



VALIDATION REPORT

“WIND POWER PROJECT IN RAJASTHAN” IN INDIA

REPORT No. 2012-0581

REVISION No. 01

DET NORSKE VERITAS



VALIDATION REPORT

| | |
|--|--|
| Date of first issue: 7 May 2012 | ConCert Project No.: PRJC-368315-2012-CCS-IND |
| Approved by: Michael Lehmann | Organisational unit: DNV KEMA Energy & Sustainability Accredited Climate Change Services |
| Client: Mytrah Energy (India) Limited | Client ref.: Mr. K.S.K Singaravelan |

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Summary:

Project Name: Wind power project in Rajasthan

Country: India

Methodology: ACM0002

Version: 12.3.0

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

Technical area: Energy generation from renewable energy sources (TA1.2) **Sectoral Scope:** 01

ER estimate: 70 677 tCO₂e per year (average) over a ten year fixed crediting period

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 "Wind power project in Rajasthan" in India, as described in the PDD, version 06 of 20 November 2012, meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology ACM0002, version 12.3.0. Hence DNV requests the registration of the project as a CDM project activity.

| | | | | | |
|--|--|-------------------------------|------------------------|---|--|
| Report No.: 2012-0581 | | Subject Group: Environment | | Indexing terms | |
| Report title: Wind power project in Rajasthan in India | | | | Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism | |
| Work carried out by: Ravi Kumar Prabhu,Rahul Gopi, A.Parasuraman | | | | <input checked="" type="checkbox"/> No distribution without permission from the client or responsible organisational unit <input type="checkbox"/> free distribution within DNV after 3 years <input type="checkbox"/> Strictly confidential | |
| Work verified by: Zuzana Andrtová | | | | | |
| Date of this revision: 5 December 2012 | | Rev. No.: 01 | Number of pages: 31 | | |

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Abbreviations

| | |
|--------------------|---|
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CEA | Central Electricity Authority |
| CER | Certified Emission Reduction(s) |
| CL | Clarification request |
| CPI | Consumer Price Index |
| C-WET | Centre for Wind Energy Technology |
| CO ₂ e | Carbon dioxide equivalent |
| DNV | DNV Climate Change Services AS |
| DNA | Designated National Authority |
| EIA | Environment Impact assessment |
| FAR | Forward Action Request |
| GBI | Generation Based Incentive |
| GHG | Greenhouse gas(es) |
| GSS | Group Substation |
| GWP | Global Warming Potential |
| IDFC | The Infrastructure Development Finance Company Limited |
| IPCC | Intergovernmental Panel on Climate Change |
| IREDA | Indian Renewable Energy Development Authority Limited |
| JVVNL | Jaipur Vidyut Vitran Nigam Limited |
| JMR | Joint Meter Readings |
| LoA | Letter of approval |
| LCS | Local Control Station |
| MEIL | Mytrah Energy India Limited |
| MGR | Monthly generation Report |
| MNRE | Ministry of New and Renewable Energy, Government of India |
| MoEF | Ministry of Environment & Forests, Government of India |
| NEWNE | Northern, Eastern, Western and North-Eastern |
| NGO | Non-governmental Organisation |
| ODA | Official Development Assistance |
| OEM | Original Equipment Manufacturer |
| PDD | Project Design Document |
| PLF | Plant Load Factor |
| PP | Project Proponent |
| PNB | Punjab National Bank |
| RBI | Reserve Bank of India |
| RERC | Rajasthan Electricity Regulatory Commission |
| RRECL | Rajasthan Renewable Energy Corporation Limited |
| RRVUNL | Rajasthan Rajya Vidyut Utpadan Nigam limited |
| RSEB | Rajasthan State Electricity Board |
| SEL | Suzlon Energy Limited |
| tCO ₂ e | Tonnes of CO ₂ equivalents |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VVM | Validation and Verification Manual |
| WPI | Wholesale Price Index |
| WTG | Wind Turbine Generator |



1 EXECUTIVE SUMMARY – VALIDATION OPINION

DNV Climate Change Services AS (DNV) has performed a validation of the project activity “Wind power project in Rajasthan” 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 the project participant is Mytrah Energy (India) Limited. The host party fulfils the participation criteria and have approved the project and authorized the project participant, Mytrah Energy (India) Limited. The DNA from India confirmed that the project assists in achieving sustainable development. No Annex I Party has yet been identified.

The project correctly applies the baseline and monitoring methodology ACM0002, version 12.3.0 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

The project activity is intended to generate electricity from a 42 MW wind farm with the operation of 20 numbers of 2.1 MW Suzlon S-88 model WTGs. This will displace 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 70 677 tCO₂e per year over the selected 10 year fixed 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 “Wind power project in Rajasthan” in India, as described in the PDD, version 06 dated 20 November 2012, meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology ACM0002, version 12.3.0. Hence, DNV requests the registration of the project as a CDM project activity.

Bangalore and Oslo, 5 December 2012

Ravi Kumar Prabhu
Validator
DNV Bangalore, India

Michael Lehmann
Director of Services and Technologies
DNV Climate Change Services AS



2 INTRODUCTION

Mytrah Energy (India) Limited has commissioned DNV Climate Change Services AS (DNV) to perform a validation of the “Wind power project in Rajasthan” in India (hereafter called “the 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 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 and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002 version 12.3.0) /27/. The validation was based on the recommendations in the Validation and Verification Manual /26/.

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 consists 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.

3.1 Desk review of the project design documentation

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

3.1.1 Documentation provided by the project participants

- /1/ MEIL: *CDM-PDD for project activity "Wind power project in Rajasthan" in India*, initial version 01 dated 17 January 2012 and version 06 dated 20 November 2012.
- /2/ MEIL: *Emission reduction Calculation Spreadsheet* version 01 dated 17 January 2012 and version 02 dated 18 May 2012.
- /3/ MEIL: *Financial analysis spreadsheet* version 01 17 January 2012 and version 03 dated 23 July 2012.
- /4/ Garrad Hassan and Partners Ltd.: *Assessment of Energy production of the Tejuva 20 Wind Farm* dated 27 January 2011.
- /5/ MEIL: *E-mail intimation on developing the project activity as CDM to UNFCCC*, dated 16 August 2010 and confirmation from UNFCCC on receipt of the email dated 30 August 2010.
- /6/ MEIL: *E-mail intimation on developing the project activity under CDM to DNA of India*, dated 16 August 2010
- /7/ IDFC: *Letter of Intent to grant loan for the project activity*, dated 24 September 2010
- /8/ SEL: *Quotation for the supply of WTGs to Caparo Energy India Limited*, dated 2 June 2010.
- /9/ MEIL: *Purchase orders for WTGs placed to SEL* dated 18 January 2011 and *purchase order amendments* dated 20 February 2011.
- /10/ JVVNL: *Power Purchase agreement between JVVNL and Project proponent* dated 14 June 2011
- /11/ Jodhpur Discom: *Commissioning certificates for the 20 WTGs under the project activity* dated 19 June 2011, 25 June 2011, 30 June 2011, 12 July 2011 19 July 2011 and 04 August 2011.
- /12/ RRECL: *Capacity allotment for setting up wind power project at the project activity site* dated 8 April 2011
- /13/ MEIL: *Press advertisement in local newspaper Dainik bhaskar dated 16 march 2011 for local stakeholder meeting invitation*
- /14/ MEIL: *Attendance sheet and minutes of the meeting of stakeholder consultation* dated 31 March 2011.
- /15/ Ministry of Corporate Affairs: *Fresh Certificate of incorporation consequent upon*



- name change of the project developer from Caparo Energy (India) Limited to Mytrah Energy (India) Limited dated 27 September 2011*
- /16/ MEIL: *Undertaking from the project participant that the project activity availed no Official Development Assistance (ODA), dated 26 December 2011*
 - /17/ MEIL: *Extract of the board note signed by the Company secretary (details of board meet held on 29 September 2010 and 13 October 2010) which mentions about the CDM consideration for the project activity during its conceptualisation dated 13 December 2011.*
 - /18/ PNB: *Loan Sanction letter for the project activity dated 19 September 2011.*
 - /19/ SEL: *Land Sub-Lease agreement with MEIL for the purpose of project activity, dated 20 July 2012*
 - /20/ SEL: *Letter from the OEM confirming the non requirement of calibration for WTG controller meters dated 8 October 2012*
 - /21/ SEL: *Sample JMR and for the project activity dated 02 April 2012*
 - /22/ SEL: *MGR issued to the PP indicating export, import and net export values from the project activity for the month of March 2012 dated 02 April 2012*
 - /23/ MEIL: *Invoice raised against the sale of electricity by the project activity to JVVNL dated 16 April 2012*
 - /24/ RRVPNL: *Interconnection approval for the project activity dated 16 June 2011*

3.1.2 Letters of approval

- /25/ MoEF (DNA of India): *Letter of Approval dated 11 October 2012*

3.1.3 Methodologies, tools and other guidance by the CDM Executive Board

- /26/ CDM Executive Board: *Validation and Verification Manual. version 1.2*
- /27/ CDM Executive Board: *Baseline and monitoring methodology ACM0002, version 12.3.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"*
- /28/ CDM Executive Board: *Tool for demonstration and assessment of additionality, version 06.1.0*
- /29/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system, version 02.2.1*
- /30/ CDM Executive Board: *Guidance on Assessment of Investment Analysis, version 05*
- /31/ CDM Executive Board: *Guidelines on the demonstration and assessment of the prior consideration of CDM, version 04.0*
- /32/ CDM Executive Board: *Guidelines for the reporting and validation of plant load factors, version 01.0*
- /33/ CDM Executive Board: *Guidelines on Common practice version 02.0,.*
- /34/ CDM Executive Board: *Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM) version 07*
- /35/ CDM Executive Board: *Glossary of CDM terms, version 06.0*



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

- /36/ CEA: *CO₂ Baseline Database for the Indian Power Sector dated January 2012, version 7*, http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
- /37/ MOEF: *Notification with respect to EIA* dated 19 January 2009.
<http://www.moef.nic.in/legis/eia/so195.pdf>
- /38/ RERC: *Tariff order on wind energy, Commission order no.09*, dated 31 March 2010,
<http://www.erc.rajabastan.gov.in/>
- /39/ RERC: *Tariff order on Wind energy, commission order no. 11*, dated 3 June 2011.
<http://www.erc.rajabastan.gov.in/>
- /40/ RERC: *Tariff for wind power plants, commission order no. 77*, dated 16 July 2009.
<http://www.erc.rajabastan.gov.in/>
- /41/ RRECL: *List of commissioned solar and biomass projects in the state of Rajasthan*.
<http://www.rrecl.com/PDF/Details%20of%20Commissioned%20Solar%20Projects.pdf>;
<http://www.rrecl.com/PDF/Commissioned.pdf>
- /42/ RRVUNL: *Thermal and hydel projects in the state of Rajasthan*.
http://www.rvunl.com/Installed%20capacity_RVUN.php
- /43/ Centre for Wind Energy Technology: *Revised list of models and manufacturers of wind turbines, possessing valid approval, Ref. No.C-WET/S&C/RLMM/2010-11/06*, dated 18 May 2010
- /44/ Income Tax Department: *Indian Income Tax Act 1961, Section 32 (Rule 5) Appendix 1 and Section 80-1A*, paragraph 2.0
- /45/ RBI: *Survey of Professional Forecasters : Results of the Twelfth Round (Q1:2010-11)* dated 05 August 2010.
- /46/ IRDEA: *Operational guidelines for implementation of generation based incentive for grid connected wind power projects*, dated 17 December 2009 and 26 May 2010
<http://www.ireda.gov.in/pdf/OPERATIONAL%20GUIDELINES%20for%20Wind%20GBI%20and%20AD%20as%20on%2026.05.2010.doc>
- /47/ Indian Wind Power Directory 11th edition, published in year 2011
- /48/ UNFCCC: *CDM prior consideration Intimation receipt at UNFCCC*
http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html
- /49/ UNFCCC: Recent registered wind power projects from Rajasthan.
- /50/ MoEF: *India's Initial National Communication to UNFCCC* dated 16 June 2004.
<http://unfccc.int/resource/docs/natc/indnc1.pdf>
- /51/ IPCC: *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.
<http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>
- /52/ Ministry of Power: Indian Electricity Act, 2003 and its amendments:
http://powermin.nic.in/JSP_SERVLETS/internal.jsp
- /53/ UNFCCC: *CDM status of the wind projects in Rajasthan (21MW to 63MW)*.
<http://cdm.unfccc.int/Projects/projsearch.html>
- /54/ Ministry of Power: National Electricity policy dated 12 February 2005.
http://www.powermin.nic.in/whats_new/national_electricity_policy.htm
- /55/ Simon Benninga: Estimating cost of capital using Gordon model (with Nominal cost of equity being determined using Fisher's equation)



http://simonbenninga.com/benninga_sarig/chap09.pdf

The hyperlinks to the websites stated above were checked and found working as on 1 November 2012.

3.2 Follow-up actions

During the period 16-18 April 2012, Ravi Kumar Prabhu and Rahul Gopi of DNV visited the project site at Jaisalmer and performed interviews with project stakeholders.

| | Date | Name | Organization | Topic |
|------|---------------|--|-----------------------------|---|
| /56/ | 2012-04-16-18 | Mr. Anoop Patil Satish Sharma Shrimali Bhavik Chunnilal Legha | MEIL SEL GSS MEIL | <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 procedure ➤ Operation & maintenance procedures. ➤ Determination of baseline ➤ Third party assessment of PLF |
| /57/ | 2012-04-16-18 | Mr. Sayooj Thekkevariyyeth | Ernst & Young, Bangalore | <ul style="list-style-type: none"> ➤ Assessment of project additionality, benchmark determination, financial analysis ➤ Emission reduction calculations and data used |

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 “Wind power project in Rajasthan” 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, seven CLs and no FARs. The CARs and CLs were satisfactorily addressed by the project participants by among other revising the PDD (please refer to Table 3 in Appendix A for further details). In addition to the changes made to the PDD as a result of the validation findings, the following changes to the PDD (version 06 dated 20 November 2012) were made compared to the version of the PDD published for stakeholder comments (version 01) dated 17 January 2012 /1/ .

