MPPKVV	Madhya Pradesh Purva Kshetra Vidyut Vitaran Company Limited
NEWNE	Northern, Eastern, Western and North Eastern
NGO	Non-governmental Organisation
MoC	Modalities of communication
OM	Operating Margin Emission factor
ODA	Official Development Assistance
IOB	Indian Overseas Bank
PCP	Project Cycle Procedure
PPA	Power Purchase Agreement
PP	Project Participant
PDD	Project Design Document
PLR	Prime Lending rate
PS	Clean Development Mechanism Project Standard
SEL	Suzlon Energy Limited
SIL	Suzlon Infrastructure Services Limited.
SSC- WG	Small Scale working Group
tCO ₂ e	Tonnes of CO ₂ equivalents
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard
WACC	Weighted Average Cost of Capital
WEG	Wind Energy Generator



1 EXECUTIVE SUMMARY – VALIDATION OPINION

DNV Climate Change Services AS (DNV) has performed a validation of the project activity “3 MW Wind power project in Madhyapradesh” in India. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism as well as criteria given to provide for consistent project operations, monitoring and reporting.

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

The host Party is India and no Annex I party has been identified yet. The host country (India) fulfils the participation criteria and has approved the project and authorized the project participants Kohinoor Hatcheries Pvt Ltd. The DNA from India (MoEF) confirmed that the project assists in achieving sustainable development.

The project correctly applies the baseline and monitoring methodology AMS-I.D, version 17 “Grid connected renewable electricity generation”.

The project activity generates electricity from a 3 MW wind farm with the operation of 2 numbers of 1.5 MW Suzlon S-82 model WEGs. This displaces the electricity generation in the fossil fuel dominated NEWNE integrated grid of India, thereby resulting in the reduction of GHG emissions that are real, measurable and gives 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 occur in the absence of the project activity.

The total emission reductions from the project are estimated to be on the average 5 717 tCO₂e per year over the selected 7 year renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is DNV’s opinion that the project participants are able to implement the monitoring plan.

In summary, it is DNV’s opinion that the project activity “3 MW Wind power project in Madhyapradesh” in India, as described in the PDD, version 02 dated 19 November 2012 meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology AMS-I.D, version 17. Hence, DNV requests the registration of the project as a CDM project activity.

Bangalore and Oslo, 17 December 2012

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2 INTRODUCTION

Kohinoor Hatcheries Pvt Ltd has commissioned DNV Climate Change Services AS (DNV) to perform a validation of the proposed CDM project activity “3 MW Wind power project in Madhyapradesh” in India (hereafter called “project”). 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. UNFCCC criteria refer 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 CDM Executive Board.

2.1 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 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).

2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-I.D (version 17). The validation was carried out in accordance with the principles and the requirements for validation contained in the Validation and Verification Standard /24/.

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.



3 METHODOLOGY

The validation consisted of the following three phases:

- I document review
- II follow-up actions (e.g. on-site visit and telephone or email interviews)
- III the closing out of validation findings and the issuance of the final validation report and opinion

The following sections outline each step in more detail. /1/

3.1 Document review

The following tables list the documentation that was reviewed during the validation.

3.1.1 Documentation provided by the project participants

/1/	KHL: <i>CDM-PDD for project activity "3 MW Wind power project in Madhyapradesh" in India</i> , Version 01 dated 15 May 2012 and version 02 dated 19 November 2012.
/2/	KHL: <i>Financial Analysis and IRR calculation spreadsheet</i> version 1 dated 15 May 2012 and version 2 dated 19 November 2012.
/3/	Suzlon Energy Limited: <i>Offer Letter sent to KHL for the purchase installation, commissioning of 2x1.5MW WEG</i> dated 15 October 2010.
/4/	KHL: <i>Feasibility report for setting up of 2x 1.5 MW wind power project in Shajapur district, Madhya Pradesh</i> , dated 21 October 2010.
/5/	KHL: <i>Board resolution to set up the proposed project activity considering CDM benefits</i> dated 22 October 2010.
/6/	KHL: <i>Purchase orders and work orders placed to Suzlon for land, WEGs and other related equipment required for the project activity</i> dated 28 December 2010
/7/	KHL: <i>Email sent to UNFCCC and DNA of India on prior CDM consideration</i> dated 28 December 2010 and 16 February 2011.
/8/	DNA of India: <i>Email acknowledgement sent to KHL regarding CDM consideration for the project activity</i> dated 30 December 2010.
/9/	UNFCCC secretariat: <i>Email acknowledgement sent to KHL regarding CDM consideration for the project activity</i> dated 26 January 2011 and 8 March 2011.
/10/	MP Power Trading Company: <i>PPA signed between MP power trading company and KHL</i> dated 23 July 2011
/11/	Excellent Insurance Broking Services Limited: <i>Insurance quote for the project activity</i> dated 17 October 2010.
/12/	KHL: <i>Loan application covering letter for financing the project activity addressed to Indian Overseas Bank</i> dated 23 November 2010.
/13/	Indian Overseas Bank: <i>Term Loan sanction letter for the project activity</i> dated 14 March 2011.
/14/	Royal Sundaram Alliance Insurance company Limited: <i>Insurance Premium schedule in the name of the project activity</i> dated 10 May 2011
/15/	Indian Overseas Bank: <i>Letter confirming the electricity generation considered for sanctioning the term loan for the project activity</i> dated 10 May 2012.



/16/	MPERC: <i>Permission accorded to the project activity for establishment of WEGs and for sale of power</i> dated 24 February 2011.
/17/	MP Power Trading Company: <i>Commissioning certificate for the WEG located at M 38</i> dated 28 March 2011 <i>and the WEG located at M48</i> dated 11 May 2011.
/18/	SEL: <i>Note from SEL (OEM) confirming the non-requirement of calibration for the microprocessor based controller meters</i> dated 27 July 2010.
/19/	Suzlon Infrastructure Services Ltd: <i>MOM for the stakeholder meeting conducted on 2 February 2011 along with the list of participants, public notice (invitation) and personal invitation (dated 17 January 2011)</i> dated 2 February 2011.
/20/	MPUVNL: <i>Revenue land use permission for the project activity</i> dated 10 August 2011.
/21/	SIL: <i>Sample monthly electricity generation and consumption report of the project activity</i> dated October 2012.
/22/	KHL: <i>Invoices raised (sample) to MPPKVV against the sale of electricity</i> dated 1 November 2012.

3.1.2 Letters of approval

/23/	MoEF (DNA of India): <i>Letter of approval</i> dated 11 October 2012.
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3.1.3 Methodologies, tools and other guidance by the CDM Executive Board

/24/	CDM Executive Board: <i>Clean Development Mechanism Validation and Verification Standard</i> , version 02.0
/25/	CDM Executive Board: <i>Clean Development Mechanism Project Standard</i> , version 01.0
/26/	CDM Executive Board: <i>Clean Development Mechanism Project Cycle Procedure</i> , version 01.0
/27/	CDM Executive Board: <i>Baseline and monitoring methodology AMS-I.D</i> , version 17
/28/	CDM Executive Board: <i>Tool to calculate the emission factor for an electricity system</i> , version 2.2.1
/29/	CDM Executive Board: <i>Guidelines on the demonstration of additionality of small-scale project activities of simplified modalities and procedures for small-scale CDM project activities</i> version 09.
/30/	CDM Executive Board: <i>Guidelines on assessment of investment analysis</i> , version 05
/31/	CDM Executive Board: <i>General guidelines to small scale CDM methodologies</i> version 17.
/32/	CDM Executive Board: <i>Guidelines for reporting and validation of Plant Load Factors</i>
/33/	CDM Executive Board: <i>Guidelines for completing the simplified project design document (cdm-ssc-pdd) and the form for proposed new small scale Methodologies (cdm-ssc-nm)</i> version 05.
/34/	CDM Executive Board: <i>Guidelines on the demonstration and assessment of prior consideration of the CDM</i> , version 04.
/35/	CDM Executive Board: <i>Guidelines on assessment of debundling for SSC project activities</i> , version 03.
/36/	CDM Executive Board: <i>Guidelines for objective demonstration and assessment of barriers</i> . Version 01.



/37/	CDM Executive Board: <i>Non-binding best practice examples to demonstrate additionality for SSC project activities</i> , version 1.
/38/	CDM Executive Board: <i>Glossary of CDM terms</i> , version 6.0

3.1.4 Documents used by DNV to validate / cross-check the information provided by the project participants

/39/	CEA: <i>CO₂ Baseline Database for the Indian Power Sector</i> . Version 7, dated January 2012 http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
/40/	Germanischer Lloyd: <i>Statement of Compliance for the A-Design assessment of the Wind Turbine Suzlon S.82/1500kW</i> , Revision 1 dated 11 May 2007.
/41/	MPERC: <i>Tariff order for procurement of power from wind electric generators</i> dated 14 May 2010.
/42/	MoEF: <i>The Ministry of Environment and Forests (MoEF), Government of India notification, regarding the requirement of Environment Impact Assessment (EIA) studies</i> , dated 1 December 2009. http://moef.nic.in/downloads/rules-and-regulations/3067.pdf
/43/	Moody's: <i>Rating of Indian Bonds</i> dated 31 March 2011. http://banking.contify.com/story/moodys-assign-baa3-rating-to-exim-banks-us110-mln-bonds-2011-03-31
/44/	RBI: <i>Survey of professional forecasters: Results of 12th round</i> dated 05 August 2010 http://www.rbi.org.in/scripts/PublicationsView.aspx?id=12477
/45/	BSE: <i>Corporate Announcement (IOB), Increase in base rate and BPLR</i> . Dated 1 October 2010. http://www.bseindia.com/corporates/ann.aspx?curpg=1&annflag=1&dt=20101001&dur=D&dtto=&cat=&scrip=532388
/46/	Income Tax department: <i>Income tax Act 1961-As amended by Finance Act 2010</i> , http://law.incometaxindia.gov.in/DIT/Income-tax-acts.aspx
/47/	Ministry of corporate affairs: <i>Companies Act 1956</i> , http://mca.gov.in/Ministry/pdf/Companies_Act_1956_13jun2011.pdf
/48/	ICAI: <i>Accounting Standard 10- Accounting of fixed assets</i> , issued first in 1985 and last revised in 2001. http://220.227.161.86/252as10new.pdf
/49/	ICAI: <i>Accounting Standard 6- Depreciation Accounting</i> , issued first in 1982 and last revised in 1994. http://220.227.161.86/248as6new.pdf
/50/	IPCC: <i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i> . http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html
/51/	MoEF: <i>India's Initial National Communication to UNFCCC</i> dated 16 June 2004. http://unfccc.int/resource/docs/natc/indnc1.pdf
/52/	CERC: <i>Terms and Conditions of Tariff Regulations, 2009</i> . http://www.cercind.gov.in/2009/February09/SOR-regulations-on-T&C-of-tariff-05022009.pdf
/53/	UNFCCC: <i>CDM project search</i> . http://cdm.unfccc.int/Projects/projsearch.html



/54/	DNV: Service agreement signed between Kohinoor Hatcheries limited and DNV (DOE) for the validation of the project activity dated 5 January 2012.
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There are no major changes made to the webhosted PDD which are not related to the CARs and CLs.

3.2 Follow-up actions

On 11 and 12 July 2012 DNV visited the project site located at Barda Barkheda village (Mahuriya), Barod Tehsil, Shajapur District of Madhya Pradesh State and performed interviews with project stakeholders.

	Date / Type of interview	Name / Organization	Topic
/55/	11 and 12 July 2012 <input checked="" type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Kamala Prasad, GM: KHL ISRC Murthy, Zenith Energy D. Saha, Suzlon Energy Badree Lirve, Suzlon Energy Praveen Singh, Suzlon Energy Santkumar Sahu, Suzlon Energy	<ul style="list-style-type: none"> • Proof of CDM consideration • Applicability of methodology • Review of project design and technology used. • Review of monitoring and verification procedure, management structure of the organization. • Environmental consents and permits. • Review of the stakeholder consultation process. • Joint meter reading procedures. • Operation & maintenance procedures. • Emission reduction calculations and date used therein. • Financial of the project activity.



3.3 Closing out of validation findings

The objective of this phase of the validation was to resolve any issues which needed be clarified prior to DNV's conclusion on the project's compliance with applicable CDM requirements. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in a transparent manner the 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 four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the project activity "3 MW Wind power project in Madhyapradesh" in India is enclosed in Appendix A to this report.

Table 2 of the validation protocol documents the findings of the desk review of the project design documentation and follow-up interviews with project stakeholders. Any findings raised in Table 2 are listed in Table 3 of the protocol, and changes to the description of the project design as a result of these findings will be addressed in Table 3. Table 2 thus may not reflect all aspects of the project as described in the final PDD submitted for registration.

A corrective action request (CAR) is raised if one of the following occurs:

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The applicable CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

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. FARs shall not relate to the CDM requirements for registration.

The validation identified seven CARs, nine CLs and no FARs. The CARs and CLs are to be satisfactorily addressed by the project participants by among other revising the PDD and IRR calculation sheet (please refer to Table 3 in Appendix A for further details).



Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities				
Requirement	Reference	Conclusion		
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK) or a corrective action request (CAR) if a requirement is not met.		