Apart from the changes made to the webhosted PDD which were related to the identified CARs and CLs, the following changes are also part of the revised PDD:

- Methodology (ACM0002) version has been changed from 12.2.0 to 12.3.0.
- Start date of crediting period has been revised from 1 April 2012 to 31 December 2012.



| 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 final validation report has undergone 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 | TA1.2 competence | Financial Expertise |
| Technical team leader (CDM validator) | Prabhu | Ravi Kumar | India | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| Assessor under training | Gopi | Rahul | India | ✓ | ✓ | ✓ | | | | |
| Expert | A | Parasuraman | India | ✓ | | ✓ | | | | ✓ |
| Technical reviewer | Andrtová | Zuzana | Czech Republic | | | | | ✓ | ✓ | |

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 06 dated 20 November 2012 /1/.

4.1 Participation requirements

The project is being developed by Mytrah Energy (India) Limited of host Party India, and no project participant from Annex I Party is identified yet. The host Party (India) meets all relevant participation requirements.

A letter of approval (LoA) /25/ was issued by DNA of India on 11 October 2012 authorizing Mytrah Energy (India) Limited of India as project participant and confirming that the project assists in achieving sustainable development.

DNV considers the letters are in accordance with paragraphs 45- 48 of the VVM /26/. The letter of approval was received from the project participant. DNV does not doubt the authenticity of the letter of approval. This is a unilateral project and the validation did not reveal any information that indicates that the project can be seen as a diversion of ODA.

4.2 Project design

The project activity consists of installation of 20 Wind Energy Generators (WTGs) of the Suzlon S-88 make, with capacity of 2.1 MW each, with a total generation capacity of 42 MW /11/ /12/ /56/ /57/. The project is located in Tejwa- Mokal village of Jaisalmer district in the Rajasthan state of India. The location co-ordinates of the project activity (all 20 WTGs) are included in the PDD /1/ and the same has been verified during validation site visit /56//57/ by DNV with the help of devices with Global Positioning System (GPS) capability. The location coordinates and the commissioning dates as verified by DNV are included in the Appendix C of this report.

The project is expected to generate and supply 74 173 MWh (at PLF of 20.16% /4/) of electricity /1//4/ to the local grid of Rajasthan State Electricity Board (RSEB) /10/. RSEB is a part of the integrated Northern, Eastern, Western and North-Eastern (NEWNE) regional grid of India /36/. By the implementation of the project activity, energy generated using renewable energy will displace equivalent energy generation from the fossil fuel dominated NEWNE grid of India. Therefore, the project activity results in an equivalent amount of emission reductions from the project activity. The project is expected to result in 70 677 tCO₂e emission reductions per annum over the selected fixed crediting period of 10 years /2/, with the crediting period starting from 31 December 2012 /1/ or from the date of registration whichever is later.

The starting date of the project activity indicated in the PDD is 18 January 2011, which is the date on which the purchase orders for the supply of 20 WTGs and associated equipment and services were placed by the PP to Suzlon Energy Limited /9/. This appropriateness of the selected start date has been discussed in this report under section 4.6.1. The expected operating life of the project activity is 20 years as specified in the 2009 RERC order /40/.



The installation, commissioning, operation and maintenance of the WTGs are under the scope of Suzlon Energy Limited (SEL), during the life time of the project activity /9/. The technology used in the project activity is indigenously available in India and no transfer of technology is envisaged /43/. The technology applied is deemed current good practice and is not expected to be replaced within the crediting period /43/.

DNV considers the project description of the project contained in the PDD to be complete and accurate. The PDD complies with the relevant forms and guidance for completing the PDD /34/.

4.3 Application of selected baseline and monitoring methodology

The project correctly applies the approved baseline methodology ACM0002, version 12.3.0 *“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”* /27/. The applicability of this methodology is justified as:

- The project is installation of new wind energy generators at a site where no renewable energy power plant was operated prior to the implementation of the project activity. This has been verified from the approval of Rajasthan Renewable Energy Corporation Limited (RRECL) for setting up wind power project at the project activity site /12/. DNV confirms that the project activity is a green field project and same has been verified during the site visit.
- No retrofit or capacity additions or replacements at the existing plants are involved. This has been verified from the purchase orders placed for 20 new WTGs by MEIL to SEL /9/ for implementing the project activity. Further, during site visit, it was verified that no wind energy generators were existed earlier at the project site /56/.
- The project activity is connected to the NEWNE grid of India, and the system boundaries are clearly identified and information on the characteristics of this grid is available on the web site central electricity authority (CEA), Government of India /36/.
- No hydro or biomass project is involved.
- The project does not involve an on-site switch from fossil fuels to a renewable source. During the site visit, it was verified that no such plants existed at the project site /56/ /57/.

The assessment of the project's compliance with the applicability criteria of ACM0002 (version 12.3.0) /27/ are documented in detail in section B.2 of Table 2 in the validation protocol in Appendix A to this report.



4.4 Project Boundary

The project system boundary consists of the WTGs at the project site and the pooling substation and state utility substation. The spatial boundary of the project includes the NEWNE grid of India and the predominantly fossil fuel based power plants connected to the grid.

| | GHGs involved | Description |
|--------------------|-----------------|---|
| Baseline emissions | CO ₂ | Emissions equivalent to the amount of net electricity supplied by the project activity that would otherwise be generated by the power plants connected to the NEWNE grid. |
| Project emissions | CO ₂ | NA |
| Leakage | NA | NA |

The identified boundary and selected sources and gases are justified for the project activity. The validation of the project activity did not reveal any other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by ACM0002 (version 12.3.0) /27/.

4.5 Baseline identification

As this project installs a new grid connected renewable power plant and the project is additional, (Ref: Section 4.6) the baseline scenario is in accordance with ACM0002, version 12.3.0 /27/, 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, as reflected in the combined margin (CM) calculations described in the *Tool to calculate the emission factor for an electricity system* /29/.

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 and/or supporting documents. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the PDD /1/. 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 /1/.



4.6 Additionality

The project's additionality is demonstrated using "*Tool for the demonstration and assessment of additionality*", version 06.1.0 /28/.

4.6.1 Evidence for prior CDM consideration and continuous actions to secure CDM status

The starting date of the 42 MW project activity indicated in the PDD is 18 January 2011, which is the date on which the purchase orders /9/ were placed for the 20 WTGs of capacity 2.1 MW each and related equipment and services required for the implementation of the project activity including land deeds /9/. This is the earliest date on which the project participant has committed to expenditures related to the implementation of the project activity. As the purchase order covers the entire scope of implementation and operation including land deeds, DNV could confirm that no firm and major financial commitment was made by the PP prior to the purchase order date. The selected start date of 18 January 2011 is in line with the definition of project start date stated in Glossary of CDM terms /35/ "*the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity.*". The project activity has been commissioned in phases with the first set of 3 WTGs among the 20 WTGs commissioned on 19 June 2011 and the last set of 2 WTGs commissioned on 4 August 2012 /11/. Rest of the machines (15 numbers) is commissioned between these two dates. The commissioning dates are included in the PDD.

Early consideration of CDM is evidenced from the e-mail notification to UNFCCC secretariat on 16 August 2010 /5/ regarding commencement of the project activity and the project participant's intention to seek CDM status for the project. DNV verified the notification from the UNFCCC website /48/ and the confirmation email from UNFCCC dated 30 August 2010 /5/. PP had also intimated the DNA of India by e-mail on 16 August 2010 regarding commencement of the project activity /6/. Prior consideration of CDM could also be evidenced from the extracts /17/ of board meetings held on 29 September 2010 and 13 October 2010 which considered CER revenues for the project activity.

Continued real action for CDM is demonstrated by the PP and the same has been presented in the PDD /1/. This includes the chronology of events starting from the receipt of quotation for equipment till the webhosting of the initial version of the PDD for Global stakeholder comments. DNV confirms that the continued action for securing CDM revenues is demonstrated in the PDD and the same has been verified to be correct.

DNV considers that the evidences to demonstrate CDM consideration for the project activity are appropriate, since the start date of the project activity (18 January 2011) is after 2 August 2008 and that PP notified the UNFCCC secretariat and DNA of India even before the start date of the project activity. This is in compliance with the requirement of notifying the UNFCCC and DNA of India within six months of the start date /31/. Further, the PDD has been published for global stakeholder consultation on 01 March 2012, within 2 years from the initial notification to the UNFCCC and the DNA, thereby complying with the requirement of latest version of the "*Guidelines on the demonstration and assessment of prior consideration of the CDM*" /31/.



It is DNV's opinion that the proposed CDM project activity complies with the requirements of the latest version of the "*Guidelines on the demonstration and assessment of prior consideration of the CDM*" /31/.

4.6.2 Identification of alternatives to the project activity

The applied methodology ACM0002 version 12.3.0 /27/ specifies that, for the grid connected new renewable power plants, the baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of the grid connected power plants and by the addition of new generation sources, as reflected by the combined margin.

The realistic and credible alternatives to the project activity are (i) the project being undertaken without registering it as a CDM activity and (ii) equivalent amount of electricity being generated through operation of grid-connected predominantly fossil fuel based power plants and addition of new generation sources. Both alternatives are in compliance with the laws and regulations of India and might be considered as baseline scenarios. However, as discussed below (in section 4.6.3), the project without CDM benefits faces barriers in implementation.

The approved baseline methodology has been correctly applied to identify a complete list of 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 assumption and data used by the project participants are listed in the PDD and/or supporting documents. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the PDD /1/. 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 /1/.

4.6.3 Investment analysis

Choice of approach

As the project activity generates revenue without CDM and the alternative to the project does not involve investments, the selected benchmark analysis and financial indicator of post-tax equity-IRR is deemed appropriate.

Tariff Policy notified by the RERC /39/ stipulates a debt-equity ratio of 70:30 for financing power projects. In order to obtain loan from financial institutions, project proponent has to commit at least 30% of the project cost. The decision to invest or not to invest is based on the returns generated by the equity investment, represented by the post-tax Equity IRR.

As per Guidance to Investment Analysis /30/ the required returns on equity is appropriate benchmark for Equity IRR. Therefore the cost of equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for Investment Analysis.

Benchmark selection

The project activity being an electricity generation project based on wind energy, which could also be developed by an entity other than the project participant, the benchmark should be based on publicly available data sources /28/. The *Tool for demonstration and assessment of additionality* /28/ sub step 2b) the requires financial/economic analysis to be based on parameters that are standard in the market, considering the specific characteristics of the



project type but not linked to the subjective profitability expectation or risk profile of a particular project developer. Accordingly, the cost of equity applicable to the project type has been considered as the benchmark to be compared against post-tax equity-IRR of the project activity. The investment decision date is 13 October 2010 which is the date on which the board decided to implement the project considering CDM and GBI benefits /17/. The board considered the implementation of the project activity based on the quotes received from the technology supplier SEL (dated 2 June 2010) and financials worked out considering CDM and GBI benefits /17/. Subsequent to this decision, purchase orders /9/ were placed to SEL for the land, WEGs and associated equipment supply, installation, commissioning and operation of the project activity on 18 January 2011 and this date is considered as the start date of the project activity as it involves a major financial commitment. DNV confirms that the board decision date is appropriate date for the purpose of investment analysis as the decision to implement the project was made on this day considering all the relevant parameters available at the time.

The Para 15 of CDM EB guidance on assessment of Investment analysis /30/, *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 sources which can be clearly validated by the DOE, while properly justifying all underlying factors*". Accordingly, the project participant has chosen option (a) for calculating cost of equity benchmark.

The default values for the expected return on equity specified in Appendix to CDM EB guidance on assessment of Investment analysis /30/, for Indian bonds with Baa3 rating is 11.75% /30/ for Group 1. Accordingly, PP has selected 11.75% as the default value for the expected return on equity, since the project activity falls under Group 1, Energy Industries.

As per para 7 of the appendix A of CDM EB guidance on assessment of Investment analysis /30/, *"in situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period"*.

The inflation rate forecasted in the report of Reserve Bank of India (RBI) – "Survey of professional forecasters: Results of the 12th round (Q1: 2010-11)" /45/

, the annual average percentage change (mean value) over the next 10 years for wholesale consumer index (WPI) inflation is 5.10% and that for consumer price index (CPI) is 6.2%. Considering the 10 year crediting period for the project activity, PP has selected the 10 year WPI inflation rate of 5.10%, based on data published by RBI. DNV verified that the referred report is the latest data available at the time of decision making (the Board meeting deciding to proceed with the project activity on 13 October 2010 /17/); the next report of RBI was published on 16 November 2010.

The benchmark of 17.45% has been calculated using Fisher's equation

$$\begin{aligned}\text{Nominal Benchmark} &= \{(1 + \text{Real Benchmark}) * (1 + \text{Expected Inflation Rate}) - 1\} \\ &= \{(1 + 11.75\%) * (1 + 5.10\%) - 1\}\end{aligned}$$



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= 17.45%

The PP's choice to use Fisher's equation to arrive at the benchmark is considered appropriate as this equation is widely accepted and used /55/ for determining nominal cost of equity. Hence DNV accepted the use of the same for arriving at the benchmark.