Validation Protocol Table 2: Requirement Checklist				
Checklist question	Reference	Means of verification (MoV)	Assessment by DNV	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the CDM-PDD	Gives reference to documents where the answer to the checklist question or item is found.	Means of verification (MoV) are document review (DR) , interview (I) or any other follow-up actions (e.g., on site visit and telephone or email interviews) and cross-checking (CC) with available information relating to projects or technologies similar to the proposed CDM project activity under validation.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with the checklist question so far.	OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements. A corrective action request (CAR) is raised when project participants have made mistakes, the CDM requirements have not been met or there is a risk that emission reductions cannot be monitored or calculated. A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. A forward action request (FAR) during validation is raised to highlight issues related to project implementation that require review during the first verification of the project activity.

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Corrective action and/or clarification requests	Ref. to checklist question in table 2	Response by project participants	Validation conclusion
The CARs and/ or CLs raised in Table 2 are repeated here.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants to address the CARs and/or CLs.	The validation team's assessment and final conclusions of the CARs and/or CLs.

Validation Protocol Table 4: Forward Action Requests		
Forward action request	Ref. to checklist question in table 2	Response by project participants
The FARs raised in Table 2 are repeated here.	Reference to the checklist question number in Table 2 where the FAR is explained.	Response by project participants on how forward action request will be addressed prior to first verification.

Figure 1: Validation protocol tables



3.4 Internal quality control

The validation report underwent a technical review performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation team

<i>Role</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>	<i>Type of involvement</i>						
				Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	TA 1.2 competence	Financial expertise
Team leader (Validator)	Kaliaperumal	Thamizharasi	India	✓	✓	✓	✓		✓	
Assessor under training	Gopi	Rahul	India	✓	✓	✓				
Financial Expert	M V	Srinivasan		✓						✓
Technical reviewer	Astakala	Vidyacharan	India					✓	✓	

The qualification of each individual validation team member is detailed in Appendix B to this report.



4 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 more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the PDD, version 02 dated 19 November 2012 /1/.

4.1 Comments by Parties, stakeholders and NGOs

The PDD, version 01 dated 15 May 2012, was made publicly available on the CDM website <https://cdm.unfccc.int/Projects/Validation/DB/DI9VJG8IOIHSCH8UB0VAU0OVRQ9XKW/view.html> and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 26 May 2012 to 24 June 2012.

No comments were received during the 30 days webhosting period.

4.2 Approval, authorization and contribution to sustainable development

The project participants are Kohinoor Hatcheries Pvt Ltd of host Party of India. No Annex I party has been identified yet. The host Party (India) meets all relevant participation requirements.

A letter of approval (LoA) was issued by DNA of India on 11 October 2012 /23/, authorizing Kohinoor Hatcheries Pvt Ltd as project participant and confirming that the project assists in achieving sustainable development.

The letter of approval was received from the project participants. DNV does not doubt the authenticity of the letter of approval, and DNV considers the letter is in accordance with paragraphs 39- 42 of the VVS /24/.

4.3 Modalities of communications

The MoC statement dated 6 August 2012 duly filled has been received from the project participant with whom DNV (DOE) has a contractual agreement /54/. DNV confirmed that the specimen signatures, corporate and personal details included in the MoC statement is valid and accurate.

DNV has performed due diligence on the Modalities of Communications (MoC) statement submitted by the project participants in accordance with applicable requirements in the VVS /24/. DNV was able to confirm the information contained in the MoC and that the MoC complies with all relevant forms and requirements /24/.

4.4 Project design

The project activity consists of installation of 2 WEGs of Suzlon S82 model with capacity of 1.5 MW each with horizontal axis, 3 blades with active pitch regulation and single speed induction generator with slip rings /40/. The project activity is located in Barda-Barkheda village of the Shajapur District in Madhya Pradesh state of India. The two WEGs are identified by their designated location numbers which are M38 and M48. The location coordinates for WEG located at M38 are 23 ° 50' 27.2"N , 76 ° 03' 45.9"E and for M48 are 23 ° 50' 03.5"N, 76 ° 04' 48.4"E.



The WEGs generate 3 phase power at 690 V at 50 Hz, which is stepped up to 33 kV. The average life time of the WEG is expected to be 20 years /40/. A renewable crediting period of 7 years has been chosen by the project participant under CDM mechanism and the starting date of the first crediting period considered as 1 January 2013. The WEGs have already been commissioned; one of the project WEG was commissioned on 28 March 2011 at location M38 and the other WEG was commissioned at location M48 on 11 May 2011 /17/. DNV has verified the various approvals and clearances from different statutory bodies required for the operation of the project activity /16//20/.

The entire power generated by the project is supplied to the integrated NEWNE grid through MPPKVV (Discom) /1/. The energy generated using renewable source by the project will displace equivalent energy generation from the fossil fuel dominated integrated NEWNE grid of India. Therefore, the project activity results in an equivalent amount of 5 717 tCO₂e emission reduction per annum during the crediting period of 7 years. The starting date of the project activity is 28 December 2010 which is the date on which the purchase order was placed to SEL for the two WEGs /6/. This is the first financial commitment for the project activity with a scope of supplying, installing commissioning and operating the WEGs. The selected start date is appropriate and in line with the requirements of CDM /38/.

The installation, commissioning, operation and maintenance of the WEGs are under the scope of Suzlon Energy Limited (SEL), during the crediting period, as verified from the purchase order dated 28 December 2010 /6/, which includes the above mentioned scope. The technology used in the project activity is indigenously available in India and no transfer of technology is envisaged. The technology applied is deemed current good practice and is not expected to be replaced within the crediting period.

DNV confirmed that the project activity is not a de-bundled part of any large scale project activity /35/ as the project participant has not registered another project using the same technology within 1 km radius of the project during the past two years, as verified from the UNFCCC CDM projects registry /53/.

DNV considers the description of the project contained in the PDD /1/ to be complete and accurate. The PDD complies with the relevant forms and guidance for completing the PDD /33/.

4.5 Application of selected baseline and monitoring methodology

In view of the fact that the project capacity is less than 15 MW /1//17//55/, the project activity is eligible as type I small-scale CDM project activity and can apply a simplified baseline methodology /31/. The project applies the baseline methodology stipulated for category I.D of the “simplified modalities and procedure for small scale CDM project activity”. The simplified baseline methodology AMS-I.D (version 17) /27/ is applicable for grid connected renewable electricity generation projects. The application of AMS-I.D (version 17) is justified as:

- The project activity is the installation of two new wind energy generators at a site where there was no renewable power plant operating earlier (greenfield plant). This has been verified from the purchase orders /6/ and, also cross checked during the site visit.
- The project activity is connected to the integrated NEWNE grid of India, and the system boundaries are clearly identified and information on the characteristics of this



grid is available on the central electricity authority (CEA), Government of India database /39/.

- The project activity does not come under the combined heat and power (co-generation) systems

Being a wind project, other applicability criteria for the methodology is not relevant in the project activity context.

A detailed assessment of the project's compliance with the applicability criteria of AMS-I.D (version 17) are documented in detail in section B.2 of Table 2 in the validation protocol in Appendix A to this report.

4.6 Project boundary

The project boundary includes the 2 WEGs under the project activity along with other 8 WEGs which are connected to the same feeder (Suzlon Feeder I-Susner) as the project activity, the Suzlon Feeder I-Susner, and the Susner substation. The spatial boundary of the project activity includes all the power plants connected to the integrated NEWNE grid.

	GHGs involved	Description
Baseline emissions	CO ₂	The major emission source. The GHG emission reduction is achieved by displacing the electricity generated by fossil fuel based power plants in the integrated NEWNE grid of India.
Project emissions	No project emissions	Not applicable
Leakage	No leakage	Not applicable

The identified boundary and selected sources and gases are justified for the project activity. The validation of the project activity did not reveal other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed project activity which is expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by AMS-I.D (version 17) /27/.

4.7 Baseline scenario identification and description

Since the project activity is installation of a new grid connected renewable power plant and the project activity has been shown to be additional as discussed below in Section 4.9, the baseline scenario is in accordance with AMS-I.D version 17 /27/ that is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources in the integrated NEWNE grid of India. The emission factor has been determined in accordance with the "Tool to calculate the emission factor for an electricity system" /28/.

VALIDATION REPORT

The approved baseline methodology has been correctly applied to identify realistic and credible baseline scenarios, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed CDM project activity.

All the assumptions and data used by the project participant are listed in the PDD /1/ and/or supporting documents /39/. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the PDD. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD.

4.8 Algorithms and/or formulae used to determine emission reductions

The GHG emission calculations are well documented in line with the applied version of the methodology AMS-Id (version 17) /27/. The project is electricity generation from the wind power and no project emissions and leakage is associated with the project activity. The GHG emission reduction due to the project activity has been calculated as the product of net electricity exported to the grid and the combined margin grid emission factor.

The project activity supplies electricity to the integrated NEWNE grid of India through the Discom MPPKVV as per the PPA signed between the project participant and the MP Power trading Company /10/.

In calculating the baseline emissions the combined margin for the integrated NEWNE grid of India has been used as prescribed in the applied methodology. The combined margin has been derived with use of published data in the CEA database version 7 /39/, which is the latest available at the time of the start of validation. The operating margin (OM) has been determined using the emission and generation data for the years 2008-2009, 2009-2010 and 2010-2011 from the CEA database version 7 /39/. The value thus calculated is 0.98421 tCO₂/MWh. The build margin (BM) applied is directly sourced from the CEA database version 7 and the value applied is 0.85878 tCO₂/MWh. In calculating the combined margin, OM and BM have been given a weightage in the ratio 75:25 as prescribed in the “Tool to calculate the emission factor for an electricity system”/28/. The combined margin emission coefficient for the integrated NEWNE grid of India has been calculated at 0.95285 tCO₂ / MWh and the same is fixed *ex-ante* for the entire first crediting period of 7 years.

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average *ex-ante* estimation of emission reduction conservatively calculated to be 5 717tCO₂e per year for the selected crediting period.

All assumptions and data used by the project participants are listed in the PDD /1/ and/or supporting documents, including their references and sources /39/. All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD. All values used in the PDD are considered reasonable in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PDD.



4.9 Additionality

The additionality of the project activity has been demonstrated as per the Guidelines on the demonstration of additionality of small-scale project activities of simplified modalities and procedures for small-scale CDM project activities /29/.

4.9.1 Prior consideration of CDM

Project start date

The start date of the project activity has been selected as 28 December 2010 which is the date on which the purchase orders related to land, WEGs and other related equipment were placed to SEL for the project activity /6/. This is the first as well as only major financial commitment for the project activity, with the scope of land, supply, erection, commissioning and operations of the project. Subsequent to the purchase orders, the WEGs have been commissioned on 28 March 2011 (WEG 1) and 11 May 2011 (WEG 2) /17/. DNV confirms that the date of purchase order is the earliest financial commitment pertaining to the project activity and the start date selected is as per the requirements of the guidelines on selection of start date /38/.

Evidence for prior consideration:

Since the start date of the project activity is 28 December 2010 (which is after 2 August 2008), the project participant has notified their intentions to apply for CDM for the project activity to the UNFCCC secretariat and the DNA of India. The e-mail notification to UNFCCC secretariat regarding commencement of the project activity and the project participant's intention to seek CDM status for the project was dated 16 February 2011 /7/. The prior consideration form was earlier sent to the UNFCCC on 28 December 2010, but owing to an error identified in the form, a new form was submitted on 16 February 2011. DNV verified the notification from the UNFCCC website and the acknowledgement email from UNFCCC dated 8 March 2011 /9/.

Project participant also intimated the DNA of India by e-mail on 28 December 2010 /7/ regarding project participant's intention to seek CDM status for the project activity and received the acknowledgement e-mail dated 31 December 2010 /8/.

The board resolution note dated 22 October 2010 /5/ which considered CDM benefits for the project activity was also verified by DNV as part of the validation process.

The prior CDM consideration notification for the project activity, to the UNFCCC secretariat and to the DNA of India has been made within six months of the project activity start date. Hence it is DNV's opinion that the proposed CDM project activity complies with the applicable requirements stated in CDM PCP /25/ on prior consideration.



4.9.2 Investment analysis

Choice of approach

The project participant has selected a benchmark analysis for demonstrating the additionality of the project activity. The project generates revenues without CDM and the alternative of grid based electricity generation does not involve any investment on the part of the project participant. Therefore the selected benchmark analysis is considered justified for demonstrating the additionality of the project and the same is in line with the investment analysis guidelines /30/.

Benchmark selection

Weighted average cost of capital (WACC) has been chosen as the benchmark for the project activity. The calculated value of WACC for the project is 12.09% and this has been used as the benchmark. WACC is calculated using the formula

$$WACC = E/V * R_e + D/V * R_d * (1 - T_c)$$

Where:

- R_e = cost of equity
- R_d = cost of debt
- E = Equity
- D = Debt
- V = $E + D$
- E/V = percentage of financing that is equity
- D/V = percentage of financing that is debt
- T_c = Corporate tax rate

The investment decision date for the project activity is stated to be 22 October 2010 and the same has been verified from the board resolution document dated 22 October 2010 /5/. The investment analysis is carried out based on the information available on this date.

The board has decided to implement the project based on the feasibility report prepared for the project activity dated 21 October 2010 /4/. The feasibility report was prepared using the input values which were available from the offer letter received from SEL dated 15 October 2010 /3/. The application for the term loan dated 23 November 2010 for project financing was made based on the same feasibility report and this was verified by DNV from the loan application covering letter /12/.

Subsequent to this, the purchase orders were placed to SEL for the supply, installation, commissioning and operation of the project activity on 28 December 2010 /5/, which is considered as the start date of the project activity.

Cost of Equity (R_e): Para 15 of CDM EB guidelines on assessment of Investment analysis /30/ states that, *If the benchmark is based on parameters that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data*



VALIDATION REPORT

sources which can be clearly validated by the DOE, while properly justifying all underlying factors”/30/.

The project participant has chosen option (a) for calculating post-tax expected return on equity required to invest in the project activity, e.g. 11.75% for group 1 projects /30/ after tax. This was in accordance with para 7 of the guidance convert to nominal terms by adding the inflation rate.

The long term nominal WPI inflation rate prescribed by RBI /44/, published in the “Results of the 12th round relating to the first quarter of 2010-11” is 6% (median value over the next five years). This was published on 05 August 2010 and the latest available during decision making. The project participant has chosen a renewable crediting period for the project activity. Inflation forecast by the RBI is for five and ten years. Since there is no inflation forecast for seven or multiples of seven years, the five year value is considered appropriate and DNV accepted the use of the same for cost of equity calculation. This value has been added to the selected default value of 11.75% to arrive at the cost of equity which is in line with the guidance /30/. The cost of equity thus arrived at is 17.75%.

Cost of Debt (R_d)

The prime lending rate (12.75%) of the Indian Overseas Bank /45/ has been considered for the value for cost of debt in WACC calculation. The chosen prime lending rate prescribed by the Indian Overseas Bank is the latest available (effective from 01 October 2010) rate during the project conceptualization and the same has been verified by DNV from publicly available sources /45/. Indian Overseas Bank (IOB) is a state owned corporation and is one of the largest banking and financial services company in India. The project has been financed by IOB itself at a rate of interest of 13% /13/ which is higher than the prime lending rate considered for calculating the cost of debt. Hence DNV confirms that the prime lending rate of IOB considered for arriving at the cost of debt is appropriate in the project activity context.

Tax rate (T_c)

The tax rate used for the computation of the cost of debt is the Minimum Alternate Tax (MAT) and the value is 19.93%. The project activity needs to pay MAT in the initial 15 years of the total lifetime of 20 years of the project activity with the existing tax regulations in the country /46/ and as verified from the IRR analysis sheet. The regular corporate tax is applicable to the project only in the last 5 years. Hence DNV confirms that the use of MAT for calculating the cost of debt is appropriate than using the corporate tax rate.

Debt Equity ratio

The project has been envisaged to be funded by 75% debt and 25% equity as per the feasibility report /2/. Hence the percentage of equity and debt used for the WACC calculation is 25% and 75% respectively. The debt equity ratio selected is in line with debt equity structure norms specified by CERC for power sector in India /52/.

Based on the above mentioned WACC formulae and with the use of input values as discussed above the weighted average cost of capital (after tax) works out to be 12.09%.

DNV confirms that all the input parameters for arriving at the WACC were available at the time of the decision date.



DNV confirms that the benchmark selected and the financial indicator chosen for the investment analysis is appropriate and as per the guidance on investment analysis version 05 /30/. The WACC is a calculated figure and has been verified by DNV and found to be correct.

Input parameters

The input values used for the financial analysis is discussed in this section along with the procedure with which DNV verified the parameters, in line with the requirement of VVS paragraph 118- 122 /24/.

Input Parameters	Value used for Investment Analysis	Source of the value/ Description	Reference used by DNV to verify and cross check the input parameter and conclusion
Project Capacity	3 MW (2 X 1.5 MW)	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the project capacity considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The project capacity of 3 MW has been verified from the budgetary offer from SEL dated 15 October 2010 /3/ and cross checked from the purchase order placed to SEL for supply of $2 \times 1\,500$ kW WEG dated 28 December 2010 /6/ and found to be consistent.</p> <p>The installed capacity of the individual turbines was confirmed during the site visit.</p>
Total Project Cost	INR 202.76 million	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the total project cost considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The value used was mainly based on the budgetary offer received from SEL /3/ dated 15 October 2010. The total project cost stated in the budgetary offer is INR 201.10 million. To this amount a loan processing charges of INR 1.65 million is added to arrive at the Total</p>



VALIDATION REPORT

			<p>project cost of INR 202.76 million as stated in the Feasibility report/4/.</p> <p>Total project cost has also been cross checked from the purchase order to SEL dated 28 December 2010 /6/. The purchase order value was INR 179.10 million. The actual loan processing charge as confirmed from the loan sanction letter is INR 1.65 million /13/ which is consistent with the value considered for analysis. The term loan amount sanctioned by the financing bank amounts INR 150 million considering a margin (for equity) of 25% of the total project cost /13/. The same comes to 73.97% of the total project cost which is more or less consistent with the feasibility report which considered 75% (INR 152.07 million) of project cost to be financed by term loan /4/.</p> <p>Hence the actual project cost is INR 180.76 million which is about 89.15% of the project cost considered for analysis.</p> <p>DNV confirms that the project IRR do not cross the benchmark selected even at the purchase order project cost and the same has been addressed in the sensitivity analysis adequately.</p>
O & M cost and escalation	<p>Nil for the first year, INR 3.75 million (including service tax of 10.3%) from second year with an annual escalation of 5%</p>	<p>Feasibility report dated 21 October 2010 /4/</p>	<p>DNV verified that the O&M costs and its escalation considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>DNV verified this input value from the budgetary offer /3/ received for the project activity from SEL. The value used in the investment analysis is INR 3.75</p>



VALIDATION REPORT

			<p>million considering the applicable service tax (10.3%) for the O & M costs at the time of order placement.</p> <p>DNV confirms that the O & M cost and the escalation sourced from the feasibility report and verified from the budgetary offer are consistent and also confirms that the same has been used in conducting the investment analysis.</p>
Plant load Factor	22.83%	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the PLF considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The Plant load factor has been computed based on the generation estimates stated in the budgetary offer received from SEL dated 15 October 2010 /3/.</p> <p>Also, DNV confirmed the same from the letter issued by Indian Overseas Bank (IOB) which mentions the estimated electricity generation from the project activity considered for the sanctioning the loan /15/.</p> <p>DNV confirms that the applied PLF is in compliance with the “Guidelines for the reporting and validation of plant load factors” – para 3 (a) /32/.</p>
Electricity tariff	INR 4.35 per kWh	Feasibility Report dated 21 October 2010 /4/.	<p>DNV verified that the Electricity tariff considered for analysis is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The value used has been verified from the MPERC order dated 14 May 2010 /41/, the latest state tariff order available during the project decision making time (21 October 2010)</p>



 VALIDATION REPORT

			<p>found to be correct.</p> <p>The MPERC order specifies a tariff of INR 4.35 per kWh without escalation, for the entire life of the project.</p> <p>The tariff has also been cross checked from the PPA signed between KHL and MP power Trading Company Limited /10/ dated 23 July 2011 and DNV confirms that the tariff stated in the PPA is consistent with the value considered for analysis at INR 4.35 per kWh.</p>
Administrative expenses	INR 0.3 million per year with 5% annual escalation	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the administrative expenses considered are sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The expenses are stated to be against the salary of Executive of the company at the project site and the value has been verified from the Feasibility Report dated 21 October 2010 /4/ and found to be consistent.</p> <p>The salary expenses can be considered reasonable and the annual escalation can also be treated as fair.</p> <p>However, DNV found that no such expense have been considered by the MPERC in computing the tariff for Wind energy projects from the tariff order 14 May 2010 /41/.</p> <p>DNV recalculated the IRR without considering this expense and found that the value has very little impact on the IRR. IRR improves to 7.44% from the original value of 7.16%. The benchmark IRR is 12.09%.</p> <p>DNV confirms that the administrative expense</p>



VALIDATION REPORT

			considered and its escalation rate is reasonable and appropriate for the analysis. Also, DNV confirms that this expense does not have a major impact in IRR computation.
Insurance cost	INR 0.16 million	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the Insurance amount considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The insurance cost has been verified by DNV from the Insurance Quote from the Excellent Insurance Broking Services Limited to KHL /11/ dated 17 October 2010 for the project activity which states the premium amount to be INR 0.16 million.</p> <p>As per the insurance premium schedule /14/, the actual insurance premium amount stated is INR 0.123 million. The insurance for the project activity is provided by Royal Sundaram Alliance Insurance company Limited.</p> <p>DNV verified that this slight variation in the cost of insurance has no material impact on the IRR computation and additionality of the project. The project IRR improves to 7.19% from 7.16% if the actual insurance cost is considered.</p> <p>Hence DNV confirms that the insurance cost considered is appropriate.</p>
Loan amount, interest rate and tenure	INR 152.07 million (75% of project cost) for a period of 10 years (40 Quarters) with a moratorium	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the loan amount considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>The loan particulars was cross checked from the loan sanction letter from IOB dated 14 March</p>



VALIDATION REPORT

	period of 12 months at 13% interest		<p>2011 /13/ for an amount of INR 150 million which is 73.97% of the total project cost considered for analysis. Other parameters viz. moratorium period , interest rate and loan tenure as stated in the letter are 12 months, 13% and 10 years (40 Quarters) respectively which is consistent with the values considered for analysis.</p> <p>Hence DNV confirms that the term loan particulars used for the analysis is appropriate considering the parameters available during the investment decision date /4//5/.</p>
Equity	INR 50.69 (25% of the project cost)	Feasibility report dated 21 October 2010 /4/	<p>DNV verified that the Equity component of the project cost considered is sourced from the Feasibility report dated 21 October 2010 /4/.</p> <p>In the feasibility report the 25% of the total cost was been considered as the contribution of the equity. The Contribution of equity was deduced from the loan amount /13/ and project cost considered for the analysis. This amounts to INR 52.76 million or 26.02% of the total project cost of 202.76 million.</p> <p>Hence, DNV confirms that the equity particulars used for the analysis is appropriate and in conformity with the values available at the time of investment decision /4//5/.</p>
Income tax Depreciation	80% for the cost of Wind mill	Feasibility report dated 21 October 2010 /4/	Indian IT act 2010-2011/46/
Book depreciation	5.28% on 95% of the capital cost of the project	Feasibility report dated 21 October 2010 /4/	<p>Companies Act /47/</p> <p>Accounting standard 10 /48/</p> <p>Accounting standard 6 /49/</p>



Salvage Value	Salvage value considered is 5% of the project cost(excluding land cost) plus 100% of the land cost.	Calculated after depreciating 95% of the cost of the project over the entire lifetime.	The salvage value has been taken as 5% of the project cost (excluding land) plus 100% of land cost. DNV confirms that 5% salvage value is appropriate in the context that 95% of the project cost can be depreciated over the lifetime of the project as per companies act /47/. Further the full 100% of the land value is considered as the salvage value which is according to the accepted accounting standards in the country.
Income tax rate	33.22%	Feasibility report dated 21 October 2010 /4/	IT Act 2010-2011 /46/
MAT rate	19.93%	Feasibility report dated 21 October 2010 /4/	IT Act 2010-2011 /46/

Calculation and conclusion

Based on the input parameters stated above, the post-tax project IRR without CDM revenues for the entire lifetime of the project (20 years) has been calculated to be 7.16%, which is lower than the applied benchmark of 12.09% (post tax). The IRR calculations were provided in a spreadsheet /2/. The calculations were verified and found to be in line with CDM EB's guidance on assessment of investment analysis /30/. The assumptions used in the calculations are appropriate and have been verified by DNV.

Sensitivity analysis

A sensitivity analysis has been performed in order to check the robustness of the financial analysis for reasonable variations in parameters contributing more than 20% to the project costs or project revenues in line with the "Guidelines on the assessment of investment analysis" version 5 /30/. This is adequately described in the PDD /1/. The values were varied till the benchmark was reached and the likelihood for that to happen was assessed. No significant positive correlations between the parameters are anticipated.

a) Project cost: The project-IRR touches the benchmark with a 27.09% decrease in the project cost. Since the investment has already been done and further reduction in this value is not a possible scenario. The final total project cost incurred till the project completion /6/ is INR 180.76 million which is about 89.15% of the project cost considered during investment decision. As the investment has already been done no further decrease in the project cost is feasible.



b) PLF: The PLF considered for the project activity is 22.83%, sourced from the project feasibility study report. The project IRR will cross its benchmark if the PLF reaches a value of 30.14% (an increase of 32.0%), which is deemed unlikely since the PLF applied is based on the project feasibility study. Moreover the MPERC order dated 14 March 2010 /41/ considers a PLF of 20% for wind projects which is also lower than the PLF considered for the analysis.