The benchmark calculation has been evidenced and all input parameters and calculations have been verified by DNV to be correct. The benchmark identified to compare the financial attractiveness of the project activity has been verified and found to be appropriate. This selected benchmark complies with the requirements of the "*Guidance on assessment of Investment analysis*" version 05 (Para 15) /30/

Input parameters

The investment analysis has been performed for 20 years, which is the expected life time of the project activity as per 2009 RERC order /40/ and the input parameters considered are investment cost, annual operation and maintenance costs, income tax and revenue from power generation /3/.

An assumptions used in the investment analysis and the assessment of the same is tabulated below.

The assumptions used in the investment analysis are deemed appropriate and the values were verified/cross-checked from the documents shown in the following table.

| Inputs values | Value used for financial analysis | Documents verified/cross-checked |
|---|---|---|
| Project Capacity | 42 MW | The project capacity was verified from the offer letter. /8/ received from Suzlon dated 2 June 2010. This could be cross checked from the purchase orders placed by the PP to SEL /9/ and from the interconnection approval provided to the project activity /24/ by RRVPNL. DNV confirms that the project capacity considered is accurate and as verified during the site visit /56//57/. |
| Total investment cost of 20 WTGs of 2.1 MW each | INR 2 297 million (INR 54.7 million/MW) | The investment cost of INR 2 297 million was verified from the offer letter /8/ received from SEL dated 2 June 2010 based on which the board has considered the implementation of the project activity on 13 October 2010 /17/ (investment decision date). Hence the project cost considered is relevant and available at the time of investment decision. The project cost was cross checked against the letter of intent for term loan from IDFC on 24 September 2010 /7/, which mentions a total project cost as INR 2 180 million. Further investment cost could be assessed based on the purchase orders /9/ placed for the project activity which amounts to INR 2 100 million which is about 8.56% less than the cost considered for investment analysis. Impact of this change in actual purchase cost has been |



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| | | <p>assessed by DNV and it is well within the range considered for sensitivity analysis. With the actual project cost the equity IRR improves to 10.06% which is below the benchmark of 17.45% considered.</p> <p>Thus DNV considers the investment cost to be reasonable.</p> |
| Electricity Tariff | fixed tariff of INR 3.83/kWh without any escalation for 20 years | <p>The tariff of INR 3.83/kWh was, based on the RERC tariff order of 31 March 2010 /38/ which was the latest available at the time of investment decision.</p> <p>However the PPA dated 14 June 2011 /10/ states a tariff of INR 4.22 per kWh which is fixed for the entire operating life of the project activity (20 years), based on the RERC tariff order of 3 June 2011 /39/. Even with this tariff the equity IRR reaches 10.09% and is still below the benchmark. This is also further discussed in the sensitivity analysis in the subsequent section of the report.</p> <p>DNV confirms that the tariff used for the investment analysis is the latest available at the time of investment decision and hence appropriate for the analysis.</p> |
| Plant load factor | 20.16% | <p>The PLF of 20.16 % was verified from the report of third party consultant M/s Gerrad Hassan dated 27 January 2011 /4/. This report was not available at the time of decision and the PLF available at the investment decision date was 18.54% which was as per the offer letter received from SEL /8/.</p> <p>However, for the investment analysis, a more conservative value of 20.16% has been used which is the estimated PLF as per the report /4/. This PLF was arrived at on the basis of wind data recorded at the project site using meteorological masts of 80m height, during the period of 2004 to 2010 /4/.</p> <p>The selected PLF is in line with the para 3b of the <i>Guidance on reporting and validation of PLF</i> /32/.</p> <p>DNV also cross checked the PLF of a few comparable recently registered projects in Rajasthan, the state in which the project activity is implemented; Project no. 4942: 19.47%, project no. 4679: 19.43% and project no. 5186: 20.07%, which is comparable with PLF of the project activity /49/. Further, 2009 tariff order of RERC has considered a PLF of 21% for tariff calculation, though the same order states that capacity utilization in the state ranges from 18-20% /40/. The sensitivity analysis shows that the benchmark is</p> |



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| | | crossed only with a 40.90% increase in PLF. Thus the PLF considered is reasonable. |
| Operation and maintenance cost | Nil for the first two years of operation, INR 44.12 million from 3 rd year of operation with annual escalation of 5% | <p>The O&M cost and the escalation rate are based on the offer letter received for the project activity from SEL /8/, according to which no charges are payable for the 1st and 2nd year of operation, INR 44.12 million from 3rd year of operation with annual escalation of 5%. The O&M cost was cross checked against the RERC tariff order of 2009 /40/, which considered the normative O&M cost of 1.25% of the total project cost. The value used (INR 44.12 million) for the analysis works out to be 1.92% of the total project cost considered for the financial analysis. The actual O & M cost as per the purchase order /9/ is INR 35.7 million for all WTGs. Though the actual O&M cost and the value as per the RERC order is lower than the value considered for financial analysis, it has no material impact on investment analysis and project additionality. This has been discussed in the following section on sensitivity analysis. The escalation rate of 5% considered is also reasonable in DNV's opinion as India is experiencing high inflation and this trend is likely to continue in the coming years as per the RBI forecast /45/. DNV confirms that the O & M costs and its escalation rate considered for the financial analysis is appropriate.</p> |
| Debt: equity ratio | 70:30 | <p>The debt: equity ratio was cross checked against the letter of intent from IDFC dated 24 September 2010 /7/ and was found to be consistent with the assumptions made in the investment analysis.</p> <p>Also DNV could cross check the ratio from the loan sanction letter /18/ and found that according to the financing plan considered in the letter, the debt to equity ratio is 66.82%: 33.18%, which is almost consistent with the assumptions made for investment analysis.</p> <p>Hence, DNV confirms that the debt to equity ratio considered for analysis is appropriate.</p> |
| Interest rate on loan | 11.0% | <p>The interest rate on the term loan (11%) considered for analysis is the RBI prime lending rate at the time of decision. The loan sanction letter from PNB dated 19 September 2011 /18/ specifies the interest rate of 12.75%. The difference in the actual interest rate has no material impact on the additionality since the equity IRR will come down to 6.95% from 7.79% with the actual interest rate.</p> |



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| | | |
|------------------------------|--|---|
| | | Hence DNV confirms that the interest rate for term loan considered for analysis is appropriate. |
| Loan tenure | 10 years | <p>The loan repayment period of 10 years is considered for the term loan. This was based on the RERC order dated 16 July 2009 /40/. The loan tenure was cross checked against the loan sanction letter from PNB/18/, which provides a 12 year repayment period with 48 quarterly payments.</p> <p>DNV could confirm that the difference in the actual interest rate and term of the loan has no material impact on the additionality of the project. Hence, DNV confirms that the loan repayment period considered for the investment analysis is appropriate.</p> |
| Depreciation & salvage value | Straight line depreciation was considered in line with the prevailing national regulation and the residual value of 10% is accounted during the 20 th year. | <p>Straight line depreciation rate of 5.28% is considered for the analysis and the same could be cross-checked against the Indian Income Tax Act 1961 /44/. Residual value (10% of the total investment cost) has been accounted during the 20th year of operating life.</p> <p>Since the land for the project activity is leased out, its cost is not included in the total investment cost; thus not added back during last year which is a conservative approach.</p> <p>DNV confirms that the depreciation rate and salvage value considered for financial analysis is appropriate and in accordance with the standard accounting practice in the country.</p> |
| Incentives and tax benefits | GBI benefit INR 0.5 per kWh | <p>The generation based incentive of INR 0.5 per kWh (with an overall cap of INR 6.2 million per installed capacity in MW) prescribed by the MNRE /46/ has been considered for the IRR analysis. The accelerated depreciation applicable for renewable projects cannot be used when GBI benefits are claimed. Hence PP has not considered accelerated depreciation benefits.</p> <p>DNV confirms that the benefits applicable for the project have been appropriately considered for the investment analysis.</p> |
| Taxes | The income tax @ 33.99%, minimum alternative tax @ 18.54% and service tax of 10.3% on O&M charges has been considered | <p>The income tax and service tax rates were verified and cross-checked against the Indian Income Tax Act 1961 /44/.</p> <p>DNV confirms that the tax rates considered for the investment analysis is appropriate and in accordance with accounting practice in the country.</p> |

Furthermore, DNV cross-checked the project cost of INR 54.7 million/MW from a sample of few recently registered projects in Rajasthan, which have similar climatic and geographical

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conditions and tariff structure to confirm the appropriateness of the considered project cost: INR 60.5 million/MW for Cepco wind power project in Rajasthan, (Registration no. 4942), INR 59.13 million/MW for Kohinoor Wind Power Project in Rajasthan (Registration no. 4679), INR 59.32 million/MW for Vaayu India Wind Power Project in Jaisalmer, Rajasthan (Registration no. 5186) and INR 51.64 million/MW for Wind power project in Tinwari, Rajasthan (Registration no. 6160) /49/. Thus the project cost is lower than the cost of other similar projects. The project cost of only the last project is lower than that of project activity, since it is reported that the project was implemented by the supplier of wind mills and the cost was considered without considering the normal profit margins.

In line with the Guideline on Investment Analysis, /30/, which states the “*Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant*”, DNV verified the input parameters to be valid at the time of decision making on 13 October 2010 /17/ based on the above mentioned approach with the help of relevant references.

Calculation and conclusion

Based on the input parameters stated above, the post-tax equity-IRR without CDM revenues has been calculated to be 7.79%, which is lower than the applied benchmark of 17.45% (post-tax). The IRR calculations were provided in a spreadsheet /3/. The calculation was verified by DNV and has been found to be correct.

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. 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 equity IRR touches the applied benchmark of 17.45% if the project cost comes down by 28.10%. The actual project cost as per the purchase order is about 8.56% less than the cost used in the investment analysis. The IRR improves to 10.02% when the actual cost is considered for analysis, which is still much below the benchmark. As the project is already commissioned /11/ and in operation further reduction in the project cost is hypothetical.

b) Plant load factor:

The equity IRR touches the benchmark if the PLF for the project activity improves to 28.41%, i.e 40.90% increase. The PLF used for the analysis (20.16%) has been determined by M/s Gerrad Hassan, a third party consultant, based on the wind data recorded at the project site using meteorological masts of 80m height, during the period of 2004 to 2010 /4/. DNV could confirm that the PLF used for the analysis is appropriate and the same has been discussed in the investment analysis table above. An increase of PLF by 40.90% on a sustained basis throughout the project is highly unlikely as the PLF considered in RERC tariff order 2009 /40/ as well as PLF of similar projects mentioned in the table are less than 28.41%.

**c) Tariff:**

The equity IRR touches the benchmark if the tariff increases by 34.30%. The tariff considered for the investment analysis is INR 3.83 per kWh which was as per the latest tariff order available at the time of decision /38/. However, as per the actual PPA signed for the project the tariff is INR 4.22 per kWh and is valid for 20 years /10/, which was the result of the amendment in the tariff order dated 3 June 2011 /39/. The actual increase in tariff is 10.18% and since the tariff is fixed for 20 years no further increase to this rate is anticipated.

d) Operation and maintenance cost:

It has been verified that even with O&M cost of 0%, the equity-IRR improves only to 10.71%, which is lower than 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 spreadsheet for financial analysis including the assumptions for the sensitivity analysis /3/ has been verified by DNV and no material mistakes were found. The sensitivity analysis shows that even with likely variations of the key input parameters, the post-tax equity-IRR of the proposed project is lower than the benchmark. In conclusion, the assessment of the arguments presented is deemed to sufficiently demonstrate that the project is not financially attractive.

4.6.4 Common practice analysis

Project participant has carried out the common practice analysis in conformance with the guideline stipulated in “*Tool for the demonstration and assessment of additionality*” (Version 06.1.0) /28/ and with the help of the Guidelines on common practice, version 02.0 /33/. The approach used and its assessment is given below.

Selection of applicable geographical area: The generation of wind energy depends on local or region specific wind patterns and the tariff regime prevalent in the region/state. In India, tariff determination for electricity generation, supply, distribution, transmission, wheeling, purchase and procurement of power is the responsibility of the individual State Electricity Regulatory Commissions /54/. Thus, the regulatory regime clearly differs from one state of India to another. Similarly, each state has its Renewable Energy Development Agency, with different policies for establishment, development and licensing procedures for renewable energy projects. Thus, in India, the regulatory environment for the power sector in general and renewable energy in particular is governed by the policies, regulations and tariff orders implemented at the state level. Investment policies and climate, incentive schemes, and guidelines, differ from state to state /54/. The proposed project activity is operated in the state of Rajasthan and hence the policies and regulatory framework applicable to the project activity is as prescribed by the statutory and regulatory agencies in the state of Rajasthan. Considering these facts the applicable project boundary selected by the PP for common practice analysis is the state of Rajasthan. DNV considers that the selection of the geographical area for common practice analysis is appropriate in the Indian context for reasons stated above.

Applicable output range: As per *Tool for the demonstration and assessment of additionality*” (Version 06.1.0) /28/ the projects within the applicable geographical area with



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the output range of +/- 50% of the output capacity of the project activity needs to be considered for the common practise analysis. Hence the applicable output range is +/- 50% of 42 MW, i.e 21 MW to 63 MW in the state of Rajasthan.

Determination of N_{all} and N_{diff} : In order to arrive at the value N_{all} , all the wind projects operating in Rajasthan (the chosen geographical area for the analysis as detailed above), within the determined output range (21 MW to 63 MW) are considered. This approach is in compliance with the step 2 of “Guidelines on common practise” version 02.0 /33/.

Indian Wind power directory /47/ is the official publication which details about all the Wind power projects in the country with capacities, commissioning dates, location and other details. For the purpose of common practise analysis, the projects in the applicable output range in the state of Rajasthan are considered and are sourced from the Indian Wind power directory-2011 /47/. The PP identified 10 wind projects in the applicable output range and operating in the state of Rajasthan. The details are listed in the PDD and the same has been verified by DNV from the Indian Wind power directory /47/ and found to be accurate.