Further the project financing from the IOB is based on the PLF of 22.83%, as evidenced from the term loan sanction letter for the project activity financing dated 14 March 2011 /13/. Hence the PLF considered is reasonable and DNV believes it is unlikely to reach a value of 30.14% on a sustained basis which is required to reach the benchmark considered.

c) O&M Costs: The O&M costs are very small and have insignificant impact on the IRR. It has been verified that even with no O&M cost, the IRR cannot reach the benchmark. Since the operation and maintenance quality is essential to achieve the objectives of the project activity, reduction in O&M costs to 0% is not possible. The project IRR reaches a value of 9.92% if no O&M costs are considered in the investment analysis which is below the benchmark selected.

d) Tariff: The tariff of INR 4.35 per kWh is considered for the analysis which is in conformance with the latest MPERC tariff order available at the time of decision making. The project IRR reaches the benchmark if the tariff increases by 32.0% (i.e. INR 5.74 per kWh). Since, the PP has already signed a PPA with MP Power Trading Company /10/ with the tariff of INR 4.35 per kWh for the entire life time of the project activity, no further increase in this is anticipated.

4.9.3 Additionality – Conclusion

In conclusion, it is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions resulting from the project are additional. The project activity reduces the amount of CO₂ emissions by replacing the grid generated electricity with that of the electricity produced by the installation and operation of WEGs. Also PDD and IRR analysis presented sufficiently demonstrate the additionally of the project activity and DNV confirmed the additionality with the help of relevant guidance and references.

4.10 Monitoring plan

The project monitoring plan is in compliance with the monitoring methodology AMS-I.D (version 17) /27/. As discussed in section 4.5, the project activity correctly applies the methodology AMS-I.D (version 17). The monitoring plan will give opportunity for real measurement of emission reductions achieved. Since the project is a wind energy generation activity, no indicators have been defined regarding project emissions. Leakage accounting has not been considered for the project since the renewable energy technology equipment used is new equipment and not transferred from another activity.

There is no parameter to be monitored under sustainable development as monitoring of sustainable development indicator is not mandated by the Indian legislations for small-scale project activities.



It is DNV's opinion, that the project participants are able to implement the monitoring plan.

4.10.1 Parameters determined ex-ante

The combined margin emission factor for the integrated NEWNE grid of India has been fixed ex-ante at 0.95285 tCO₂e/MWh for the entire crediting period. The value has been arrived at using the data published by the Central Electricity authority (CEA) of the Ministry of Power, Government of India /39/ and following the guidance prescribed in the "Tool to calculate the emission factor for an electricity system" version 2.2.1/28/. The data used for the determination of the emission factor is verified from the latest data available (version 7) from the Central Electricity Authority (CEA) database /39/, of the Ministry of Power, Government of India. CEA has published a database of carbon dioxide emission factors for the power sector in India based on detailed authentic information obtained from all operating power stations in the country. This CO₂ baseline database provides information about the OM and BM factors of all the regional electricity grids in India. DNV confirms that the database is an official publication of the Government of India for the purpose of CDM baselines /39/. The emission factors for coal and lignite were based on the values provided in India's Initial National Communication under the UNFCCC (Ministry of Environment & Forests, 2004 /51/). For all other fuels, default emission factors were derived from the IPCC 2006 Guidelines /50/. The OM emission factor has been computed using the simple OM approach based on the generation-weighted average emissions per electricity unit over a three year period of 2008-09 and 2009-10, 2010-2011, available in the CEA database version 7, for the integrated NEWNE grid. The value thus arrived is 0.98421 tCO₂e/ MWh. The Build margin (BM) emission factor has also been sourced from the CEA database 7, based on the 20% most recent capacity additions in the integrated NEWNE grid and the value used is 0.85878 tCO₂e/ MWh. DNV has verified both the OM and BM emission factor values from the CEA database version 7 and confirm that the value mentioned above are correct /39/. The combined margin emission factor is calculated as the weighted average of OM and BM with 0.75 and 0.25 weightage respectively. The grid emission factor has been verified from the CEA database version 7 and DNV confirms that it is in line with the "Tool to calculate the emission factor for an electricity system" version 2.2.1 /28/ and the required data has been sourced from the most recent and appropriate database /39/.

4.10.2 Parameters monitored ex-post

The parameters determined ex-post are i) Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year and ii) Data of electricity generation captured at WEG Controller during the year.

As per the applied version of the methodology AMS-I.D (version 17) /27/, the only parameter that is required to be monitored *ex-post* is the net electricity supplied to the integrated NEWNE grid of India by the project activity.

The WEGs under the project activity is connected to Feeder I susner, to which another 8 WEGs (outside the project activity) are also connected. A meter installed at this feeder records export and import electricity of all the 10 WEGs connected to the same meter. The reading of this meter is remotely captured by Discom (MPPKV) on a monthly basis/21/ and readings are shared with Suzlon Infrastructure services limited (SIL) which acts as a nodal agency for all the project activities connected to the same feeder. SIL is also responsible for



VALIDATION REPORT

the operation and maintenance of the WEGs. The Discom reported values can be cross verified with the help of field log for meter reading maintained by SIL.

Each WEG has its own controller meter which records the generation details of the machine. This data is also monitored by the PP for apportioning the export and import data with the use of Discom reported values for the corresponding period. The apportioning procedure as described in the PDD is

S.No.	Description
I	Generation recorded at each WTG Controller
II	Sum of generation recorded at 10 WTGs
III	Ratio (III = I/II)
IV	Total export recorded at main meter installed at Suzlon-I Feeder
V	Export of each WTG (V = III * IV)
VI	Total import recorded at main meter installed at Suzlon-I Feeder
VII	Import of each WTG (VII = III * VI)
VIII	Net Export of electricity by each WTG to the grid = Export of each WTG - Import of each WTG (VIII = V – VII)

The net exported electricity to the grid by each WEG under the project activity is calculated as per the procedure mentioned above. Hence the monitored parameter, “Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity” is calculated as the sum of ‘net exported electricity’ by the two WEGs under the project activity. This procedure is used by SIL for calculating the Net export of electricity from the project activity, based on which the PP generates sale invoice to MPPKVV /22/.

The calculation presented in the PDD is verified by DNV by cross checking the monthly reading report by the Discom /21/ and WEG controller reading during the site visit /55/. DNV confirms that the approach and the procedure adopted are appropriate.

4.10.3 Management system and quality assurance

A per the purchase orders signed /6/, the responsibility of installation and operation & maintenance of the project activity is the responsibility of SEL during the first year and subsequently from 2nd year onwards SIL will be responsible for the O&M.



The monitoring of WEG generation data at the controller meter and at the Feeder meter is the responsibility of SEL/SIL. The meter installed at the Suzlon Feeder I is tri vector type and of 0.5 accuracy class and the same has been verified by checking the name plate details of the meter by DNV during site visit /55/. At the time of validation site visit, only one meter was found to be installed at the feeder metering point. However, DNV was informed that the installation of a check meter is planned and the same will be part of the metering arrangements shortly i.e by March 2013. The same is detailed in the PDD /1/.

The WEG controller meter does not require calibration as confirmed by the OEM- SEL /18/.

The accuracy of meter installed at the Suzlon Feeder I i is ensured by adhering to the calibration and testing of the metering equipment once in each year as per the PDD /1/.

The net electricity supplied by the project activity can be cross checked using the invoices raised by the PP to the Discom and with the payment receipts.

The responsibilities and authorities for project management, procedures for monitoring and reporting, and QA/QC procedures have been established and formalized. The data monitored under the monitoring plan would be kept for 2 years after the end of crediting period or till them last issuance of CERs for this project activity, whichever occurs later /1/.

4.11 Environmental impacts

As per the Ministry of Environment and Forests (MoEF), notification S.O. 3067 dated 01 December 2009 /42/, wind power projects are not covered under any Schedule and thus EIA is not required for the project activity. The project is not likely to create any adverse environmental effects. The project complies with environmental regulations in India and the investors have received all the necessary clearances required for the project activity /20/.

4.12 Local stakeholder consultation

The project participants have conducted stakeholders meeting at Suzlon's Central Monitoring Station, Mahuriya, Madhya Pradesh state on 2 February 2011. The stakeholders were invited well in advance (15 days) through a notice published /19/ in the gram panchayat office on 17 January 2011. and also through personal invitation letters /19/. The minutes of meeting along with the notice, personal invitation, the list of participants and photographs of the meeting /19/ is verified by DNV during the validation activity. The stakeholder meeting was attended by villagers and organized by SEL (O & M contractor) representatives on the behalf of the project participant. The villagers were given the opportunity to voice their concerns and views about the project and their concerns were addressed satisfactorily by SEL representatives. These are detailed in the minutes of the stakeholder meeting which was verified by DNV. DNV considers that the local stakeholder consultation was carried out adequately.

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APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory requirements for Clean Development Mechanism (CDM) project activities

Requirement	Reference	Conclusion
About Parties		
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	The project has been proposed as a unilateral project with India as the Host country
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	CAR1 OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	CAR1 OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	CAR1 OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	Not Applicable
9. The participating Annex I Party shall have in place a national system for	CDM Modalities and Procedures §31b	Not

Requirement	Reference	Conclusion
estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.		Applicable
About additionality		
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	CL-2 CL-3 CL-4 CL-5 CAR-5 OK
About forecast emission reductions and environmental impacts		
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
About small-scale project activities (if applicable)		
12. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech Accords and shall not be a debundled component of a larger project activity.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK
13. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and use the simplified baseline and monitoring methodology for that project category.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK
About stakeholder involvement		
15. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK

Requirement	Reference	Conclusion
Other		
17. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
18. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	OK
19. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
20. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK

Table 2 Requirements checklist

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A General description of project activity					
A.1 Title of the project activity (PS § 31, VVS § 62-63)					
A.1.1 Does section A.1 of the PDD include a clearly identifiable project title, version number of the PDD and date of the PDD?	/1/	DR	<input checked="" type="checkbox"/> Clearly identifiable title of the project activity <input checked="" type="checkbox"/> Version number of the PDD is included <input checked="" type="checkbox"/> Date of the PDD is included.		OK
A.1.2 Is the PDD is in accordance with the applicable requirements for completing PDDs?	/1/	DR	<input checked="" type="checkbox"/> Yes		OK
A.2 Description of the project activity (VVS § 64-69 and VVS § 150-157 for small-scale project activities, as applicable)					
A.2.1 How was the design of the project assessed?	/1/	DR	<i>What type is the project?</i> <input type="checkbox"/> Project in existing facility or utilizing existing equipment(s) <input type="checkbox"/> Project is either a large scale project or a small scale project with emission reductions exceeding 15 000 tCO ₂ e per year. In this case, a site visit must be performed. <input type="checkbox"/> Project is a bundled small scale project, with each project in the bundle with emission reductions not exceeding 15,000 tCO ₂ e per year. In such case the number of physical site visits may be based on sampling, if the sampling size is appropriately justified through statistical analysis. <input type="checkbox"/> The project is an individual small scale		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>project activity with emission reductions not exceeding 15 000 tCO₂e per year. In this case, DOE may not conduct a physical site visit as appropriate.</p> <p><input checked="" type="checkbox"/> Greenfield project</p> <p><i>How was the design of the project assessed?</i></p> <p><input checked="" type="checkbox"/> Physical site inspection</p> <p><input checked="" type="checkbox"/> Reviewing available designs and feasibility studies</p> <p>The project activity is a small scale wind power project consists of two Wind Turbine Generators (WEG) of 1.5MW capacity each. The WEGs installed under the project has been designed by Suzlon enrgy limited and also ben commissioned and operated by Suzlon energy limited on behalf of the project participant, KHL The power generated from the project activity will be exported to NEWNE grid.</p> <p>The project design as well as the capacity of 2 WEGs has been assessed during the physical site visit for the project activity and was found to be in conformity with the PDD.</p>		
A.2.2 If a greenfield project, describe the physical implementation of the project when the validation was commenced.	/1/	DR	<p>The project activity is a green field project. The project activity involves installation of two numbers of WEGs (3 MW) each of 1.5 MW capacities to supply generated electricity to the NEWNE grid of India. Both the WEGs have already been commissioned at the time of validation site visit. The commissioning details are mentioned in the PDD and the same was</p>		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				verified from the commissioning certificates of the project activity.		
A.2.3	If physical site visits were performed based on sampling (only applicable for bundled small scale projects, each with emission reductions not exceeding 15 000 tCO ₂ e per year), justify the sampling through a statistical analysis:	/1/	DR	Not applicable as the project activity is not a bundled small scale project.		OK
A.2.4	Is the description of the proposed CDM project activity as contained in the PDD sufficiently covers all relevant elements, is accurate and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity?	/1/	DR	The project activity is small scale wind power project consisting of two Wind Turbine Generators (WEG) of 1.5MW capacity each. The WEGs installed under the project has been designed by Suzlon energy limited and also ben commissioned by Suzlon energy limited. The power generated from the project activity is to the NEWNE Electricity Grid In India. The PDD sufficiently covers all relevant elements, is accurate and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity		OK
A.2.5	Does the project activity involve alteration of existing installations? If so, have the differences between pre-project and post-project activity been clearly described in the PDD?	/1/	DR	The project is a greenfield project and hence this is not applicable.		OK
A.2.6	Does the project design engineering reflect current good practices?	/1/	DR	Yes. The project uses WEGs supplied by Suzlon Energy limited, a reputed organization in Wind Energy Generation. Moreover, the specifications of the equipment used are consistent with those used in similar projects in India.		OK
A.2.7	Would the technology result in a significantly better performance than any commonly used technologies in the host country? Is any transfer of technology from any Annex-I Party involved?	/1/	DR	The technology applied for the project activity is a well-established and widely used technology for wind power generation in India. Transfer of technology from Annex-I Party is not involved.		OK
A.2.8	Does the project qualify as a small scale CDM project	/1/	DR	Yes, the project qualifies as a small scale CDM		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
activity as defined in paragraph 6(c) of decision 17/CP.7 on the modalities and procedures for the CDM?				project activity. The total installed capacity of the project activity is 3 MW and hence it fulfils the criteria for type I small scale projects.		
A.2.9	Is the small scale project activity a debundled component of a larger project activity in accordance with the rules defined in appendix C of the simplified modalities and procedures for small-scale CDM project activities?	/1/	DR	No, the project activity is not a part of any large-scale project or program and is not a debundled component of a larger project activity. The same has been assessed in the PDD as per the "Guidelines on Assessment of Debundling for SSC project activities" and the same was verified to be correct by DNV.		OK
A.3 Participation and authorization (VVS § 38-52)						
A.3.1	Do all participating Parties fulfil the participation requirements as follows:	/1/	DR	Host Country Approval (HCA) from the DNA of India (Host country) not provided for verification.	CAR-1	OK
		India (host)		County X	Country Y	
a) Party has ratified the Kyoto Protocol		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
b) Party has designated a Designated National Authority		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
c) The assigned amount has been determined		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
A.3.2	Do the letters of approval meet the following requirements?	/1/	DR		CAR-1	OK
		India (host)		County X	Country Y	
a) LoA confirms that Party has ratified the Kyoto Protocol		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
b) LoA confirms that participation is voluntary		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
c) The LoA confirms that the project contributes to the sustainable development of the host country?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	NA	NA	
d) The LoA refers to the precise project activity title in the PDD		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
e) The LoA is unconditional with respect to (a) to (d) above		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
f) The LoA is issued by the respective Party's DNA		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
g) The LoA was received directly by the DNA or the PP		<input type="checkbox"/> DNA	<input type="checkbox"/> PP	<input type="checkbox"/> DNA <input type="checkbox"/> PP	<input type="checkbox"/> DNA <input type="checkbox"/> PP	