All the wind power projects identified as per the criteria for common practise analysis are implemented considering CDM benefits as confirmed from the UNFCCC website /53/ and so these projects cannot be included in the N_{all} calculation.

Hence $N_{all} = 0$

N_{diff} value represents the number of projects from the list of identified projects for N_{all} calculation which employ a different technology than the project activity /28/.

Since the value of N_{all} itself is zero, the N_{diff} value is also zero. i.e. $N_{diff} = 0$.

Hence

Condition i) $F = 1 - N_{diff} / N_{all}$

$= 1 - (0/0)$ is non-determinable since it involves a division by zero.

and

Condition ii) $N_{all} - N_{diff} = 0$

As per *Tool for the demonstration and assessment of additionality*” (Version 06.1.0) /28/, if F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3, the project activity is a common practice /28/. Since these conditions are not satisfied, it could be concluded that the project activity is not a common practise. DNV could verify and confirm that the data used for the analysis is appropriate and relevant for the project activity and that the approach of analysis confirms with the additionality tool.

4.7 Monitoring

The project monitoring plan is in compliance with the monitoring methodology ACM0002 version 12.3.0. /27/. The monitoring plan will give opportunity for real measurement of emission reductions achieved. The methodology /27/ does not require renewable projects such as wind projects to consider leakage and project emissions. 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 /9/.



It is DNV's opinion, that the project participant is able to implement the monitoring plan. As required by DNA of India, PP is committed to spend 2% percentage of the CERs revenue every year for sustainable development including society/community development. The action plan for the same has been included in the Annex 4 of the PDD /1/.

4.7.1 Parameters determined ex-ante

The combined margin emission factor (CM) for the Integrated Northern, Eastern, Western and North-Eastern (NEWNE) regional grid of India has been calculated as 0.9529 tCO₂e/MWh /36/ and is fixed *ex-ante* for the entire fixed crediting period. The CM has been calculated using the data published by Central Electricity Authority (CEA) of the Ministry of Power, Government of India /36/. 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 operating margin (OM) and build margin (BM) factors of all the regional electricity grids in India. CEA calculates the OM and BM values as per the methodology ACM0002 version 12.2.0 and "Tool to Calculate the Emission Factor for an Electricity System", Version 2.2.1 as stated in the database /36/. DNV confirms that the database is an official publication of the Government of India for the purpose of CDM baselines /36/. 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) /50/. For all other fuels, default emission factors were derived from the IPCC 2006 Guidelines /51/. In line with the "Tool to calculate the grid emission factor for an electricity system" /29/, the low end values of the 95% confidence intervals indicated by IPCC were used.

The OM sourced from the CEA database is calculated *ex-ante* using the simple OM approach based on the generation weighted average emissions per electricity unit over a three year period of 2008-09, 2009-10 and 2010-11 /36/. BM is calculated *ex-ante* based on the 20% most recent capacity additions in the NEWNE grid of India based on net generation for the year 2010-11 /36/. The OM has been determined to be 0.9842 tCO₂e/MWh and the BM to be 0.8588 tCO₂e/MWh /36/. 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 /36/ and DNV could confirm that it is in line with the "Tool to calculate the emission factor for an electricity system" version 2.2.1 /29/ and the required data has been sourced from the most recent and appropriate database /36/.

DNV confirms that the database version 7 used to calculate the combined margin emission factor was the latest database available at the time of start of validation and the combined margin emission factor for the NEWNE grid of India is fixed *ex-ante* for the entire fixed crediting period.

DNV has verified the value used against the sources and the calculation procedure and concluded that the data used are the latest available at the time when the PDD was published for global stakeholder consultation. DNV also confirms that the calculation procedures adopted are appropriate and conservative.

4.7.2 Parameters monitored ex-post

As per the applied methodology ACM0002, version 12.3.0 /27/, the required parameter to be monitored is the Quantity of Net electricity supplied to the grid by the project activity. Apart from the project activity, there are other WTGs in the same area which are owned by other



investors but operated and controlled by the SEL itself /56//57/. The monitored parameters as per the monitoring plan in the PDD are i) the net energy supplied by the project activity to the grid and ii) Quantity of Electricity generated by the individual WTGs of the PP in year y .

The net energy supplied (by the entire facility including WTGs of other investors) to the grid is calculated based on the export and import readings of the meters installed at the common evacuation point at the substation end. Here, the joint meter readings (JMR) /21/ are conducted on a monthly basis by the Discom authorities in the presence of the representatives of the project proponent.

Before being transmitted to the substation end, the generated electricity is metered at the feeder meters installed at the common evacuation point which is controlled by SEL.

The WTGs under the project activity are connected to different feeders. WTGs owned by other investors are also connected to the same feeders to which the WTGs under the project activity are connected. A schematic diagram is provided in the PDD /1/ which details the actual site conditions which was verified by DNV during the validation site visit.

For proper apportioning purposes of the net exported electricity among different investors, the generation at each WTG is also monitored. Based on these three readings (i.e. JMR, common evacuation point meters and WTG generation) SEL apportiones the total net exported electricity among the different investors and provides each investor a monthly generation Report (MGR) /22/ which shows the monthly share of export, import and net export from the investor's project activity. Suzlon has been identified as the third party by the investors for carrying out meter readings and apportioning purposes as per the PDD /1/.

The formula used for the apportioning purpose as stated in the PDD and is as given below. This is the formula used by SEL, on the investors' behalf to apportion the export, import and net electricity supplied to the grid by each investor including the PP. These values are presented in the form of MGR which in turn forms the basis for invoicing the sale of electricity and emission reduction calculations.

Net energy exported is given by the formula:

$$E_{PJ,y} = (Export - Import) \times (1 + \% \text{ transmission loss})$$

Where,

$$Export = \left(\frac{E_{Exp,feeder,i}}{E_{Gen,feeder,i}} \times E_{WTG,i} \right) - \left(\left(\sum E_{Exp,feeder,i} \right) - E_{Exp,sub-station} \right) \div \sum E_{Gen,feeder,i} \times E_{WTG,i}$$

$$Import = \left(\frac{E_{Imp,feeder,i}}{E_{Gen,feeder,i}} \times E_{WTG,i} \right) - \left(\left(\sum E_{Imp,feeder,i} \right) - E_{Imp,sub-station} \right) \div \sum E_{Gen,feeder,i} \times E_{WTG,i}$$

Here

$E_{imp, feeder, i} / E_{exp, feeder, i}$ = import/ export electricity as measured at the pooling station feeder to which WTG,i. is connected

$E_{Gen, feeder}$ = Total generation reading recorded at the feeder meter installed at the pooling station to which WTG,i. is connected



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$E_{imp.subs-station} / E_{imp.subs-station} = \text{Import/ export readings as per the JMR.}$

$E_{WTG,i}$ = Generation recorded at the controller meters of the individual WTG under the project activity.

The net electricity supplied to the grid as per the MGR forms the basis of calculating the emission reduction achieved by the project activity and for generating invoice /23/ against the sale of electricity.

The meters involved in calculating the net exported electricity by the project activity are /56//57/.

- i) Subststion meters (Main and Check): Which measures the export and import of all the WTGs in the facility including those other than under the project activity.
- ii) Common evacuation point meters controlled and operated by SEL: 7 pairs (main and check) of meters installed at the feeders to which the WTGs under the project activity is connected.

| Feeder No | Project activity WTGs connected | No of WTGs (of 20) |
|-----------|--|--------------------|
| SEL 137 | MK 21 | 1 |
| SEL 136 | MK 161, MK 163 | 2 |
| SEL 114 | MK 14, MK 15, MK 16, MK 17 | 4 |
| SEL 113 | MK 39, MK 40, MK 42, MK 43 | 4 |
| SEL 106 | MK 92, MK 93, MK 94, MK 67, MK 68, MK 69 | 6 |
| SEL 105 | MK 164, MK 165 | 2 |
| SEL 103 | MK 66 | 1 |

- iii) WTG meters: readings from the controller meters which are available from the CMS online.

The common evacuation point meter readings (which shows the total electricity generated by all the WTGs in the wind farm including those outside the project activity) is carried out by SEL. As a policy Discom/SEL does not share these readings with the individual investors and hence the readings are not available to the PP for monitoring purposes. DNV verified from the JMR and invoices that these readings are not available for PP and that it is used only by Suzlon (identified as a third party by investors) for apportioning the net electricity generation by the WTGs connected to the corresponding feeder.

The two sets of meters (each having main and check) installed at the substation and all the meters installed at the common evacuation point (7 pairs of main and check meters) are of 0.2s accuracy class which are to be calibrated once in a year /1/.

The PP also monitors the generation at the WTG with the help of controller meters installed at each machine and which can be read through CMS displays. The controller meters are microprocessor based and do not require calibration as confirmed by the OEM which is SEL /20/.



4.7.3 Management system and quality assurance

The main and check electricity meters of 0.2s class accuracy will be used in all metering locations. Monthly Joint Meter Readings will be recorded at substation by Discom in the presence of Suzlon. Maintenance and calibration of electricity meters will be calibrated once in a year, which has been verified from the PPAs /10/. The controller meters which measures individual WTG generation are microprocessor based and do not require calibration as confirmed by the OEM which is SEL /20/.

SEL is responsible for the complete operation and maintenance of the power plant. The meter readings are noted in the form of joint meter report and are signed jointly by the representatives of Suzlon and the Discom.

The accuracy of monitoring parameter is ensured by adhering to the calibration and testing of the metering equipment once each year. The project proponent also maintains the records of daily generation report and joint meter report.

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 the last issuance of CERs for this project activity, whichever occurs later.

4.8 Algorithms and/or formulae used to determine emission reductions

The calculations and formulae as addressed in the approved baseline and monitoring methodology ACM0002 (version 12.3.0) have been applied. All aspects related to the direct and indirect GHG emissions as relevant to the project activity have been addressed and are presented in a transparent manner, in line with the approved methodology.

Baseline emission: The combined margin emission coefficient for the NEWNE grid of India is 0.9529 tCO₂e/MWh, has been derived from Central Electricity Authority data version 7 /36/. The calculation of CM has been discussed in section 4.7.1 of this report.

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 electricity supplied to the grid will be calculated based on the meter readings of the main electricity meter at the sub-station and the individual WTG controller meters. The details of the calculation of net electricity exported from the meter readings are discussed in the previous section.

The baseline emission estimate can be replicated using the data and parameter values referenced to in the PDD. The data sources mentioned have been verified by DNV. The emissions sources not foreseen by the methodology is unlikely to contribute more than 1% of the estimated emission reductions of the project.

Project emission: Project emissions are counted as zero as no emission source exists for the wind energy generators.

Leakage: It has been addressed and verified by DNV that no transfer of equipment has taken place in the project activity, thus leakage is not involved in the project activity as per the methodology.



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 70 677 tCO₂e per year for the selected fixed crediting period.

All assumptions and data used by the project participants are listed in the PDD and/or supporting documents, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD /1/. 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 /1/.

4.9 Environmental impacts

As per the Ministry of Environment and Forests (MoEF), notifications 2009 /37/, wind power projects are not covered under any Schedule and thus EIA is not required for the project activity. Thus, the project activity is expected to have only beneficial impacts and no adverse impacts are foreseen. The PPA /10/, capacity allotment from RRECL /12/, approval of RRVPNL for interconnection /24/, land lease agreements /19/ letters etc. have been provided and verified by DNV.

4.10 Comments by local stakeholders

The project participants have conducted stakeholders meeting at the project site on 31 March 2011 /14/. The stakeholders were invited through an advertisement in the local newspaper “*Dainik bhaskar*” /13/. The meeting was attended among others by project participant, employees of SEL, and local residents. The copy of the minutes of the stakeholder meeting /14/ was made available for verification. There were no negative comments from the participants.

DNV considers the local stakeholder consultation carried out adequately.

4.11 Comments by Parties, stakeholders and NGOs

The PDD, version 01 dated 17 January 2012, was made publicly available on the CDM website and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 1 March 2012 to 30 March 2012.

<http://cdm.unfccc.int/Projects/Validation/DB/71IYU4T80UMYUCMEOX5YFKSMWJ01YD/view.html>

One comment was received from stakeholders and is given (in unedited form) in the below table which also contains the PP’s response to the issues raised in the comment.

| Comments from Global Stakeholder Process (GSP) | PP’s Response |
|--|--|
| 1. Is the project equipment purchased second hand equipment or sourced from cheap foreign sources? If yes, the issue must be probed by DOE since invoices will invariably be inflated and forged. Total project costs mentioned by PP will not be the same as originals. Hence no additionality. These facts must be | 1. The project equipment is not second hand or sourced from cheap foreign source. The Purchase Orders have been provided to the DOE to verify the actual project cost. |



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|---|---|
| <p>probed in full by DOE by checking all documents and money transactions along with bank statements and certified accounts by a legally acceptable financial analyst.</p> <p>2. From DOE side which auditor has done marketing and business development for acquiring this business of validating this project? With whom he or she was co-ordinating at PP or CER buyer? The same person who has done the marketing and business development to acquire the business do validation or participate in any manner what so ever in the validation process? One cannot do like that. It is against the accreditation rules and norms followed since ages. DOE should send auditors from different offices or countries to do this validation audit. DOE must take care of impartiality and accreditation rules. Due to the targets set by the DOE managements auditors are doing marketing and meeting clients and giving promises that the project will be taken care. Is it acceptable and fair? This must be stopped. No auditor should do marketing. Only non-auditing staff should do marketing. DOE to ensure the same please. .</p> <p>3. If applicable only: Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier. DOE to check the same through independent sources also. Once some bundles are non-additional and getting negative validation from a DOE, PP is rolling out the same project as an individual project which is not a CDM project at all. DOE to verify the same from independent sources and also take undertaking in the form of an affidavit from the PP's that any misrepresentation or false statement with respect this would attract strict legal action from UNFCCC and DOE. Furthermore the registered project must be de-registered in case of any future findings contradicting the submissions made by the project owner.</p> <p>4. DOE to ensure that the PDD values are consistent and ensure that the CDM project is a genuine project</p> <p>5. DoE to check the Detailed Project Report and Feasibility Report which is submitted to the other agencies and Banks by Project owner and ensure that the values match with the DPR/FR submitted to DoE also.</p> <p>6. Careful study must be done so that the DPR/FR is not in different versions made and submitted with different purposes to different agencies, which is totally unacceptable, illegal and unethical.</p> <p>7. DPR/FR values must be probed fully. DOE must take a written undertaking from the PP/Consultant</p> | <p>2. Not Applicable</p> <p>3. Not applicable</p> <p>4. reference to all values mentioned in the PDD has been provided to the DOE for verification.</p> <p>5. No DPR / FR prepared for the project activity</p> <p>6. No DPR / FR prepared for the project activity</p> <p>7. No DPR / FR prepared for the project activity</p> |
|---|---|



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about the list of parties to whom this DPR/FR is submitted and for what purposes. Then DOE should cross check with all the parties and confirm that the same DPR/FR is submitted to all the parties correctly without any changes. DOE must not accept any reports and undertakings from PP/Consultant. DOE must make independent evaluation and use totally different parties without informing the PP or Consultant to cross check the facts.