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
h) In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic						
A.3.3	Have all private/public project participants been authorized by an involved Party?	/1/	DR	Host Country Approval (HCA) from the DNA of India (Host country) not provided for verification.	CAR-1	OK
A.4 Modalities of communications (VVS § 53-61)						
A.4.1	How has the corporate identity of all project participants and focal points included in the MoC, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories, been validated?	/1/	DR	<input type="checkbox"/> Directly checking evidence for corporate, personal identity and other relevant documentation; <input type="checkbox"/> Notarized documentation; <input type="checkbox"/> Written confirmation from the project participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. If this case was selected, DNV has confirmed that: <ul style="list-style-type: none"> <input type="checkbox"/> the MoC statement was received from a project participant with whom DNV has a contractual relationship. <input type="checkbox"/> the official who submits the MoC statement to the DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant The MoC statement and as well as the personal identities, including specimen signatures and employment status, of their authorized signatories	CAR-2	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			as per the requirements of the VVS have not been provided.		
A.4.2 Has the MoC statement been correctly completed and duly authorized? Check that all three requirements listed in the next column are complied with.	/1/	DR	<input type="checkbox"/> The latest version of the form F-CDM-MOC has been used; <input type="checkbox"/> The information required as per the F-CDM-MOC, including its annex 1, is correctly completed; <input type="checkbox"/> The project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1. The MoC statement and as well as the personal identities, including specimen signatures and employment status, of their authorized signatories as per the requirements of the VVS have not been provided.	CAR-2	OK
A.5 Technical description of the project activity (PS § 31, VVS § 64-69)					
A.5.1 Is the project's location clearly defined?	/1/	DR	Yes, the locations of the project activity have been clearly defined with the help of area map and location coordinates. The 2 WEGs installed as the part of the project are situated in Barda Barkheda village (Mahuriya), Barod Tehsil, Shajapur District of Madhya Pradesh State. Geo-coordinates of the locations- M38 and M48 (location numbers of the 2 WEGs under the		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			project activity) are 23 ° 50'27.2"N;76 ° 03'45.9"E and 23 ° 50'03.5"N; 76 ° 04'48.4"E respectively. The location coordinates of the site have been verified during the site visit using GPS device.		
A.6 Public funding of the project activity (CDM Modalities and Procedures Appendix B § 2)					
A.6.1 In case public funding from Parties included in Annex I is used for the project activity, have these Parties provided an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties?	/1/ /13/	DR	The project does not involve any public funding and hence, no diversion of funds from official development assistance is expected. The funds for the project has been raised from own funds and through bank loan.		OK
B Application of a baseline and monitoring methodology					
B.1 Methodology applied (VVS para 70-133 and VVS § 150-153 for small-scale project activities, as applicable)					
B.1.1 Does the project apply an approved methodology and the correct and valid version thereof? <i>If during the course of validation the originally applied version of the methodology expires, a CAR shall be raised in Table 3 of the validation protocol. Any new requirements of the revised version of the methodology not yet validated in Table 2 of the validation protocol shall be validated in Table 3 as part of the assessment of the CAR raised.</i>	/1/	DR	Yes, The project correctly applies the approved baseline methodology AMS I.D "Grid connected renewable electricity generation" version 17. The version 17 of the methodology is the most recent available at the time of validation. The power generated by the project activity is supplied to the NEWNE grid of India.		OK
B.1.2 If applicable, has any specific guidance provided by the CDM EB in respect to the applied methodology been considered?	/1/	DR	There is no specific guidance by CDM-EB on the methodology other than the clarifications provided by SSC –WG.		OK
B.1.3 If the project applies a small-scale methodology, does the project also comply with the general guidelines to SSC CDM	/1/ /10/		The project activity applies SSC methodology AMS-I.D applicable for Type I and complies		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
methodologies, which provides guidelines on equipment capacity, equipment performance/lifetime, baseline identification for type-II/III Greenfield project activities, sampling and other monitoring-related issues?	/17/ /55/		with the general guidelines. The capacity of the project is 3MW and the same is verified during the site visit and with the help of project documentation.		
B.2 Applicability of methodology (and tools) (VVS § 73-77) <i>Insert a row for each applicability criteria of the applied methodology (and tools)</i>					
B.2.1 How was it validated that project complies with the following applicability criteria: insert applicability criteria 1? This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	/1/ /27/	DR	The project activity is small scale wind power project consisting of two Wind Turbine Generators (WEG) of 1.5MW capacity each. The WEGs installed under the project has been designed by Suzlon energy limited and also been commissioned by Suzlon energy limited on behalf of PP. This has been validated by referring the purchase order for all the 2 WEGs and the PPAs signed. The power generated from the project activity is supplied to the NEWNE Grid in India. The same has been verified through the PPA for the project activity and confirmed during the physical site visit.		OK
B.2.2 How was it validated that project complies with the following applicability criteria: insert applicability criteria 2? Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies is included in Table 2.	/1/ /27/	DR	Project activity supplies electricity to NEWNE grid hence AMS-I.D is applicable. Project supplies electricity to a mini grid system where in the baseline all generators use exclusively fuel oil and/or diesel fuel Project does not supply electricity to household users, hence AMS-I.A is not applicable Project activity PPAs have been verified and confirmed that the electricity generated is exported to the NEWNE grid of India.	CAR-3	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				The Justification given for non applicability of AMS-I. F criteria is wrongly stated in the PDD.		
B.2.3	<p>How was it validated that project complies with the following applicability criteria: insert applicability criteria 3?</p> <p>This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition; (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).</p>	/1/ /27/	DR	The project involves the installation of a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant)		OK
B.2.4	<p>How was it validated that project complies with the following applicability criteria: insert applicability criteria 4?</p> <p>Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: The project activity is implemented in an existing reservoir with no change in the volume of reservoir; The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m²; The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m².</p>	/1/ /27/	DR	The project activity is a wind energy project and hence this clause of the methodology is not applicable.		OK
B.2.5	<p>How was it validated that project complies with the following applicability criteria: 5?</p> <p>If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of</p>	/1/ /27/		The project activity is generation of power by installation of 2 x 1.5MW Wind Turbine Generator and it does not involve installation of any non-renewable component.		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.					
B.2.6 How was it validated that project complies with the following applicability criteria: 6? Combined heat and power (co-generation) systems are not eligible under this category.	/1/ /27/		The project activity is a wind energy project and does not involve co-generation. Hence this clause is not applicable.		OK
B.2.7 How was it validated that project complies with the following applicability criteria: 7? In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	/1/ /27/		The project activity is a green field wind energy project and hence this clause is not applicable.		OK
B.2.8 How was it validated that project complies with the following applicability criteria: 8? In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	/1/ /27/		Being a greenfield project the project activity is not a retrofit, replacement or capacity addition activity and hence this clause is not applicable.		OK
B.2.9 Is the selected baseline on of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?	/1/ /27/	DR	Yes the selected baseline corresponds to “the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor” as prescribed in the applied methodology. $BE_y = EG_{BL,y} * EF_{CO2, grid,y}$		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.3 Project boundary (VVS § 82-87)						
B.3.1	What are the project's system boundaries (components and facilities used to mitigate GHGs)? Are they clearly defined and in accordance with the methodology?	/1/	DR	<p>The 2 WEGs involved in the project activity is located in Barda Barkheda village (Mahuriya), Barod Tehsil, Shajapur District of Madhya Pradesh State. The spatial boundary of the project also includes transmission network for the evacuation of electricity to the NEWNE of India, to which the project activity is connected.</p> <p>The power generated by the WEGs under the project activity is transmitted through one of the four feeders (15 MW) available at the site and the generated electricity (including other WEGs connected to the same feeder) is measured at the meters installed at the Feeder- grid interface. This is in turn evacuated to the grid substation.</p> <p>Project boundary diagram presented in the PDD is not as per the actual site conditions.</p>	CAR-4	OK
B.3.2	Which GHG sources are identified for the project? Does the identified boundary cover all possible sources linked to the project activity? Give reference to documents considered to arrive at this conclusion.	/1/	DR	<p>GHG sources identified for the project is CO₂.</p> <p>The baseline scenario for the project activity is the generation of equivalent amount of electricity by the carbon intensive NEWNE grid. The project activity helps in displacing the equivalent amount of CO₂ which would have otherwise been generated by the grid.</p>		OK
B.3.3	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?	/1/	DR	<p>No. The project activity is generation of electricity for supply to grid using wind energy and so does not involve any other emission source not foreseen by the methodology.</p>		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.4 Baseline scenario determination and description (VVS § 88-95 / Identification of alternatives to the project activity (VVS § 113-116) <i>Ensure that the evaluation of all alternatives provided in the PDD and required by the methodology and also possible alternatives/offshoots of alternatives are discussed. Check that all alternatives required to be considered by the methodology are included in the final PDD. If baseline alternatives required to be considered by the methodology are considered not applicable, please assess the justification for this.</i>					
B.4.1 Which baseline scenarios have been identified? Is the list of baseline scenarios complete? Does the list include as one of the options that the project activity is undertaken without being registered as a proposed project activity? Does the list contains all plausible alternatives which are iable means of supplying the comparable outputs or services that are to be supplied by the proposed project activity?	/1/	DR	The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. This is only baseline scenario proposed in the selected methodology. Hence the list is complete.		OK
B.4.2 How have the other baseline scenarios been eliminated in order to determine the baseline?	/1/	DR	The project activity adopts the methodology AMS-I.D, "Grid connected renewable electricity generation". This methodology does not specify identification of alternate baseline scenario and their elimination. The only alternative is the project activity without CDM benefits.		OK
B.4.3 What is the baseline scenario?	/1/	DR	The baseline is detailed in the methodology. The baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.		OK
B.4.4 Is the determination of the baseline scenario in accordance	/1/	DR	Yes. The determination of the baseline scenario is		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
with the guidance in the methodology?				in accordance with the guidance in the methodology.		
B.4.5	Has the baseline scenario been determined using conservative assumptions where possible?	/1/	DR	Yes, the baseline scenario has been determined according to the applied methodology AMS-I.D version 17		OK
B.4.6	Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies? Does the baseline scenario comply with all applicable and enforced legislation?	/1/	DR	Yes, national and sectoral policies have been taken into consideration for selecting the baseline scenario. The baseline scenario comply with all applicable and enforced legislation		OK
B.4.7	Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR	The baseline scenario determination has been done with the help of the latest CEA data available at the time of validation process. The combined margin emission factor for the grid has been derived from CEA database version 7. The value applied for the project activity is 0.95285 tCO ₂ / MWh		OK
B.4.8	Is the baseline determination adequately documented in the PDD? <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PDD and related document to be submitted for registration. The data are properly referenced. All documentation is relevant as well as correctly quoted and interpreted. Assumptions and data can be deemed reasonable Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD. The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity 	/1/	DR	The AMS-I.D version 17 has been correctly applied to identify the scenario in the absence of the project activity. In this case, in the absence of the project activity, the equivalent amount of electricity generation would have occurred by conventional methods. The calculation of the baseline emission factor is done with the latest data published by CEA (version 7) and this has been clearly referenced. Assumptions made for the purpose are found to be conservative and reasonable. "Tool to calculate the emission factor for an electricity system" has been followed for the combined margin calculations.		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.5 Additionality determination (VVS § 101-129 and VVS § 158-161 for small-scale project activities, as applicable)					
B.5.1 What approach/tool does the project use to assess additionality? Is this in line with the methodology? In case of small-scale CDM project activities, is Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities applied considering also the “Non-binding best practice examples to demonstrate additionality for SSC project activities”.	/1/	DR	The project demonstrates additionality as per Attachment A to Appendix B of the Simplified Modalities and Procedures for Small-Scale CDM Project Activities which is in line with the methodology and complies with the non binding best practice to demonstrate additionality.		OK
B.5.2 Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives?	/1/	DR	Not applicable, as the only alternative is the project activity without CDM benefits.		OK
B.5.3 Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	Yes, sufficient evidences have been provided in support of the arguments made and the same was verified.		OK
B.5.4 What is the project additionality mainly based on (Investment analysis or barrier analysis)?	/1/	DR	The project additionality has been mainly based on investment barrier. An investment analysis has been done for the purpose and this has been analysed in the subsequent sections.		OK
Prior consideration of CDM (VVS § 105-112)					
B.5.5 Is the project start date before 2 August 2008 or on/after 2 August 2008?	/1/	DR	<input checked="" type="checkbox"/> On or after 2 August 2008; <input type="checkbox"/> Before 2 August 2008; The start date of the project is the date on which the purchase orders for the WEGs were signed. The date of the purchase orders is 28 December 2010 which is after 2 August 2008.		OK
B.5.6 If the starting date is on or after 2 August 2008 and before the global stakeholder consultation (or a new methodology proposed or request for revision of an approved methodology is requested), has the DNA and UNFCCC confirmed that the project participants have informed in writing of the project's intention to seek CDM status within 180 days of the project	/1/	DR	The starting date of the project is 28 December 2010 (placed Purchase orders) which is after 2 August 2008 and as per the guidelines the Project participant has informed UNFCCC and DNA of India on their intention to seek CDM status on 28 December 2010. This is within a period of 180	CL	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
activity start date?			days from the project start date. The UNFCCC interface shows the prior CDM consideration intimation received date as 1 March 2011. The discrepancy needs to be clarified and Confirmation mail from UNFCCC and DNA of India need to be evidenced to confirm.		
B.5.7 If in addition to the above, the PDD was not published for global stakeholder consultation (or a new methodology proposed or request for revision of an approved methodology is requested) within two years of the initial notification, have project participants every subsequent two years after the initial notification informed the UNFCCC secretariat of the progress of the project activity?	/1/	DR	Not applicable as the PDD has been published for global stakeholder consultation within the period of 2 years of the initial notification.		OK
Continuous efforts to secure CDM status (only to be completed if starting date is before 2 August 2008)					
B.5.8 What initiatives were taken by the project participants from the starting date of the project activity to the start of validation in parallel with the physical implementation of the project activity?	/1/	DR	The start date of the project activity is 28 December 2010, after 2 August 2008 and hence this is not applicable.		OK
B.5.9 When did the construction of the project activity start?	/1/	DR	The start date of the project activity is 28 December 2010, after 2 August 2008 and hence this is not applicable.		OK
B.5.10 When was the project commissioned?	/1/	DR	The start date of the project activity is 28 December 2010, after 2 August 2008 and hence this is not applicable.		OK
B.5.11 Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status?	/1/	DR	The start date of the project activity is 28 December 2010, after 2 August 2008 and hence this is not applicable.		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
Investment analysis (VVS § 117-123) <i>The list of questions below must be adjusted to the parameters in the investment analysis relevant to the project under validation. <u>All</u> input parameters need to be assessed.</i>					
B.5.12 Does the project activity or any of the remaining alternatives generate revenues apart from CDM? Is this reflected in the PDD?	/1/	DR	Yes. The project activity generates revenue by selling the generated electricity to the NEWNE grid and this has been mentioned in the PDD.		OK
B.5.13 Do any of the alternatives to the project activity involve investment? Is this reflected in the PDD?	/1/	DR	The baseline scenario for the project activity does not involve investment.		OK
B.5.14 Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?	/1/	DR	<p>Benchmark analysis has been chosen to demonstrate the additionality of the project. Simple cost analysis is not applicable as the project activity generates revenue through the sale of electricity generated to the grid. As alternative to this project activity is the status quo- that is the generation of electricity by the grid in the conventional manner, investment comparison is not suitable for analysis.</p> <p>This is inline with the EB guidelines on the assessment of investment analysis.</p>		OK
B.5.15 Is the benchmark/discount rate the latest available at the time of decision?	/1/	DR	<p>Indian Overseas bank's Prime lending rate has been used as the benchmark and the value considered is 12.5%</p> <p>The supporting document for the selected PLR needs to be furnished for verification.</p>	CL-2	OK
B.5.16 What is the financial indicator? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence	/1/	DR	The financial indicator used is post tax IRR on project basis.		

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.5.21 How was the amount of output (e.g. sales of electricity) assessed?	/1/	DR	<input checked="" type="checkbox"/> The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval <input type="checkbox"/> The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company) <input type="checkbox"/> Other approach. The PLF considered for the project activity is 22.83%. This has been derived from the Suzlon offer letter which stated an estimated annual electricity generation of 3 million units per WEG which translates into a PLF of 22.83%. This has been derived from the Suzlon offer letter which stated an estimated annual electricity generation of 3 million units per WEG which translates into a PLF of 22.83% Document confirming the PLF for the project activity as per the guidance is necessary to conclude the validity of the PLF value considered.	CAR-5	OK
B.5.22 How was the output price (e.g. electricity price) assessed?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants The electricity tariff considered for the project activity is INR 4.35 per unit. This was sourced		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			from the feasibility report which used the tariff stated in the MPERC tariff order. The same has been cross checked from the PPA signed for the project activity between the PP and the state grid. The same has also been confirmed from the sale invoices raised by the PP to the grid.		
B.5.23 How were the investment costs assessed? Were the data available and valid at the time of decision?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input checked="" type="checkbox"/> Review of feasibility reports, public announcements, contracts and annual financial reports related to the project and the project participants Investment costs were considered from the FSR prepared, which was based on the offer provided by the equipment vendor, Suzlon energy limited. The FSR was available at the time of decision. The cost of investment has come down by 11% when the PO was signed. However DNV verified that this reduction in the project investment cost does not have a major impact on the IRR and hence the additionality of the project.		OK
B.5.24 How were the O&M costs assessed? Were the data available and valid at the time of decision?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants O&M costs were considered at 1.7 Million INR (excluding tax) per WEG per year, with an		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			escalation of 5% from third year onwards, in the FSR. This was based on the offer letter received from suzlon before the decision. The purchase order also stated the same value and escalation rate		
B.5.25 Describe the assessment of the other input parameters. Were the data available and valid at the time of decision?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants Insurance amount (0.16 million INR/annum for two WEGs) has been sourced from the FSR, based on the quote from Excellent insurance Broking services Limited dated 17 October 2010. The actual insurance premium paid certificate indicates a value of 0.12 million. The change in the actual value being very less in comparison with the project cost, it has little impact on the IRR calculation. The same is verified by DNV. Administrative expenses of 0.3 million per annum and its escalation (5%) are sourced from the FSR which is stated to be against the expenses of the person looking after the WEG operations on behalf of the PP. These data were available at the time of decision.		OK
B.5.26 Was the financial calculation spreadsheet verified and found to be correct?	/1/	DR	To conclude based on the responses from The PP against the CARs and CLs raised in the previous sections.	CL-2 CL-3 CL-4	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				CL-5 CAR-5	
B.5.27 Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation between the parameters been considered?	/1/	DR	The key parameters contributing to more than 20% of the revenue/costs during operating or implementation have been identified and the possible correlation between the parameters has been considered.		OK
B.5.28 Sensitivity analysis: Is the range of variations is reasonable in the project context?	/1/	DR	The range of variations of the identified variables is considered at +/- 10% which is inline with the guidance on the assessment of investment analysis.		OK
B.5.29 Have the key parameters been varied to reach the benchmark and the likelihood of this to happen been justified to be small?	/1/	DR	Yes, The key parameters have been varied to reach the benchmark and their likelihood have been discussed in the PDD and justified to be practically not feasible.		OK
Barrier analysis (VVS § 124-127)					
B.5.30 Are the barriers identified complimentary to a potential investment analysis? Does the barrier have a clear impact on the financial returns so that it can be assessed in an investment analysis? Each barrier is discussed separately.	/1/	DR	The PP has carried out an investment analysis to establish the additionality of the project as per the Attachment A to Appendix B of the Simplified Modalities and Procedures for Small Scale CDM Project Activities and followed the guidance provided in the “Non-binding best practice examples to demonstrate additionality for SSC project activities”.		OK
B.5.31 How were the <u>investment barriers</u> assessed to be real? Are the investment barriers substantiated by a source independent of the project participants?	/1/	DR	The investment barriers has been assessed by doing an investment analysis. The same has been discussed in the PDD and the assessment is done in the previous sections.		OK
B.5.32 How were the <u>technological barriers</u> assessed to be real? Are	/1/	DR	Not applicable as the project participant has not		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
the technological barriers substantiated by a source independent of the project participants?			opted for technological barriers.		
B.5.33 How were the <u>barriers due to prevailing practise</u> assessed to be real? Are the barriers due to prevailing practise substantiated by a source independent of the project participants?	/1/	DR	Not applicable, as the project participant has not opted for barriers due to prevailing practise.		OK
B.5.34 How were the <u>other barriers</u> assessed to be real? Are the other barriers substantiated by a source independent of the project participants?	/1/	DR	Not applicable, as the project participant has not opted for other barriers.		OK
Common practice analysis (VVS § 128-130)					
B.5.35 What is the geographical scope of the common practice analysis? Is this justified?	/1/	DR	The project activity is a small scale project activity adopting AMS-I.D methodology and the additionality has been established as per Attachment A to Appendix B of the Simplified Modalities and Procedures for Small Scale CDM Project Activities and so common practice analysis has not been carried out for the project activity which is in compliance with the guidelines.		OK
Conclusion					
B.5.36 What is the conclusion with regard to the additionality of the project activity?	/1/	DR	The PP has chosen to assess the project additionality with the help of investment analysis. The queries raised under investment analysis to be addressed to conclude upon the additionality of the project activity.		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.6 Algorithms and/or formulae used to determine emission reductions (VVS § 96-100)					
ata and parameters that are available at validation and that are not monitored	/1/				
B.6.1 How was the “Operating margin Emission Factor for NEWNE grid” available at validation verified?	/1/	DR	The OM emission factor has been computed using the simple OM approach based on the generation-weighted average emissions per electricity unit over a three year period of 2008-09 and 2009-10, and 2010- 2011 available in the CEA database version 7, for the NEWNE grid, inline with approach prescribed in “Tool to calculate the emission factor for an electricity system” version 2 .This is fixed ex-ante value and the value applied is 0.98421 tCO ₂ /MWh.		OK
B.6.2 How was the “Build margin Emission Factor for NEWNE grid”available at validation verified?	/1/	DR	The Build margin emission factor has been sourced from CEA database version 6 for the year 20010-11, in accordance with "Tool to calculate the emission factor for an electricity system” version 02. This is fixed ex-ante value and the value applied is0. 0.85878 tCO ₂ /MWh		OK
B.6.3 How was the “Combined margin Emission Factor for NEWNE grid” available at validation verified?	/1/	DR	The baseline emission factor for the project has been calculated as the weighted average of the operating margin (OM) and the build margin (BM) in the ratio of 75:25 as applicable for wind projects, sourced from CEA database, version 6. The CM thus arrived is 0.95285 tCO ₂ /MWh.		OK
Baseline emissions					
B.6.4 Are the calculations documented according to the approved	/1/	DR	Yes, The baseline emission is calculated as the		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
methodology and in a complete and transparent manner?			product of estimated generation per year and combine margin emission factor. The calculations are complete and transparent and documented as per the approved applied methodology.		
B.6.5 Have conservative assumptions been used when calculating the baseline emissions?	/1/	DR	Baseline emissions have been calculated according to the methodology. The data for the same has been sourced from CEA, which follows ACM002 for calculations of operating and Build margin emission factors.		OK
B.6.6 Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	There are no uncertainties in the baseline emissions.		OK
Project emissions					
B.6.7 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	Since the project activity is electricity generation from wind energy there is no project GHG emission and this complies with the methodology with respect to project emission computation.		OK
Leakage					
B.6.8 Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	According to the simplified baseline and monitoring methodology for category I.D small scale projects, leakage shall be considered, only if the project involves transfer of energy equipment from or to another activity. Since this is not the case in this project, no leakage needs to be considered.		OK
Emission Reductions					
B.6.9 Algorithms and/or formulae used to determine emission reductions: <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PDD and related document submitted for 	/1/	DR	All the assumptions and data used by the project participants are listed in the PDD and the data are properly referenced. The values considered are reasonable and the calculation is in accordance		