8. DOE to write to the party who prepared the DPR/FR which is submitted to the banks and other agencies and the same is verified against the one submitted to the DOE by PP/Consultant.

9. DOE must not entertain this project any more if found the DPR/FR is tampered with at any point in time. PP can not give different DPR's and FR's. They must submit only the one given to Banks and other agencies while obtaining loans and decision making time.

10. How is the base line defined in this project? Is Base line hypothetically defined with no proper evidences and proper justification? In such case, DOE cannot take the base line as suggested by the PDD. Please check that there are real emission reductions beyond the real and factual base line. It may so happen that this project qualifies for no CER's. DOE cannot assume values and things as giving by this PP. Whatever values are considered throughout the project in all documents including the real DPR (not the one prepared for CDM, the one given to the banks and others), they must be validated, verified and double checked. Do not ask PP for DPR. Ask the parties who have been given DPR by the PP. Get directly from the bank and others by each page of the DPR and Feasibility report signed. Such document can be considered as a real DPR or FR. UNFCCC CDM process cannot be degraded by fabricating and misinterpreting the project base line and additionality.

11. DOE to be more careful so that this is a

8. No DPR / FR prepared for the project activity

9. No DPR / FR prepared for the project activity

10. The methodology applied for this project activity prescribes a baseline and the same has been used in the PDD. Reference to all values mentioned in the PDD has been provided to the DOE for verification. No DPR / FR prepared for the project activity.

11. The project equipment is not second



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genuine CDM project. What is the exact project cost? The project cost is covering what? Each value considered must be validated with proof. The machinery is second hand purchased or fresh and new from an OEM? In either case DOE to check all the quotations, proposals, purchase orders, invoices, way bills, transport bills, proof of payments like bank statements. DOE to check with banks by way of written confirmation the amount transacted, to whom the money is paid, when the money is paid, is the party paid is the correct party as shown in the purchase orders. It may so happen that the values, party names, dates are fabricated and misrepresented in this project. DOE should terminate their contract for this project immediately. This is the only way out to protect the value of CDM process. If the PP is purchasing second hand or second quality equipment and inflating the purchase order values and invoices, this must be probed thoroughly and real values to taken for additionality calculation. Then I'm sure the additionality is not there at all in such a situation.

12. Project owner should show some undertaking letter from bank manager to DoE stating that both DPR's are same. These kinds of letters should not be accepted and entertained by DoE at face value, but must be checked independently. While collecting the DPR/FR from banks and other agencies, all DPR/FR pages should be counter signed by Banks and other agencies so that the real DPR/FR given to other parties by the PP/Consultant is same as the one submitted to DOE.

13. Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects? If not this project should be rejected right away by DOE by terminating the contract forthwith. If yes, where is the proof? What is the date of the evidence document from bank? Is this document printed now a days or earlier. DOE to independently check the same. If the document is available from Bank it must be checked from all angles so that it is genuine and not forged and date changed by putting back dated. This is normally done, DOE to be aware of this please. Please check the communication the PP had during that time with banks, emails and postal receipts and the weights and dates mentioned on the receipts. Do not believe in courier bills and receipts since these can be cooked up easily. Insist on government owned postal service receipts

hand or sourced from cheap foreign source. The Purchase Orders have been provided to the DOE to verify the actual project cost.

12. No DPR / FR prepared for the project activity.

13. CDM was considered during the conceptualization of the project activity. This is evident from the fact that the LOI received from the long term financing institution has taken a personal guarantee from the PP towards the CDM revenue. It is only under this condition, the loan has been sanctioned. The documents pertaining to the same is provided to the DOE for verification



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| <p>only. If the project is fully equity project then on what basis the PP has invested full equity in to the project while considering the CDM revenue? DOE to check the same in detail and bring out the facts. Is there any past record of this PP to invest or not to invest at returns what he is talking about in this project? Proper evidences must be reviewed and digged out by the DOE and take decision on the project based on established facts. Do not ask documents from PP, DOE to collect the same from different sources to do independent evaluation</p> | |
|---|--|

How DNV has considered the comment received in its validation:

All the comments received were generic in nature and PP addressed these comments to DNV's satisfaction. All the relevant comments were linked into and appropriately acted on by DNV during the validation process with the help of applicable guidelines prescribed by the Executive Board.

DNV finds that the comments represent general issues which shall be validated for proposed CDM projects. The issues raised have been sufficiently covered during the validation process.

For Example: comment 1 : *"Is the project equipment purchased second hand equipment or sourced from cheap foreign sources? If yes, the issue must be probed by DOE since invoices will invariably be inflated and forged. Total project costs mentioned by PP will not be the same as originals. Hence no additionality. These facts must be probed in full by DOE by checking all documents and money transactions along with bank statements and certified accounts by a legally acceptable financial analyst."* DNV could confirm that the equipment used by the project are new and genuinely purchased from Suzlon Energy Limited, one of the largest OEM in wind technology. This could be established with the help of purchase orders /9/ for the machinery as well as other contracts related to the project activity which DNV validated as a part of the validation activity and were found to be in order.

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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 | CAR-1 |
| 2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC. | Kyoto Protocol Art.12.2. | CAR-1 |
| 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 | CAR-1 |
| 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 | CAR-1 |
| 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 | OK |
| 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 | NA |
| 9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7. | CDM Modalities and Procedures §31b | NA |
| 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 | Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43 | CAR-4 CAR-5 |

| Requirement | Reference | Conclusion |
|---|--------------------------------------|-------------------------------|
| that would have occurred in the absence of the registered CDM project activity. | | CAR-6 CL2 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 | CAR-4 OK |
| For large-scale projects only | | |
| 12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out. | CDM Modalities and Procedures §37c | OK |
| About stakeholder involvement | | |
| 13. 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 |
| 14. 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 |
| Other | | |
| 15. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board. | CDM Modalities and Procedures §37e | OK |
| 16. 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 |
| 17. 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 |
| 18. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the | CDM Modalities and Procedures §37f | OK |

| Requirement | Reference | Conclusion |
|-------------|-----------|------------|
| COP/MOP. | | |

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 (VVM para 55-57) | | | | | |
| 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/ /34/ | DR | <input checked="" type="checkbox"/> Yes <i>If no, list where the PDD is not in accordance:</i> | | OK |
| A.2 Description of the project activity (VVM para 58-64) | | | | | |
| 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 checked="" type="checkbox"/> Large scale project <input type="checkbox"/> bundled small scale projects, each with emission reductions not exceeding 15 000 tCO ₂ e per year <input type="checkbox"/> individual small scale project activity with emission reductions not exceeding 15 000 tCO ₂ e per year <input checked="" type="checkbox"/> Greenfield project <i>How was the design of the project assessed?</i> <input checked="" type="checkbox"/> Physical site inspection <input checked="" type="checkbox"/> Reviewing available designs and feasibility studies | | OK |
| A.2.2 If a greenfield project, describe the physical implementation | /1/ | DR | At the time of site visit, the project was | | OK |

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|---|---|---|-----|--|------------------|--------------|
| of the project when the validation was commenced. | | | | completely commissioned and was operating normally | | |
| 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 since 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 | Yes. The proposed CDM project activity entails installation of 20 numbers of Wind Energy Generators each of 2.1 MW capacities (S-88 model) totaling 42 MW. The electricity generated will be exported to the NEWNE grid of India. | | 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 green field project activity and so this is not applicable | | OK |
| A.2.6 | Does the project design engineering reflect current good practices? | /1/ /43/ | DR | The wind farm utilizes 20 machines of Suzlon model S-88 WTG of 2.1 MW capacities which are approved by Centre for Wind Energy Technology, Government of 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 | Yes. The equipment supply and erection are by suppliers and contractors who are experienced in the field. There is no technology transfer from Annex-I party. | | OK |
| A.3 Participation requirements (VVM para 51-54, 123-125) | | | | | | |
| A.3.1 | Do all participating Parties fulfil the participation requirements as follows: | /1/ | DR | The requirement of submission of approval of voluntary participation of the PP in the project activity from the DNA of the host Party, confirming that the project activity contributes to sustainable development is not fulfilled. | CAR-1 | OK |
| | | India (host) | | | | |
| a) Party has ratified the Kyoto Protocol | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | |

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|---|--|-------------------------------------|-----|---|-------------------------------------|-----------------|
| b) Party has designated a Designated National Authority | | <input checked="" type="checkbox"/> | Yes | <input type="checkbox"/> No | | |
| c) The assigned amount has been determined | | <input type="checkbox"/> | Yes | <input type="checkbox"/> No | | |
| A.3.2 | Do the letters of approval meet the following requirements? | /1/ | DR | LoA has not been submitted for verification | CAR-1 | OK |
| | | India (host) | | | | |
| a) LoA confirms that Party has ratified the Kyoto Protocol | | <input type="checkbox"/> | Yes | <input type="checkbox"/> No | | |
| b) LoA confirms that participation is voluntary | | <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 | | |
| d) The LoA refers to the precise project activity title in the PDD | | <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 | | |
| f) The LoA is issued by the respective Party’s DNA | | <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 | | |
| 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 | LoA has not been submitted for verification | CAR-1 | OK |
| A.4 Technical description of the project activity (VVM para 58-64) | | | | | | |
| A.4.1 | Is the project’s location clearly defined? | /1/ | DR | <p>The project is in Tejwa- Mokal village of Jaisalmer district in the Rajasthan state of India.</p> <p>The location coordinates for the project activity is not presented in the required format . Details pertaining to the main substation, pooling station to which the project activity is connected is not mentioned in the PDD.</p> <p>The land lease rights pertaining to the project</p> | CAR-2 CL-1 | OK |

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|--|--|-----------------------------|-----|---|---------------|--------------|
| | | | | activity is not found to be with the PP, but with SEL. | | |
| A.5 Public funding of the project activity | | | | | | |
| A.5.1 | 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/ | DR | Letter of undertaking from the parent company to be provided to ascertain the non-involvement of ODA. The initial documents such as purchase orders, loan documents etc. mention Caparo (Energy) India Ltd.; whereas the project participant's name in PDD is Mytrah Energy (India) Limited. | CL | OK |
| B Application of a baseline and monitoring methodology | | | | | | |
| B.1 Methodology applied (VVM para 65-76) | | | | | | |
| B.1.1 | Does the project apply an approved methodology and the correct version thereof? | /1/ /27/ | DR | The project correctly applies the approved baseline methodology "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" ACM0002, version 12.2.0 for large scale CDM projects. | | OK |
| B.1.2 | If applicable, has any specific guidance provided by the CDM EB in respect to the applied methodology been considered? | /1/ /27/ | DR | No such specific guidance has been applied. | | OK |
| B.2 Applicability of methodology (and tools) (VVM para 65-76) <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: The methodology is applicable to grid connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the | /1/ /27/ /56/ /57/ | DR | The project activity is installation of WTG for generation of power from wind energy to supply to the grid and is a green field project. | | OK |

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| | 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). | | | | | |
| B.2.2 | How was it validated that project complies with the following applicability criteria: The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; | /1/ /27/ /56/ /57/ | DR | The project activity is a green field project that uses wind energy to generate electricity; hence this clause is not applicable. | | OK |
| B.2.3 | How was it validated that project complies with the following applicability criteria: In the case of capacity additions, retrofits, replacements: the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity. | /1/ /27/ /56/ /57/ | DR | The project activity is a green field project that uses wind energy to generate electricity; hence this clause is not applicable | | OK |
| B.2.4 | How was it validated that project complies with the following applicability criteria: The methodology is not applicable to the following a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site b) Biomass fired power plants c) Hydro power plants that result in new reservoir or increase in existing reservoirs where the power density of the power plant is less than 4 W/m ² . | /1/ /27/ /56/ /57/ | DR | The project activity is a green field project that uses wind energy to generate electricity; hence this clause is not applicable | | OK |
| B.2.5 | Is the selected baseline on of the baseline(s) described in the | /1/ | DR | Yes. The baseline selected is the equivalent | | OK |