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<p>registration. The data are properly referenced</p> <ul style="list-style-type: none"> • All documentation is correctly quoted and interpreted. • All values used can be deemed reasonable in the context of the project activity • The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the data provided in the PDD and supporting files to be submitted for registration. 			<p>with the applied methodology.</p> <p>Since the project emission and leakage emission related to the project activity is zero, the emission reduction is equal to the baseline emissions.</p> <p>The data used for the emission reduction calculations have been sourced from CEA data base version 7 which is the most recent and authentic data available during the project webhosting period.</p> <p>A procedure to apportion the electricity generation, in case the verification period does not coincide with the billing date (JMR date) is discussed in the PDD. The same is verified and found to be appropriate method for apportioning.</p> <p>The parameters required to be monitored during such scenarios are not included under the monitored parameters in the PDD</p>	CL-6	OK
B.7 Monitoring plan (VVS § 131-133)					
Data and parameters monitored					
B.7.1 Do the means of monitoring described in the plan comply with the requirements of the methodology?	/1/	DR	Yes. The monitoring documented in the PDD is in accordance with the applied methodology AMS-I.D, version 17.		OK
B.7.2 Does the monitoring plan contains all necessary parameters, and are they clearly described?	/1/	DR	<p>The only parameter to be measured is the net electricity exported to the grid and this has been included in the monitoring plan described in the PDD.</p> <p>In case of apportioning , the parameters required to be monitored are not included under the</p>	CL-6	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.7.3 In case parameters are measured, is the measurement equipment described? Describe each relevant parameter.	/1/	DR	monitored parameters in the PDD The only parameter to be measured is the net electricity exported to the grid and is done by metering at the main and check energy meters and this has been described in the PDD. During site visit, it was noticed that there was no check meter installed and the readings are based on a single meter. This discrepancy with the PDD needs to be clarified.	CL-7	OK
B.7.4 In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each relevant parameter.	/1/	DR	The energy meters are found to be of appropriate accuracy. Accuracy of 0.2s is stated in the PDD but during the site visit it was noticed that the project uses meter with 0.5s accuracy.	CAR-6	OK
B.7.5 In case parameters are measured, are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate? Describe each relevant parameter.	/1/	DR	The only parameter that needs to be measured is the Net electricity exported to the grid. These are measured at the receiving station using tri vector type meter. The meter used by the project activity is found to be also connected to other WEGs outside the project activity. The apportioning procedure to arrive at the net exported electricity by the project activity is not mentioned in the PDD.. The meters are stated to be calibrated by the DISCOM. In case of apportioning (when verification period does not coincide with the billing cycle) , the parameters required to be monitored are not included under the monitored parameters in the PDD	CAR-7 CL-6	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.7.6 Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter.	/1/	DR	The net electricity exported to the grid is measured continuously by the bi-directional energy meter. Continuous monitoring, hourly measurement and monthly recording frequency deemed to be adequate and is inline with the applied methodology.		OK
B.7.7 Is the recording frequency adequate for all monitoring parameters? Describe each parameter.	/1/	DR	The recording frequency is monthly and is found to be inline with the applied methodology.		OK
Ability of project participants to implement monitoring plan					
B.7.8 How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/	DR	During the project site visit discussion it was inferred that the monitoring arrangements detailed in the PDD are executable. Since the project is already commissioned and the procedures are already in place the same was confirmed.		OK
B.7.9 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/		Procedures are identified for records handling. Internal audits, records archiving and other procedures are detailed in the PDD. Details of Internal Audits, Management procedures and standards followed are not detailed in the PDD.	CL-8	OK
B.7.10 Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/	DR	Yes. The systems and procedures detailed are adequate to ensure the verification of emissions reductions from the project activity.		OK
B.7.11 Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever	/1/	DR	Yes, it is indicated in the PDD, under description of monitoring plan that the monitored data will be archived for a period of 2 years after the end of		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
occurs later?			the crediting period or the last issuance of CERs, for this project activity, whichever occurs later.		
Monitoring of sustainable development indicators/ environmental impacts					
B.7.12 Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/	DR	The present legislation in vogue does not warrant monitoring of sustainable development for such kind of project activity.		OK
B.7.13 Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	This is not required as per the legislation and hence not applicable.		OK
B.7.14 Are the sustainable development indicators in line with stated national priorities in the host country?	/1/	DR	This is not required to be monitored as per the host country regulations.		OK
C Duration of the project activity / crediting period					
C.1.1 Start date of project activity (VVS § 106 & 112, PS § 57-62)					
C.1.2 How has the starting date of the project activity been determined? What are the dates of the first contracts for the project activity? When was the first construction activity?	/1/	DR	The start date of the project activity is stated to be 28 December 2010, which is the date of issue of purchase order for supply of WEGs.		OK
C.1.3 Is the stated expected operational lifetime of the project activity reasonable?	/1/	DR	20 years of operating life has been considered by the project participant, which is evidenced from the certificate provided by Germanischer Lloyd Industrial Services, statement of compliance. However, Since the PPA mentions a life time of 25 years for the project, the life assessment needs justification.	CL 4	OK
C.1.4 Is the start date, the type (renewable/fixed) and the length of	/1/	DR	The start date of the crediting period is 1 January		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
the crediting period clearly defined and reasonable?			2013. Project participant has opted for renewable crediting period of 7 years duration. Since the project life time is stated to be 20 years, the selection of renewable crediting period is justified.		
D Environmental impacts (VVS § 134-137)					
D.1.1 Are there any host country requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved? Does the approval contain any conditions that need monitoring? For small-scale project activities, is an assessment of the environmental impacts of the proposed CDM project activity is required by the host Party?	/1/	DR	The project activity does not require conducting an Environment Impact assessment as per the notification issued by MoEF.		OK
D.1.2 Does the project comply with environmental legislation in the host country?	/1/	DR	As per the present statues no specific environmental clearances are required for wind energy based power generation projects in India		OK
D.1.3 Will the project create any adverse environmental effects?	/1/	DR	There are no identifiable environmental impacts related to power generation from wind energy and hence not applicable.		OK
E Local stakeholder consultation (VVS § 138-140)					
E.1.1 Have relevant stakeholders been consulted?	/1/ /19/	DR	Yes, A stakeholder meeting was held on 24 March, 2011 at Suzlon Infrastructure Services Limited, CMS station located at Mahuriya site on 2 February 2011. Village representatives, representatives of the O&M contractor, Project promoters and villagers were presented for the meeting. The same was evidenced from the minutes of meeting along with the photographs provided for verification.		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
E.1.2	Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Media used for stakeholder meeting invitation is not stated in the PDD. The same needs to be produced for verification	CL-9	
E.1.3	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	This is not specifically required for wind power projects as per current Indian legislation.		OK
E.1.4	Is a summary of the stakeholder comments received provided?	/1/	DR	Yes. The summary of stakeholder comments received is provided in the PDD		OK
E.1.5	Has due account been taken of any stakeholder comments received?	/1/	DR	No adverse comments were received.		OK

Table 3 Resolution of corrective action requests and clarification requests

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>CAR 1</p> <p>Host country approval: Letter of approval (LoA) / Host Country Approval (HCA) from the DNA of India (Host country) not provided for verification.</p>	<p>A.3.1</p> <p>A.3.2</p> <p>A.3.3</p>	<p>Host Country Approval dt.11/10/2012 received from Indian DNA is provided to DOE for verification.</p>	<p>PP has provided copy of the LoA dated 11 October 2012 /23/ from DNA of India (host Party) confirming voluntary participation of the PP in the project activity and that the project contributes to sustainable development. DNV confirms that the project activity fulfils all the participation requirements as stipulated in VVS (para 39).</p> <p>CAR 1 is closed.</p>
<p>CAR 2</p> <p>The MoC statement and as well as the personal identities, including specimen signatures and employment status, of their authorized signatories as per the requirements of the VVS have not been provided.</p>	<p>A.4.1</p> <p>A.4.2</p>	<p>MoC duly filled and signed is provided.</p>	<p>The MoC statement dated 6 August 2012 duly filled has been received from the project participant with whom DNV (DOE) has a contractual agreement. DNV confirmed that the specimen signatures, corporate and personal details included in the MoC statement is valid and accurate.</p> <p>CAR 2 is closed.</p>
<p>CAR 3</p> <p>The Justification given for non-applicability of AMS-I. F criteria is wrongly stated in the PDD.</p>	<p>B.2.2</p>	<p>Necessary correction made by deleting “to an identified consumer”</p>	<p>Since the project does not displace grid electricity consumption (e.g. grid import) and/or captive fossil fuel electricity generation at the “user end” and does not supply electricity to a mini grid, the methodology AMS-I.F is not applicable for the project activity.</p> <p>The justification given for the non-applicability of the methodology AMS-I.F</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			has now been corrected in the revised PDD. CAR 3 is closed.
CAR 4, As confirmed during the site visit, Project boundary diagram presented in the PDD is not as per the actual site conditions.	B.3.1	Revised the project boundary diagram as per the actual site conditions Included in the description of project boundary, the Feeder I connected to the project activity and other WEGs. Also included “End users “ in the pictorial diagram of project boundary.	The project boundary in the revised PDD incorporates the WEGs other than those under the project activity, but which are connected to the same feeder/metering system. DNV confirms that the project boundary description in the revised PDD incorporates all the required details as per the applied methodology /27/ and also reflects actual site conditions /55/. CAR 4 is closed.
CAR 5 Document confirming the PLF for the project activity as per the guidance is necessary to conclude the validity of the PLF value considered.	B.5.21 B.5.26	The application by way of letter submitted to Indian Overseas Bank for term loan facility is provided. Along with this letter the PP has submitted the feasibility report. The feasibility report considered a PLF of 22.83% and the same is already provided to the DOE for verification. Further the PLF considered while appraising the project for term loan facility is confirmed by IOB vide its letter dt.10.05.2012 which is also furnished to the DOE for verification. Hence, the PLF considered in the IRR analysis is in line with guideline EB 48 Annex 11.	Covering letter from KHL to IOB (project financier bank) dated 23 November 2010 /12/ for the application of term loan for financing the project activity has been provided for verification. The letter states that the estimated power generation is 3 million units of electricity per unit per annum. It was confirmed that the loan for the project activity was sanctioned against this application /15/. Hence the PLF determined for the project activity is in line with the requirements of CDM as stated in the “ <i>Guidelines for reporting and validation of Plant load factors</i> ”, which states “ <i>The plant load factor provided to banks and/or equity financiers while applying the project activity for project</i>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p><i>financing, or to the government while applying the project activity for implementation approval”.</i></p> <p>Further the financing bank (IOB) stated in its letter /13/. that the generation estimates considered for granting the loan for the project activity is 3 million units of electricity per unit per annum. CAR 5 is closed.</p>
<p>CAR 6</p> <p>The accuracy of the metering equipment is stated as 0.2s in the web hosted PDD</p> <p>During the physical site visit, it has been confirmed that the meter is of 0.5s accuracy class.</p>	B.7.4	The accuracy class of the energy meter is corrected to 0.5s under Sec.B.7.1 and at Appendix 5 in the PDD.	<p>The accuracy class of the electricity meter is corrected to 0.5s in the revised PDD. The accuracy class of the electricity meter is correctly stated in the revised PDD as confirmed during the physical site visit by DNV.</p> <p>CAR 6 is closed.</p>
<p>CAR 7</p> <p>The meter used by the project activity is found to be also connected to other WEGs outside the project activity.</p> <p>The applied methodology AMS-I.D, version 17, requires monitoring of “Quantity of net electricity supplied to the grid”. The apportioning procedure to arrive at the net exported electricity by the project activity is not mentioned in the webhosted PDD.</p>	B. 7.5	Apportioning procedure to arrive the net export of electricity by the project activity is incorporated in the PDD at Appendix 5.	<p>The apportioning procedure to arrive at the Net export of electricity by the project activity is incorporated in the revised PDD under Appendix 5. This procedure was verified from the ‘monthly generation and consumption report /21/ ’</p> <p>DNV confirms that the apportioning procedure is appropriate in the project activity context and also as per the actual practise followed.</p> <p>CAR 7 is closed.</p>
<p>CL 1</p> <p>The UNFCCC interface shows for the project</p>	B.5.6	The Prior Consideration of CDM Form	A revised prior CDM consideration form was sent of UNFCCC on 16 February 2012

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>activity - the prior CDM consideration intimation received date as 1 March 2011 whereas the PDD mentions the prior CDM consideration intimation was sent on 28 December 2010. The discrepancy needs to be clarified and the acknowledgement mails from UNFCCC and DNA of India need to be evidenced to confirm.</p>		<p>(PCF) is submitted on 28th December, 2010 to UNFCCC and MoEF and the same is notified at UNFCCC website on 1st March, 2011. The mail sent to UNFCCC and MoEF along with PCF and acknowledgment received from both agencies are provided for verification.</p> <p>Subsequent to the acknowledgement received from UNFCCC on 26/01/2011, the project participant has sent revised "Prior Consideration of CDM Form" with correction in name of the company to UNFCCC on 16/02/2012. UNFCCC has acknowledged the same vide its mail dt.08/03/2011.</p> <p>Both communications are provided to DOE for verification.</p> <p>The date mentioned in the PDD under Sec.B.5 at chronology of events is corrected to 16th February, 2011.</p>	<p>subsequent to the initial form sent on 29 December 2010 owing to an error noticed in the initial form sent.</p> <p>The email communication and the acknowledgement email from UNFCCC were submitted for verification and DNV confirms that the revised form was sent after an error in the initial form was pointed out by the UNFCCC /7//9/.</p> <p>Accordingly, the prior CDM consideration intimation date to UNFCCC has now been revised to 16 February 2011 in the relevant section of the PDD. DNV accepts this date as the date of intimation to UNFCCC since the accurate details of the project was submitted to UNFCCC on this date.</p> <p>All communication mails to DNA of India and UNFCCC and their acknowledgement have been submitted for verification.</p> <p>DNV confirms that the prior CDM consideration dates mentioned in the PDD are accurate.</p> <p>CL1 is closed.</p>
<p>CL 2</p> <p>Indian Overseas bank's prime lending rate (PLR) has been used as the benchmark and the value considered is 12.5%</p> <p>The supporting document for the selected PLR</p>	<p>B.5.15</p> <p>B.5.26</p>	<p>In the webhosted PDD, the lending rate of 12.5% of Indian Overseas Bank is considered as benchmark which is in line with EB 62 Annex 5 "Guidelines on the assessment of investment analysis" guidance note 12. However due to</p>	<p>The PP has decided to use WACC as the benchmark to compare against the post tax project IRR instead of the prime lending rate of IOB. For this purpose, The PLR of IOB /45/ has been selected as "Cost of debt" and cost of equity has been directly</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
needs to be furnished for verification.		<p>uncertainty on using PLR as benchmark to compare with post-tax project IRR, the benchmark is now revised by working out WACC. The WACC is worked out at 12.09% which is less than the benchmark considered in the webhosted PDD and is conservative.</p> <p>The source for the selected PLR in the calculation of WACC is incorporated in the IRR analysis worksheet.</p>	<p>sourced from “Guidelines on the assessment of investment analysis” for energy (group I) projects in India. Since the revised bench mark of 12.09% is more conservative than that selected in the webhosted PDD (12.5%), the revision is considered conservative.</p> <p>A detailed assessment of the selected benchmark is presented in this report under section 4.9.2.</p> <p>Sources of the references to the values used for WACC calculation are included in the PDD and financial analysis spreadsheet and the same are verified by DNV.</p> <p>The sensitivity analysis has been re-calculated for the revised benchmark and is found to be in order.</p> <p>OK Accepted.</p> <p>CL 2 is closed.</p>
<p>CL 3</p> <p>Appropriateness of using the post tax IRR to compare against the selected benchmark-PLR(which is pre tax) needs to be justified.</p>	<p>B.5.16</p> <p>B.5.26</p>	<p>EB 62 Annex 5 “Guidelines on the assessment of investment analysis” guidance note 12 “ states that “ Local Commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmark for a project IRR”</p> <p>EB 65 Annex 21 Methodology tool “Demonstration and assessment of</p>	<p>The PP has decided to use WACC as the benchmark to compare against the post tax project IRR instead of the prime lending rate of IOB. For this purpose, The PLR of IOB /45/ has been selected as “Cost of debt” and cost of equity has been directly sourced from “Guidelines on the assessment of investment analysis” for energy (group I) projects in India. Since the revised bench mark of 12.09% is more</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>additionality” Sub-step 2b para 27 states that “Identify the financial / economic indicator, such as IRR most suitable for the project type and decision context”</p> <p>In line with the above guidelines, in the webhosted PDD PLR published by Indian Overseas Bank which is available at the time of investment decision is considered as benchmark. However due to uncertainty on using PLR as benchmark to compare with post-tax project IRR, the benchmark is now revised by working out WACC. The WACC is worked out at 12.09% as against the PLR of 12.5% considered as benchmark in the webhosted PDD. The working of WACC is included in IRR analysis excel sheet. Since the WACC worked out is less than the benchmark (PLR) considered in the webhosted PDD, the same is conservative and is appropriate.</p>	<p>conservative than that selected in the webhosted PDD (12.5%), the revision is considered conservative.</p> <p>A detailed assessment of the selected benchmark is presented in this report under section 4.9.2.</p> <p>Sources of the references to the values used for WACC calculation are included in the PDD and financial analysis spreadsheet and the same are verified by DNV.</p> <p>DNV confirms that the WACC calculated is a post tax benchmark and is appropriate to compare with the project IRR.</p> <p>The sensitivity analysis has been re-calculated for the revised benchmark and is found to be in order.</p> <p>OK Accepted.</p> <p>CL 3 is closed.</p>
<p>CL 4</p> <p>20 years of operating life has been considered by the project participant, which is evidenced from the certificate provided by Germanischer Lloyd Industrial Services, statement of compliance.</p> <p>However, since the PPA mentions a life time of 25 years for the project, the life assessment needs justification.</p>	<p>B.5.19</p> <p>B.5.26</p> <p>C.1.3</p>	<p>The certificate referred in CL is supplied by the WEG supplier which is a certification for the design and specifications of wind turbine Model Suzlon S 82 / 1500 kW. The certification includes the design lifetime of the wind turbine. Considering life time of the WEG as 20 years based on this certificate is appropriate as it is directly related to the WEG model selected for the</p>	<p>The operating life of the wind turbines used by the project activity is certified by Germanischer Lloyd Industrial services- a third party organization, to be 20 years and the same is mentioned as lifetime of project activity under section C.1.2 – “Expected operational lifetime of project activity” in the PDD.</p> <p>In DNV’s opinion, it is appropriate to</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>project activity.</p> <p>Though the PPA mentions a life time of 25 years, it is not appropriate to consider the same since the life time reflected in the PPA is based on the MPERC tariff order May 2010 which considered life time of thermal power plant for wind turbine generator and moreover it is only for the purpose of tariff determination.</p> <p>Tariff orders of different states have considered 20 years as the lift time of the wind turbine. For example: TNERC Order dt.20.03.2009 (para 7.9), http://tnerc.tn.nic.in/orders/draft%20order%202020-3-2009%20complete%20final.pdf</p> <p>KSERC tariff order dt.26.06.2006 Annex II, Para 3 http://www.erckerala.org/regulations/rKSERC%20Power%20procurement%20from%20NCE,2006.pdf</p> <p>EB 62 Annex 5 Guidelines on the assessment of investment analysis, para 3 states that " In general a minimum period of 10 years and a maximum of 20 years will be appropriate" Hence, conducting IRR analysis for 20 years is also in accordance with the referred guidelines and is appropriate.</p>	<p>consider this certificate which specifically refers to the wind turbine model (S 82- 1 500 kW) to determine the operating life of the WEGs than considering the PPA which does not specifically state the make/ model of the WEG in question.</p> <p>CL 4 is closed</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CL 5 In arriving at the net cash flow the salvage value considered at the end of 20 years has not been accounted.	B.5.19 B.5.26	The IRR analysis revised accounting salvage value.	The revised IRR calculation accounts for the salvage value of the project in the cash flow calculation at the end of the operating life of the project. CL 5 is closed.
CL 6 A procedure to apportion the electricity generation, in case the verification period does not coincide with the billing date (JMR date) is discussed in the PDD. The parameters required to be monitored during such scenarios are not included under the monitored parameters in the PDD.	B.6.9 B.7.2 B.7.5	The parameter “EG _{WEG} ” which is required to be monitored for the purpose of apportion the electricity generation is included in the PDD under Sec.B.7.1.	The generation as captured by the WEG controller meters are now included in the monitored parameters presented in the PDD. This value is required to be used to apportion the electricity generation in case the monitoring period does not match exactly with billing cycle (JMR dates). CL 6 is closed.
CL 7 The net electricity supplied to the grid has been stated to be measured using main and check meters at the receiving station in the PDD. During site visit, it was noticed that there was no check meter installed and the readings are based on a single meter. This discrepancy with the PDD needs to be clarified.	B.7.3	Since it is observed during site visit that there is only one meter installed at Suzlon Feeder I for noting the readings for billing purpose, the presence of check meter is deleted in the PDD. Subsequent to the site visit, Suzlon informed that they planned to install the check meter within by March 2013. The same is incorporated in the PDD at Appendix 5.	The readings which are part of the JMR is based on the reading from a single meter (Serial number: 3475741) installed at the Suzlon feeder I. The PDD has now been revised to include this detail which was confirmed during the site visit. The PDD also explains about the possibility of installing the check meter in the near future. Also, the revised PDD incorporates the procedure to be followed in case the billing meter fails or operates beyond the permissible error limits till the check meter is installed. This is in addition to the details

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>already included in the PDD which describes the procedures to be followed with the provision of check meter.</p> <p>DNV verified the procedures and confirmed these to be appropriate.</p> <p>CL 7 is closed.</p>
<p>CL 8</p> <p>Details of Internal Audits, Management procedures and standards followed are not detailed in the PDD.</p>	B.7.9	Incorporated in the PDD at Appendix 5 the management procedures with regard to internal audit followed by the PP.	<p>Details of the Management procedures for reporting, checking and auditing of the data related to the project activity are detailed in the revised PDD under Appendix 5.</p> <p>CL 8 is closed.</p>
<p>CL 9</p> <p>Media used for stakeholder meeting invitation is not stated in the PDD. Copy of the same needs to be produced for verification</p>	E.1.2	The notice circulated through gram panchayat office is already submitted to the DOE for verification. In addition to this, the PP has invited the stakeholders through personal invitations by way of letter. The copy of the letters are provided to the DOE for verification. Necessary description with regard to mode of invitation is incorporated in the PDD.	<p>The stakeholders were invited by the representatives of the project participant through a notice posted at the gram panchayat office. Also, the stakeholders were invited through personal invitation letters.</p> <p>Minutes of the stakeholder meeting, along with the invitation notice, personal invitation letters and photographs taken during the stakeholders meeting /19/ are submitted for verification and DNV confirms that the stakeholder meeting was conducted appropriately.</p> <p>CL 9 is closed</p>

Table 4 Forward action requests

Forward action request	Reference to Table 2	Response by project participants
No FAR raised.		

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APPENDIX B

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Thamizharasi Kaliaperumal holds a Bachelor of Technology Degree in Chemical Engineering. She has an overall experience of around five years in Chemical /Petrochemical processing industries (Technical Services & Energy Management) and CDM Consultancy altogether. Her main areas of work in Energy Management include Pinch analysis, Thermography survey, Analysis of Specific consumption of energy, Additive addition in fuel oil, Steam Traps audit for condensate return, Performance of energy & mass balance and Energy Audits in Chemical /Petrochemical industries. Her scope of work in Technical Services include Production support, Process Trouble shooting of Ammonia plant operation, especially for Primary & Secondary Reformers, Shift converter, CO₂ Absorption section and Synthesis Loop sections, Assessment of catalyst performance, Project feasibility studies (Carbon di-oxide recovery plant) and Management Information System.

She has completed ISO 14001:2004 - Environmental Management System Auditor / Lead Auditor Program, certified by IRCA and DNV Training Programme on Corporate GHG Inventory.

She has experience of more than two years in validation and verification of numerous CDM projects. Her qualification and industrial experience demonstrate her sufficient sectoral competence in areas of TA 1.2 Energy Generation from Renewable Energy Sources, TA 3.1 Energy Demand, TA 3.2 Household end use energy efficiency and TA 5.1/11.1/12.1 Chemical Processes Industries.

Rahul Gopi holds a Bachelor's Degree in Chemical Engineering and has also completed MBA in General management. He has around 3 years of petroleum refinery experience which covers areas such as shift operations, erection, pre commissioning and commissioning activities. He has hands on experience of operations and maintenance of various equipments which include large compressors, catalytic reactors, steam reformers, distillation columns and absorption columns. As a shift field engineer, he also has extensive experience in operation of waste heat recovery sections and optimization of energy (steam and fuel gas) utilization. He was also involved in the commissioning and operation of various units such as LPG Splitter, high pressure hydrogen compressor and in value maximization projects in liquid and gas handling units for enhancing the quality, flexibility and production levels. His experience in the refinery also covers the fields of quality, safety and environmental management pertaining to standards such as ISO 9001, OSHAS 18001, and ISO 14001.

M. V Srinivasan has 18 years of extensive professional experience in areas of Finance, Accounting and Systems. He has 5 years of professional experience in areas of Internal and Systems Audit. He is a qualified FCA Fellow Member of the Institute of Chartered Accountants of India; having Certified Information systems Auditor (ISACA – USA) and member of ISACA. A Management Accountant from Chartered Institute of Management Accountants (UK), a Certified Ethical Hacker and a Certified CISCO network Associate. His core areas of professional focus include internal audits, Information System Audits, Business Process Consulting, Software design and implementation and Cost Control & Cost Reduction. He has been consistently providing financial expertise to DNV AS within Climate Change & Environmental Services.”

Astakala Vidyacharan, Auditor, DNV Hyderabad, India is a chemical engineer and prior to joining DNV in 2005, has had 11 years of direct work experience in various chemical industries. His work experience covers 4 years in project implementations in pesticide and

fine chemical industries , including environment management activities; 7 years in process operations of pesticide, natural products and fine chemical industries.

He has received extensive training in the CDM validation and verification process. He is an appointed validator for the CDM validation and verification program of DNV and has performed validation of several CDM projects. He is also a trained auditor for GHG accounting standards and involved audit of Corporate GHG accounting. He is a qualified ISO9001, ISO 14001 Lead auditor and OHSAS 18001 auditor who has performed several audits for various industrial sectors under these management systems.

His qualification, industrial experience and experience in CDM facilitate him to assess renewable energy based on Hydro and Biomass, Energy Efficiency sectors, in particular to sufficient degree.

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