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| methodology and this hence confirms the applicability of the methodology? | | /27/ /56/ /57/ | | addition of new generation capacity to the grid by conventional methods which emit GHG gases in the absence of the project activity. | | |
| B.3 Project boundary (VVM para 77-79) | | | | | | |
| 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 | Yes, the project's spatial boundaries are defined. The project boundary comprises the wind energy turbines, metering stations, connected sub-stations connected to the NEWNE system grid. The project boundary provided in the PDD does not fulfil the requirements of the applied methodology ACM 0002 version 12.2.0 | CAR-3 | 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/ /36/ | DR/I | GHG sources identified for the project is CO ₂ . This is in line with the methodology ACM0002 version 12.2.0. The baseline scenario for the project activity is the generation of equivalent amount of electricity by the carbon intensive grid. The project activity helps in displacing the equivalent amount of CO ₂ which would have otherwise been generated by the grid. | | 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/I | 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. | | OK |
| B.4 Baseline scenario determination (VVM para 80-87, 103-105) | | | | | | |
| B.4.1 | Which baseline scenarios have been identified? Is the list of baseline scenarios complete? | /1/ | DR/I | The baseline scenario is that the electricity delivered to the grid by the project activity, that would have otherwise been generated by the operation of grid-connected power plants and by | | OK |

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| | | | | the addition of new generation sources into the grid. The selected baseline scenario is in line with the methodology. | | |
| B.4.2 | How have the other baseline scenarios been eliminated in order to determine the baseline? | /1/ | DR/I | According to the methodology, there is only one baseline scenario. Hence this is not applicable. | | OK |
| B.4.3 | What is the baseline scenario? | /1/ /36/ /27/ | DR/I | The baseline scenario is in the absence of the project activity the power would have been generated by operation of grid connected power plants with attendant GHG emissions. | | OK |
| B.4.4 | Is the determination of the baseline scenario in accordance with the guidance in the methodology? | /1/ /27/ | DR/I | Yes the baseline scenario identified is inline with applied methodology ACM0002 version 12.2.0. | | OK |
| B.4.5 | Has the baseline scenario been determined using conservative assumptions where possible? | /1/ /27/ | DR/I | Yes the baseline scenario identified is inline with applied methodology ACM0002 version 12.2.0. | | OK |
| B.4.6 | Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? | /1/ /27/ | DR/I | Yes, national and sectoral policies have been taken into consideration for selecting the baseline scenario. | | OK |
| B.4.7 | Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced? | /1/ /27/ /36/ | DR/I | The data source (CEA database version 6) used for grid emission factor calculation is not the most recent available at the time of web hosting of the PDD for global stake holder consultation. | CAR-4 | 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. | /1/ /27/ /36/ | DR/I | Baseline determination is not based on the latest data available. CEA database version 6 has been used to determine the baseline which is not the most recent data available at the time of web hosting of the PDD for global stake holder consultation. | CAR-4 | OK |

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| <ul style="list-style-type: none"> 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 | | | | | |
| B.5 Additionality determination (VVM para 93-119) | | | | | |
| B.5.1 What approach/tool does the project use to assess additionality? Is this in line with the methodology? | /1/ /28/ | DR | The tool for demonstration and assessment of additionality version 6 has been used. This is in line with the methodology | | OK |
| B.5.2 Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives? | /1/ | DR/I | Yes the regulatory requirements have been taken into account to evaluate the alternatives to the project activity. | | OK |
| B.5.3 Is sufficient evidence provided to support the relevance of the arguments made? | /1/ | DR/I | Yes. The relevant documents have been provided for verification and this has been verified and found to be in order by DNV. The supporting documents for some of the input parameters used for additionality determination are not adequate. | CL-2 | OK |
| B.5.4 What is the project additionality mainly based on (Investment analysis or barrier analysis)? | /1/ /3/ | DR/I | The project additionality has been mainly based on investment analysis. | | OK |
| Prior consideration of CDM (VVM para 96-102) | | | | | |
| B.5.5 What is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity? | /1/ /5/ /6/ /31/ | DR/I | <p>The start date of the project activity (18 Jan 2011) is after 2 August 2008.</p> <p>On 16 August 2010, the PP has notified the DNA and UNFCCC of the intention to seek CDM status for the project activity. The confirmation email was received from UNFCCC on 30 August 2010. This demonstrates prior consideration of CDM for the project activity.</p> | | OK |

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| B.5.6 | If the starting date is after 2 August 2008 and before the global stakeholder consultation, has the DNA and UNFCCC confirmed that the project participants have informed in writing of the project's intention to seek CDM status? | /1/ /5/ /6/ /31/ | DR/I | The start date of the project activity (18 January 2011) is after 2 August 2008. On 5 July 2011, the PP has notified UNFCCC of the intention to seek CDM status for the project activity. The confirmation email was received from UNFCCC on 30 August 2010. This demonstrates prior consideration of CDM for the project activity. | | OK |
| Continuous efforts to secure CDM status (only to be completed if starting date is before 2 August 2008) | | | | | | |
| B.5.7 | 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/ /31/ | DR/I | The start date of the project activity, the date on which the purchase order for WTGs were placed- 18 January 2011, hence not applicable | | OK |
| B.5.8 | When did the construction of the project activity start? | /1/ /31/ | DR/I | The start date of the project activity is 18 January 2011, which is after 2 August 2008; hence this is not applicable. | | OK |
| B.5.9 | When was the project commissioned? | /1/ /31/ | DR/I | The start date of the project activity is 18 January 2011, which is after 2 August 2008; hence this is not applicable. | | OK |
| B.5.10 | Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status? | /1/ /31/ | DR/I | The start date of the project activity is 18 January 2011, which is after 2 August 2008; this is not applicable. | | OK |
| Investment analysis (VVM para 106-112) <i>The list of questions below must be adjusted to the parameters in the investment analysis relevant to the project under validation.</i> | | | | | | |
| B.5.11 | Does the project activity or any of the remaining alternatives generate revenues apart from CDM? Is this reflected in the PDD? | /1/ /10/ 28/ | DR/I | Yes. The project activity generates revenue from sale of power to the grid and the same is mentioned in the PDD. | | OK |
| B.5.12 | Do any of the alternatives to the project activity involve | /1/ | DR/I | Yes. The alternative to the project activity require | | OK |

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| | investment? Is this reflected in the PDD? | | | investment and this is indicated in the PDD. | | |
| B.5.13 | Is the choice of benchmark analysis, investment comparison or simple cost analysis correct? | /1/ /10/ /28/ | DR/I | The benchmark analysis has been chosen by PP to demonstrate the additionality of the project. | | OK |
| B.5.14 | Is the benchmark/discount rate the latest available at the time of decision? | /1/ /30/ /45/ | DR/I | The return on equity is stated to be used as benchmark for the project. PP has used the default values provided in the Appendix A of the guidelines and also opted to add the inflation rate to the same as prescribed by the guideline. | | OK |
| B.5.15 | What is the financial indicator? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence with the benchmark? | /1/ /8/ | DR/I | The financial indicator selected by the PP for the investment analysis is the post tax equity-IRR. | | OK |
| B.5.16 | Are the underlying assumptions appropriate, e.g. what is considered as waste in the baseline is considered to have zero value? | /1/ | DR/I | This is not applicable as the project activity is electricity generation from wind energy. | | OK |
| B.5.17 | Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the host country? | /1/ /44/ | DR/I | The depreciation considered is only for INR 114.83 Million whereas the total project cost is INR 2297 million. Tax rate (regular and MAT) used in the IRR calculations are not found to be correct. | CL-2 | OK |
| B.5.18 | Is the time period of the investment analysis and operating time of the project realistic? Has salvage value been taken into account? Is working capital returned in the last year of operation? | /1/ | DR/I | 20 years operating life has been considered which is realistic for WTG. Salvage value has been added back during the 20 th year. The working capital has not been considered in the calculation | | OK |
| B.5.19 | When a feasibility study report or similar approved by the government is used as the basis for the investment analysis: Can it be confirmed that the values used in the PDD are fully consistent with the FSR and is the period of time between finalization of the FSR and the investment decision adequate? | /1/ /3/ | DR/I | The basis of the investment analysis is the board decision to go ahead with the project activity; it was not based on any government approved study report. The board note/decision to go ahead with the project activity has not been provided for | CL-3 | OK |

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| B.5.20 How was the amount of output (e.g. sales of electricity) assessed? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95. | /1/ /4/ | DR/I | <p>verification.</p> <p><input 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</p> <p><input checked="" type="checkbox"/> The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)</p> <p><input type="checkbox"/> Other approach.</p> <p>The PLF is determined by “Garra Hassan and Partners Ltd.”, the third party contracted by Suzlon – the project developer. Copy of the report for the project activity was provided for verification.</p> | | OK |
| B.5.21 How was the output price (e.g. electricity price) assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95. | /1/ /10/ /39/ | DR/I | <p><input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices)</p> <p><input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants</p> <p>The electricity tariff of INR 4.22/kWh considered is based on the 2011 tariff order of RERC, applicable to the project activity. This was verified from PPA.</p> | | OK |
| B.5.22 How were the investment costs assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95. | /1/ /3/ | DR/I | <p><input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices)</p> <p><input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants</p> <p>The investment costs were assessed based on the</p> | CL2 | OK |

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| | | | <p>quotes offered by Suzlon to the project proponent.</p> <p>The costs associated with the purchase, erection, commissioning and operation of the wind farm were part of the quote offered by Suzlon.</p> <p>However PDD does not list the sources used for the input parameters.</p> | | |
| B.5.23 How were the O&M costs assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95. | /1/ /3/ | DR/I | <p><input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices)</p> <p><input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants</p> <p>The O&M cost were a part of the quote provided by Suzlon to the project proponent.</p> <p>However PDD does not list the sources used for the input parameters.</p> | CL2 | OK |
| B.5.24 Describe the assessment of the other input parameters. Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95. | /1/ /3/ | DR/I | <p><input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices)</p> <p><input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants</p> <p>The references for various input parameters are not found to be listed in the PDD.</p> | CL2 | OK |
| B.5.25 Was the financial calculation spreadsheet verified and found to be correct? | /1/ /3/ | DR/I | The financial calculation spread sheet has been checked and clarifications raised. | CL1 CL2 CL3 | OK |
| B.5.26 Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation | /1/ /3/ | DR/I | PP has carried a sensitivity analysis to analyse the effect of $\pm 10\%$ variation in electricity generation, tariff, debt equity ratio, capital cost of the project | CAR5 | OK |

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| between the parameters been considered? | | | | and O&M cost. The algorithm provided in the spreadsheet for sensitivity analysis is incorrect. The range of variation of conditions considered for the sensitivity analysis need to be justified and the likelihood of these conditions occurring need to be presented as per section 111(c) of VVM. | | |
| B.5.27 | Sensitivity analysis: Is the range of variations is reasonable in the project context? | /1/ /3/ | DR | Please refer to B.5.26 | CAR-5 | OK |
| B.5.28 | Have the key parameters been varied to reach the benchmark and the likelihood of this to happen been justified to be small? | /1/ /3/ | DR | Please refer to B.5.26 | CAR-5 | OK |
| Barrier analysis (VVM para 113-116) | | | | | | |
| B.5.29 | 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/I | PP has not identified other barriers for the project activity. | | OK |
| B.5.30 | 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/I | The project does face barrier due to insufficient financial returns. | | OK |
| B.5.31 | How does CDM alleviate the investment barriers? | /1/ /3/ | DR/I | Revenues from CDM help to improve the returns from the project activity and bridge the gap with the benchmark. | | OK |
| B.5.32 | Is the project activity prevented by the investment barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances? | /1/ | DR/I | The project activity does face investment barrier and none of the possible alternatives to the project activity are feasible under the same circumstances. | | OK |
| B.5.33 | How were the <u>technological barriers</u> assessed to be real? Are the technological barriers substantiated by a source independent of the project participants? | /1/ | DR/I | The project activity does not face any technological barrier and so this is not applicable. | | OK |

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| B.5.34 | How does CDM alleviate the technological barriers? | /1/ | DR/I | The project activity does not face any technological barrier and so this is not applicable. | | OK |
| B.5.35 | Is the project activity prevented by the technological barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances? | /1/ | DR/I | The project activity does not face any technological barrier and so this is not applicable | | OK |
| B.5.36 | 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/I | The project activity does not face any barrier due to prevailing practice and so this is not applicable. | | OK |
| B.5.37 | How does CDM alleviate the barriers due to prevailing practise? | /1/ | DR/I | The project activity does not face any barrier due to prevailing practice and so this is not applicable. | | OK |
| B.5.38 | Is the project activity prevented by the barriers due to prevailing practise and at least one of the possible alternatives to the project activity is feasible under the same circumstances? | /1/ | DR/I | The project activity does not face any barrier due to prevailing practice and so this is not applicable. | | OK |
| B.5.39 | 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/I | The project activity does not face any other barrier so this is not applicable. | | OK |
| B.5.40 | How does CDM alleviate the other barriers? | /1/ | DR/I | The project activity does not face any other barrier and so this is not applicable. | | OK |
| B.5.41 | Is the project activity prevented by the other barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances? | /1/ | DR/I | The project activity does not face any other barrier and so this is not applicable. | | OK |
| Common practice analysis (VVM para 117-119) | | | | | | |
| B.5.42 | What is the geographical scope of the common practice analysis? Is this justified? | /1/ /33/ | DR/I | Wind power projects in Rajasthan have been selected for common practice analysis. The data has been sourced from Directory- Indian Wind Power-2011. Discussion on step 4b of the tool is inadequate to determine that project is not common practice. | CAR-6 | OK |

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| | | | | Links to the CDM projects identified for common practise analysis are not included in the PDD. | | |
| B.5.43 | What is the scope of technology and size (e.g. capacity of power plant) for the common practice analysis and how has this been justified? | /1/ | DR/I | The projects selected for analysis are all the wind projects in Rajasthan with capacities more than 15 MW. | CAR-6 | OK |
| B.5.44 | What is the data source(s) used for the common practice analysis? | /1/ | DR/I | The data for common practice analysis is sourced from the "Directory- Indian Wind power 2011". | CAR-6 | OK |
| B.5.45 | How many similar non-CDM-projects exist in the region within the scope? | /1/ | DR/I | Out of the 15 projects which fit in the scope, 3 non CDM projects exists in the region. Web Links to the CDM projects have not been provided in the PDD. | CAR-6 | OK |
| B.5.46 | How were possible essential distinctions between the project activity and similar activities assessed? | /1/ | DR/I | Discussion on step 4b of the tool is inadequate to determine that project is not common practice. | CAR-6 | OK |
| B.5.47 | What is the conclusion of the common practice analysis? | /1/ | DR/I | To conclude after receipt of the data and clarifications sought from the PP and its subsequent analysis. | CAR-6 | OK |
| Conclusion | | | | | | |
| B.5.48 | What is the conclusion with regard to the additionality of the project activity? | /1/ | DR/I | To conclude after receipt of the data and clarifications sought from the PP and its subsequent analysis. | CAR-4 CAR-5 CAR-6 CL2 | OK |
| B.6 Calculations of GHG emission reductions | | | | | | |
| Data and parameters that are available at validation and that are not monitored (VVM para 198-200) | | | | | | |
| B.6.1 | How was the $EF_{OM,y}$ Operating Margin Emission Factor of NEWNE Electricity Grid verified? | /1/ /36/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. An older database (CEA version 6) has been used for the purpose instead of Version 7. | CAR-4 | OK |

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| B.6.2 | How was the $EF_{BM,y}$ Build Margin Emission Factor of the NEWNE Electricity Grid verified? | /1/ /36/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. An older database (CEA version 6) has been used for the purpose instead of Version 7. | CAR-4 | OK |
| B.6.3 | How was the EF_y Emission Factor for the NEWNE grid of India verified? | /1/ /36/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. An older database (CEA version 6) has been used for the purpose instead of Version 7. | CAR-4 | OK |
| B.6.4 | Are the calculations documented according to the approved methodology and in a complete and transparent manner? | /1/ /36/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. An older database (CEA version 6) has been used for the purpose instead of Version 7. | CAR-4 | OK |
| Baseline emissions (VVM para 88-92) | | | | | | |
| B.6.5 | Are the calculations documented according to the approved methodology and in a complete and transparent manner? | /1/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. An older database (CEA version 6) has been used for the purpose instead of Version 7. | CAR-4 | OK |
| B.6.6 | Have conservative assumptions been used when calculating the baseline emissions? | /1/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. | CAR-4 | OK |

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| | | | | An older database (CEA version 6) has been used for the purpose instead of Version 7. | | |
| B.6.7 | Are uncertainties in the baseline emission estimates properly addressed? | /1/ | DR/I | The data used for the OM/BM/CM calculation has not been sourced from the most recent data available at the time of web hosting of the PDD. An older database (CEA version 6) has been used for the purpose instead of Version 7. | CAR-4 | OK |
| Project emissions (VVM para 88-92) | | | | | | |
| B.6.8 | Are the calculations documented according to the approved methodology and in a complete and transparent manner? | /1/ | DR/I | 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 (VVM para 88-92) | | | | | | |
| B.6.9 | Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner? | /1/ | DR/I | This is not applicable as the project activity is electricity generation from wind energy and no used equipment were used. | | OK |
| Emission Reductions (VVM para 88-92) | | | | | | |
| B.6.10 | 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 registration. The data are properly referenced 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 | /1/ | DR/I | The algorithm provided in the spreadsheet for sensitivity analysis is incorrect. References to the input parameters used for the determination of benchmark and equity IRR are not adequately listed In the PDD and Financial analysis spreadsheet. 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. | CAR-5 CL-2 | OK |

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|---|--|-----|------|---|------------------|--------------|
| submitted for registration. | | | | | | |
| B.7 Monitoring plan (VVM para 120-122) | | | | | | |
| 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/I | Yes. The monitoring described meets the requirement of the methodology. However Monitoring plan and the location of meters described in PDD is not as per actual site procedures being followed at site. | CAR-7 | OK |
| B.7.2 | Does the monitoring plan contains all necessary parameters, and are they clearly described? | /1/ | DR/I | Monitoring plan described is not as per actual site procedures. | CAR-7 | OK |
| B.7.3 | In case parameters are measured, is the measurement equipment described? Describe each relevant parameter. | /1/ | DR/I | Yes. All energy meters used for metering in the project activity are of 0.2s accuracy class and are of electronic trivector type meters. | | OK |
| B.7.4 | In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each relevant parameter. | /1/ | DR/I | The measurement accuracy is adequate for the measurement of electricity fed to the grid and is in keeping with the practice adopted for such measurements in the region. | | 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/I | According to section 6.2 ii) of the PPA, the meter will be tested by RVPN/Discom atleast once in a year. However, calibration frequency of once in 3 years is mentioned in the PDD. | CL-4 | OK |
| B.7.6 | Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter. | /1/ | DR/I | Monitoring plan described is not as per actual site procedures. | CAR-7 | OK |
| B.7.7 | Is the recording frequency adequate for all monitoring parameters? Describe each parameter. | /1/ | DR/I | The electricity generation is measured and captured on real time basis and recorded monthly. | | 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/I | To be concluded after revision of the monitoring plan as per actual site procedures. | CAR-7 | OK |

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| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|--|---|-----|------|--|-------------------------------------|--------------|
| 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/ | DR/I | Yes. For the operation and maintenance of the facility contract has been entered with Suzlon, the project developer. The day to day record handling procedures are in place and implemented properly, as described in section B.7.2 of the PDD. | | 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/I | 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 occurs later? | /1/ | DR/I | All monitored data required for verification and issuance is stated to be kept for two years after the end of the crediting period. | | OK |
| 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/I | The DNA approvals for large scale CDM projects in India mentions that 2% of the revenue be spent for sustainable development, including society/community development. Accordingly, action plan for the same is required to be made and included in the PCN & PDD. The requirement of submission of approval of the project activity from the DNA of the host Party is not fulfilled. The action plan for utilisation of 2% of the revenue from CDN for sustainability development is not presented in the PDD. | CAR-1 CL-5 | |
| B.7.13 | Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts? | /1/ | DR/I | The monitoring plan does not provide for the collection and archiving of relevant data concerning environmental, social and economic impacts and this is not warranted by the current | CL-5 | OK |

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| Checklist Question | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|--|-----|------|--|------------------|--------------|
| | | | legislation. The action plan for utilisation of 2% of the revenue from CDN for sustainability development is not presented in the PDD. | | |
| B.7.14 Are the sustainable development indicators in line with stated national priorities in the host country? | /1/ | DR/I | The requirement of submission of approval of the project activity from the DNA of the host Party is not fulfilled. | CAR-1 | OK |
| C Duration of the project activity / crediting period | | | | | |
| C.1.1 Start date of project activity (VVM para 96-97, 102) | | | | | |
| 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/I | The start date of the project activity is stated to be 18 January 2011, which is the date of placement of orders for equipment with SEL. | | OK |
| C.1.3 Is the stated expected operational lifetime of the project activity reasonable? | /1/ | DR/I | Operational lifetime of the project has been mentioned as 20 years which is reasonable and has been verified by DNV from certificate provided by technology supplier. | | OK |
| C.1.4 Is the start date, the type (renewable/fixed) and the length of the crediting period clearly defined and reasonable? | /1/ | DR/I | The start date of the crediting period is stated to be 1 April 2013 date of commissioning or registration date whichever is later. PP has opted for a fixed crediting period of 10 years duration. During site visit, DNV observed that the project is fully operational. Hence the reasonableness of the start date of crediting period could not be validated. | CL-6 | OK |
| D Environmental Impacts (VVM para 129-131) | | | | | |
| 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 | /1/ | DR/I | Indian legislation in vogue does not warrant an EIA to be done for this type of project activity. | | OK |

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| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|--|--|---------------------|------|--|----------------|--------------|
| that need monitoring? | | | | | | |
| D.1.2 | Does the project comply with environmental legislation in the host country? | /1/ /37/ | DR/I | As per the Ministry of Environment and Forests (MoEF), India Environment Impact Notification S.O. 1533 dated 14 September 2006, wind power projects are not covered under any schedule and thus environmental impact assessment is not required for the project activity. 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/I | Being wind energy based power project, the project is not expected to have any significant impact on the environment | | OK |
| D.1.4 | Have identified environmental impacts been addressed in the project design? | /1/ | DR/I | No negative impact has been identified. | | OK |
| E Stakeholder Comments (VVM para 126-128) | | | | | | |
| E.1.1 | Have relevant stakeholders been consulted? | /1/ /13/ /14/ | DR/I | Yes. The PDD was web hosted in UNFCCC site from 1 March to 30 March 2012. Further, stake holders meeting was held at the project site on 31 March 2011. The responses to the comments received during global stake holder consultation needs to be provided. | E-7 | OK |
| E.1.2 | Have appropriate media been used to invite comments by local stakeholders? | /1/ /13/ /14/ | DR/I | The PDD does not mention the name of the news paper used to advertise stakeholder consultation. Questionnaire circulated/ Minutes of Meeting have not been provided for verification. | E-7 | OK |
| E.1.3 | If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder | /1/ | DR/I | This is not specifically required for wind power projects as per current Indian legislation. | | OK |

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| Checklist Question | | Ref | MoV | Assessment by DNV | Draft Concl. | Final Concl. |
|---|--|-----|------|--|-----------------|-----------------|
| consultation process been carried out in accordance with such regulations/laws? | | | | | | |
| E.1.4 | Is a summary of the stakeholder comments received provided? | /1/ | DR/I | A summary of the comments received has been provided in the PDD. | | OK |
| E.1.5 | Has due account been taken of any stakeholder comments received? | /1/ | DR/I | No adverse comments have been 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>The requirement of submission of approval of the project activity from the DNA of the host Party confirming voluntary participation of PP in the project activity and that the project contributes to sustainable development, is not fulfilled.</p> | <p>A.3.1 A.3.2 A.3.3 B.7.12 B.7.14</p> | <p>Copy of the approval from DNA has been provided to the DOE for verification.</p> | <p>PP has provided copy of the LoA dated 11 October 2012 /25/ 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 VVM (para 51-54, 125-127) /26/</p> <p>CAR 1 is closed.</p> |
| <p>CAR 2</p> <p>The location coordinates for the project activity is not presented in the required format</p> <p>Details pertaining to the main substation, pooling station to which the project activity is connected is not mentioned in the PDD.</p> | <p>A.4.1</p> | <p>The location coordinates for the project activity has been presented in required format (i.e. degree minutes seconds) in the revised PDD.</p> <p>The details pertaining to metering is provided in the revised PDD.</p> | <p>The location coordinates of all the WTGs under the project activity is now listed in the revised PDD /1/ (section A 4.1.4) in the required format.</p> <p>The revised PDD also incorporates the details of common evacuation system and main substation. The generated electricity will be transmitted to NEWNE grid through Amarsagar substation located in Jaisalmer district.</p> <p>DNV confirms that the details incorporated in the revised PDD are accurate and in conformity with the actual site conditions as verified using Global Positioning System (GPS) enabled device during site visit /56//57/</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants | Validation conclusion |
|---|--|--|---|
| | | | CAR 2 is closed |
| <p>CAR 3</p> <p>The project boundary provided in the PDD does not fulfil the requirements of the applied methodology ACM 0002 version 12.2.0</p> | B.3.1 | The project boundary has been corrected in the revised PDD based on the requirement of methodology ACM0002 version 12.3.0. | <p>The project boundary has been revised to include the all the power plants connected to the NEWNE grid as per the requirements of the applied methodology ACM0002 version 12.3.0 /27/ in the revised PDD /1/. DNV confirms that the revised project boundary presented in the PDD fullfills the requirements of the applied methodology ACM0002 version 12.3.0.</p> <p>CAR 3 is closed</p> |
| <p>CAR 4</p> <p>The database (CEA version 6) used for determining the grid emission factor is not the most recent data available at the time of web hosting of the PDD for global stake holder consultation.</p> | <p>B.4.7</p> <p>B.4.8</p> <p>B.5.48</p> <p>B.6.1</p> <p>B.6.2</p> <p>B.6.3</p> <p>B.6.4</p> <p>B.6.5</p> <p>B.6.6</p> <p>B.6.7</p> | CEA database has been updated to version 7. The emission reduction calculation worksheet and the relevant sections of the PDD have been updated. | <p>The grid emission factor has been calculated based on the data available from CEA database version 7 /36/ in the latest PDD. The data used has been correctly sourced and applied for arriving at the combined margin of 0.9529 tCO₂/MWh. DNV verified the data used and emission factor calculations and could confirm that the data used are the most recent available (CEA database version 7) and the calculation procedures are accurate.</p> <p>CAR 4 is closed</p> |
| <p>CAR 5</p> <p>The range of variation of conditions considered for the sensitivity analysis need to be justified and the likelihood of these conditions occurring need to be presented as per section 111(c) of VVM. The algorithm provided in the spreadsheet for</p> | <p>B.5.26</p> <p>B.5.27</p> <p>B.5.28</p> <p>B.5.48</p> <p>B.6.10</p> | <p>The range of variation of conditions, the range at which the project activity returns will cross the benchmark and the likelihood of this scenario not occurring has been presented in the revised PDD. All linkages have been updated in the</p> | <p>Sensitivity analysis has been revised to include the effect of variations of different parameters considered in the investment analysis viz, tariff, project cost, O&M expense and PLF in the revised PDD /1/. The variation required for each parameter</p> |

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| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants | Validation conclusion |
|--|---|--|---|
| sensitivity analysis is incorrect | | sensitivity analysis worksheet. | <p>in order that the equity IRR crosses the benchmark has been calculated and presented. Also the likelihood of the occurrence of these conditions are discussed.</p> <p>In all, the analysis is complete and as per the requirements of the VVM section 11(c) /26/.</p> <p>CAR 5 is closed</p> |
| <p>CAR 6</p> <p>Common practise analysis is not found to fulfil the requirements of the “Tool for demonstration and assessment of additionality, version 6.0”</p> <p>Discussion on step 4b of the tool is inadequate to determine that project is not common practice.</p> <p>Links to the CDM projects identified for common practise analysis are not included in the PDD.</p> | <p>B.5.42</p> <p>B.5.43</p> <p>B.5.44</p> <p>B.5.45</p> <p>B.5.46</p> <p>B.5.47</p> <p>B.5.48</p> | <p>The common practice analysis section in the PDD has be revised to confirm with the Tool for demonstration and assessment of additionality, version 6.0.</p> <p>Links to CDM projects identified for common practice analysis has been provided as a footnote.</p> | <p>The common practise analysis is now been revised to confirm with the version 6 of the Tool for demonstration and assessment of additionality /28/.</p> <p>Links to the CDM projects considered for the analysis have also been included in PDD in the revised analysis /1/.</p> <p>DNV confirms that the analysis now fulfils the requirements of the “Tool for demonstration and assessment of additionality, version 6.0”</p> <p>CAR 6 is closed</p> |
| <p>CAR7</p> <p>Monitoring plan and the metering arrangement described in the PDD is not as per actual site procedures.</p> | <p>B.7.1</p> <p>B.7.2</p> <p>B.7.6</p> <p>B.7.7</p> <p>B.7.8</p> | <p>The monitoring plan and the metering arrangement have been revised as per actual procedure being followed.</p> | <p>A detailed monitoring plan is presented in the revised PDD /1/.</p> <p>In Annex 4 of the PDD /1/, a schematic diagram which details the metering location is also included along with the calculation procedures adopted by SEL to arrive at the net electricity supplied to the grid by the project activity.</p> <p>The monitoring plan described in the</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants | Validation conclusion |
|---|--|--|---|
| | | | revised PDD is as per the actual site procedures as verified by DNV. CAR 7 is closed |
| <p>CL 1</p> <p>The land lease rights pertaining to the project activity is not found to be with the PP, but with SEL.</p> <p>The initial documents such as purchase orders, loan documents etc. mention Caparo (Energy) India Ltd.; whereas the project participant's name in PDD is Mytrah Energy (India) Limited.</p> <p>Letter of undertaking from the parent company to be provided to ascertain the non-involvement of ODA</p> | <p>A.4.1</p> <p>A.5.1</p> | <p>The land lease agreement in the name of PP is being provided to the DOE for verification.</p> <p>During the initial stages of project planning, the name of PP was Caparo Energy India Limited. However, during later stage the name was changed Mytrah Energy India Limited. The Fresh Certificate of Incorporation Consequent upon Name change is provided to the DOE for verification.</p> <p>Letter of undertaking on non-involvement of ODA is provided to the DOE for verification.</p> | <p>Land sub-lease agreement document between SEL and the PP with Government of Rajasthan as a party has been evidenced by DNV /19/. DNV confirms that the land used for the project activity is under PP's lease hold.</p> <p>"Fresh Certificate of Incorporation upon Name change" /15/ dated 27 September 2011 issued by Registrar of companies Andhra Pradesh has been provided for verification. It has been confirmed from this certificate that the name of the company - Caparo Energy India limited has been changed to Mytrah Energy (India) limited.</p> <p>A letter of undertaking /16/ which details the source of funds used for the project activity has been provided for verification. The letter confirms the non-involvement of any ODA in the project activity.</p> <p>CL 1 is closed.</p> |
| <p>CL2</p> <p>References to the input parameters used for the determination of benchmark and equity IRR are</p> | <p>B.5.3</p> <p>B.5.17</p> <p>B.5.20</p> | <p>The PDD and financial analysis worksheet has been updated with reference to all input parameters;</p> | <p>The references to the input parameters are provided in the revised PDD section B.5 /1/, which are verified by DNV and was</p> |

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| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants | Validation conclusion |
|--|---|---|--|
| <p>not adequately listed In the PDD and Financial analysis spreadsheet.</p> <p>Some of the input parameters for financial analysis such as salvage value, debt:equity ratio, loan repayment tenure, moratorium, incentives such as 80 IA of IT act, GBI etc. are not discussed in PDD and IRR calculation sheet.</p> <p>The depreciation considered is only for INR 114.83 Million whereas the total project cost is INR 2297 million.</p> <p>Tax rate (regular and MAT) used in the IRR calculations are not found to be correct.</p> | <p>B.5.22</p> <p>B.5.23</p> <p>B.5.24</p> <p>B.5.25</p> <p>B.5.48</p> <p>B.6.10</p> | <p>Section B.5 of the PDD has been updated to discuss on all input parameters.</p> <p>The depreciation worksheet has been revised to consider the total project cost.</p> <p>Tax rate in the IRR analysis has been revised to use the correct values.</p> | <p>found to be appropriate.</p> <p>The revised PDD /1/and IRR sheet /3/ incorporates the details of all the parameters used in the investment analysis. The details are verified and found to be correct.</p> <p>The error in depreciation calculation has been rectified and the revised investment analysis calculation /3/ takes into account the entire project cost.</p> <p>The Tax rates used for the analysis has been revised and the revised rates used are Regular Tax: 33.99% and MAT: 18.54% DNV confirms that the revised calculations are correct and appropriate.</p> <p>CL 2 is closed</p> |
| <p>CL 3</p> <p>The board note/decision to go ahead with the project activity has not been provided for verification.</p> | <p>B.5.19</p> | <p>The extract of Minutes of Board Meeting referring to the decision to invest in the project activity taking in to consideration CDM benefits is provided to the DOE for verification.</p> | <p>The extract of the minutes of the Board meeting signed by the company secretary dated 13 December 2011/17/ which refers to the CDM consideration for the project activity at the time of investment decision have been verified by DNV and could confirm that CDM was seriously considered during the project conceptualisation.</p> <p>CL 3 is closed</p> |
| <p>CL 4</p> <p>According to section 6.2 ii) of the PPA, the meters at the grid interface will be tested by RVPN/Discom at least once in a year. However,</p> | <p>B.7.5</p> | <p>The calibration frequency has been revised to one year as per the PPA.</p> | <p>The calibration frequency has been revised to match the terms mentioned in the PPA /10/ in the revised PDD /1/.</p> <p>The calibration frequency of the meters</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants | Validation conclusion |
|--|----------------------|--|---|
| calibration frequency of once in 3 years is mentioned in the PDD. | | | have been updated to “once a year” and DNV confirms that the same is consistent with the terms prescribed in the PPA. CL 4 is closed |
| CL 5 The action plan for utilisation of 2% of the revenue from CDM for sustainability development is not presented in the PDD | B.7.12 B.7.13 | The action plan for utilisation of 2% of the revenue from CDM for sustainability development as per the regulations has now been included in the PDD. | The action plan for sharing 2% of CDM revenues for sustainable development is included in the revised PDD /1/. CL 5 is closed |
| CL 6 The start date of the crediting period is stated to be 1 April 2013 date of commissioning or registration date whichever is later. PP has opted for a fixed crediting period of 10 years duration. During site visit, DNV observed that the project is fully operational. Hence the reasonableness of the start date of crediting period could not be validated. | C.1.4 | The start date of the project activity has been revised to 31/12/2012 | The start date of the crediting period is stated in the revised PDD /1/ as 31 December 2012, which is the expected date of project registration under CDM. DNV considers the revised start date as reasonable as the project is likely to be registered by the selected date (31 December 2012). CL 6 is closed. |
| CL 7 The PDD does not mention the name of the newspaper used to advertise stakeholder consultation. Questionnaire circulated/ Minutes of Meeting of the local stakeholder meeting have not been provided for verification. Responses to the comments received during the GSC period needs to be provided. | E.1.1. E.1.2 | The advertisement for stakeholder consultation was provided in Dainikbhaskar. The same has been updated in the PDD. The minutes of meeting is provided to the DOE for verification. Responses to the comments received during the GSC period is provided to the DOE. | It could be confirmed that the invitation to stake holder meeting was published in the newspaper ‘Dainik Bhaskar’ on 16 March 2011 /13/. The minutes of the stakeholder meeting dated 31 March 2011/14/ has been provided for verification. The stakeholder meeting was attended by the villagers and their concerns were adequately addressed by the representatives of the PP during the |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants | Validation conclusion |
|--|----------------------|----------------------------------|--|
| | | | meeting. Responses to the comments received from the stakeholders during the GSC period have been provided (see section 4.11 of this report). The responses provided by the PP are found to be satisfactory. CL 7 is closed |

Table 4 Forward action requests

| Forward action request | Reference to Table 2 | Response by project participants |
|------------------------|----------------------|----------------------------------|
| No FAR is raised | | |
| | | |

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APPENDIX B

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Mr. Ravi Kumar Prabhu holds Bachelor's Degree in Chemical Engineering and has done Post Graduate Diploma course in Management and has an overall working experience of around twenty five years. Prior to joining DNV has around twenty three years of experience in Chemical process industry (fertilizer & petrochemical manufacturing) covering production, technical services including energy audits and efficiency studies, waste heat recovery, efficiency studies of boilers, power plants, safety audits, pollution control activities and waste water treatment. With respect to the Thermal Power Plant, the job assignment included the monitoring of flue gas stack temperatures and excess air, efficiency of fuel additives, condition of boiler refractory and insulation of steam lines, residual life assessment of boilers etc. His experience also includes 7 years in the Process design of fertilizer & petrochemical plants, wherein he was involved in the development of process flow diagrams, development of P&IDs, equipment design, HAZOP studies, procurement and commissioning activities.

He has four years of experience in validation and verification of CDM projects in DNV and is also an EMS lead auditor.

His qualification, industrial experience and experience in CDM projects demonstrate sufficient sectoral competence in Chemical Process Industries (TA 5.1), Thermal Energy Generation from fossil fuels (TA1.1), Heat distribution (TA 2.2), Energy generation from Renewable Energy sources (TA 1.2) and Waste handling and disposal (TA 13.1).

Mr. Rahul Gopi holds a Bachelor's Degree in Chemical Engineering and has also completed MBA in General management. Prior to joining DNV, he had around 3 years of petroleum refinery experience in 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 and also 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, ISO 14001

A Parasuraman is fellow member of the Institute of Chartered Accountants of India. He holds a Bachelor degree in Science from University of Madurai. He is an engagement Partner for all Citi Bank Collateral Inspections/ financial analysis of CITI Bank customers at Ernakulam. With approx 29 years of work experience, his professional focus area are Statutory Audits, Bank Audits – Internal and Concurrent, Internal Audits, Direct and Indirect Taxation, Company Formation and Related activities and Preparation of cash flow/ fund flow statements on behalf of customers for availing loan from banks. Currently he is involved in the Validation and Verification of CDM projects as financial expert.

Mrs. Zuzana Andrtová holds MSc. Degree in Technology of Protection Environment on Prague's University of Chemical Technologies. Has more than 12 years' experience with implementation of quality systems in various types of organizations. Her experience also covers machine technology design, analytical laboratory processes and implementation of environmental system.

She has experience of 4 years in validation of CDM projects, determination and verification of JI projects in DNV and EU ETS verification as lead verifier. She participates as team member

on accreditation audits for Czech Accreditation Institute as expert assessor for EU ETS scheme.

Her qualification, industrial experience and experience in CDM demonstrate her sufficient sectoral competence in Energy generation from renewable sources.

She has also been actively involved in Management System Audits such as ISO 9001, ISO 140001 and OHSAS 18001 standards in various industrial sectors for more than 5 years in DNV.

APPENDIX C

GEO-COORDINATES AND COMMISSIONING DATES OF THE WTGS UNDER THE PROJECT ACTIVITY

| Sr. No. | WTG ID | WTG Co-ordinate | | Date of Commissioning |
|---------|--------|-----------------|-----------|-----------------------|
| | | Latitude | Longitude | |
| 1 | MK014 | 27.1631 | 70.6809 | 04 Aug 2011 |
| 2 | MK015 | 27.1612 | 70.6858 | 19 Jul 2011 |
| 3 | MK016 | 27.1594 | 70.6907 | 19 Jul 2011 |
| 4 | MK017 | 27.1576 | 70.6956 | 19 Jul 2011 |
| 5 | MK021 | 27.1466 | 70.7251 | 30 Sep 2011 |
| 6 | MK039 | 27.1697 | 70.6926 | 12 Jul 2011 |
| 7 | MK040 | 27.1715 | 70.6877 | 12 Jul 2011 |
| 8 | MK042 | 27.1752 | 70.6779 | 19 Jul 2011 |
| 9 | MK043 | 27.1771 | 70.6730 | 04 Aug 2011 |
| 10 | MK066 | 27.1837 | 70.6848 | 12 Jul 2011 |
| 11 | MK067 | 27.1812 | 70.6891 | 30 Jun 2011 |
| 12 | MK068 | 27.1804 | 70.6949 | 30 Jun 2011 |
| 13 | MK069 | 27.1782 | 70.6995 | 30 Jun 2011 |
| 14 | MK092 | 27.1887 | 70.7016 | 19 Jun 2011 |
| 15 | MK093 | 27.1905 | 70.6966 | 25 Jun 2011 |
| 16 | MK094 | 27.1924 | 70.6917 | 30 Jun 2011 |
| 17 | MK161 | 27.2195 | 70.6917 | 25 Jun 2011 |
| 18 | MK163 | 27.2237 | 70.6833 | 25 Jun 2011 |
| 19 | MK164 | 27.2255 | 70.6784 | 19 Jun 2011 |
| 20 | MK165 | 27.2274 | 70.6735 | 19 Jun 2011 |

Source: PDD /1/.

Location coordinates are verified during validation site visit using Global Positioning System (GPS) device /56//57/.