



# VALIDATION REPORT

TRICORONA CARBON ASSET MANAGEMENT  
PTE LTD

JANGI 91.8 MW WIND FARM IN GUJARAT

**Report No: 8000395338 – 11/211**

**Date: 2012-10-15**

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<b>Project:</b>	<b>Title:</b>	<b>Initial PDD Version:</b>	<b>Final PDD Version</b>	
	Jangi 91.8 MW wind farm in Gujarat	2011-04-30	2012-10-11	
<b>Client:</b>	Tricorona Carbon Asset Management Pte Ltd	<b>Client ref:</b>	<b>Moe Moe Oo</b>	
<b>Project Participant(s):</b>	<b>Host Party:</b>	<b>Other involved parties:</b>		
	India	Sweden		
<b>Applied methodology/ies:</b>	<b>Title:</b>	<b>No.:</b>	<b>Scope / TA:</b>	
	Consolidated baseline methodology for grid-connected electricity generation from renewable sources	ACM0002 / Version 12.3.0	1 / 1.2	
<b>Validation team / Technical Review and Final Approval</b>	<b>Validation Team:</b>	<b>Technical review:</b>	<b>Final approval:</b>	
	Martin Saalman (TL), Robert Cheong, Kunal Rami	Samir Beqqal, Jochen Schubert	Jochen Schubert	
<b>Expected Emission reductions: [t CO<sub>2</sub>e]</b>	<b>Expected emission reductions over the first crediting period:</b>	<b>Expected starting date of crediting period:</b>		
	2,545,270 t CO <sub>2</sub> e	2013-06-01		
<b>Confidential content:</b>	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
<b>Summary of Validation Opinion:</b>	<input checked="" type="checkbox"/> Positive validation opinion		<input type="checkbox"/> Negative validation opinion	
	<p>In detail the conclusions can be summarised as follows:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approvals have been obtained from DNA of India vide the Letter of Approval (HCA) dated 2012-03-14 and from the DNA of Sweden dated 2012-07-04</li> <li><input checked="" type="checkbox"/> The project additionality is sufficiently justified in the PDD.</li> <li><input checked="" type="checkbox"/> The monitoring plan is transparent and adequate.</li> <li><input checked="" type="checkbox"/> The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 2,545,270 tCO<sub>2</sub>e are most likely to be achieved within the fixed crediting period.</li> <li><input checked="" type="checkbox"/> The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.</li> </ul>			
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## Abbreviations

<b>BAU</b>	Business as usual
<b>CA</b>	Corrective Action / Clarification Action
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CL</b>	Clarification Request
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CO<sub>2e</sub></b>	Carbon dioxide equivalent
<b>CP</b>	Certification Program
<b>DNA</b>	Designated National Authority
<b>EB</b>	CDM Executive Board
<b>EIA</b>	Environmental Impact Assessment
<b>FAR</b>	Forward Action Request
<b>GHG</b>	Greenhouse gas(es)
<b>HSBC</b>	The Hongkong and Shanghai Banking Corporation Ltd.
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>PDD</b>	Project Design Document
<b>QC/QA</b>	Quality control/Quality assurance
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VVM</b>	Validation and Verification Manual

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## 1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability criteria

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual<sup>VVM</sup>, carried out a full assessment of all evidence to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 01.2, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP cannot be held liable by any entity for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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

## 2 GHG PROJECT DESCRIPTION

### 2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

**Table 2-1:** Project Characteristics

Item	Data
Project title	Jangi 91.8 MW wind farm in Gujarat
Project size	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input checked="" type="checkbox"/> 1 Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/> 2 Energy distribution
	<input type="checkbox"/> 3 Energy demand
	<input type="checkbox"/> 4 Manufacturing industries
	<input type="checkbox"/> 5 Chemical industry
	<input type="checkbox"/> 6 Construction
	<input type="checkbox"/> 7 Transport
	<input type="checkbox"/> 8 Mining/Mineral production
	<input type="checkbox"/> 9 Metal production
	<input type="checkbox"/> 10 Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/> 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/> 12 Solvents use
	<input type="checkbox"/> 13 Waste handling and disposal
	<input type="checkbox"/> 14 Afforestation and Reforestation
	<input type="checkbox"/> 15 Agriculture
Applied Methodology	ACM0002 Version 12.3.0
Technical Area(s)	1.2: Renewables – Wind
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (10 y)
Start of crediting period	2013-06-01

### 2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

**Table 2-2:** Project Parties and project participants

Characteristic	Party	Project Participant
Host party	India	GP Wind (Jangi) Private Limited
Other involved party/ies	Sweden	Tricorona Carbon Asset Management Pte Ltd

### 2.3 Project Location

The details of the project location are given in table 2-3:

**Table 2-3:** Project Location

No.	Project Location
Host Country	India
Region:	Gujarat
Project location:	20km South East from Samakhiali town
Latitude (North):	23°11'22" to 23°15'02"
Longitude (East):	70°30'12" to 70°38'26"

## 2.4 Technical Project Description

The proposed project is a grid-connected wind farm with a total installed capacity of 91.8 MW served by 51 wind turbines with a capacity of 1.8 MW.

The technical key data are provided in table 2-4 below.

**Table 2-4:** Technical data of the project activity

Parameter	Unit	Value
Capacity	MW	1.8
Number of WTG		51
Plant Load Factor	%	33.3
Manufacturer		Vestas



### 3 METHODOLOGY AND VALIDATION SEQUENCE

#### 3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- Desk review of the PDD and supporting documents
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

The sequence of the validation is given in the table 3.1 below:

**Table 3.1:** Validation sequence

Topic	Time
Assignment of validation	2011-05-04
Submission of PDD for global stakeholder commenting process	2011-05-05
Visit at the office of PP	2011-06-29
Draft reporting finalised	2011-06-29
Final reporting finalised	2012-07-06
Technical review on final reporting finalised	2012-07-06
Response on Incompleteness Notification	2012-10-15

### 3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the validation can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

### 3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a validation team, consistent of one team leader and 2 additional team members, were appointed. Furthermore also the personnel for the technical review and the final approval were determined. An on-site validation was not conducted by the validation team since the construction was still in progress. Mr. Robert Cheong visited the office of the project owner and conducted the document check and interview.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

**Table 3-2:** Involved Personnel

	Name	Company	Function <sup>1)</sup>	Qualification Status <sup>2)</sup>	Scheme competence <sup>3)</sup>	Technical competence <sup>4)</sup>	Host country Competence	Team Leading competence	Visit at PP office
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Martin Saalmann	TN Cert	TL	SA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Robert Cheong	TN Malaysia	TM <sup>A)</sup>	SA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Kunal Rami	TN Cert	TM <sup>A)</sup>	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Samir Beqqal	TN Cert	TR <sup>B)</sup>	LA	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Jochen Schubert	TN Cert	TR <sup>B)/</sup> FA <sup>B)</sup>	SA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- 1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval
- 2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert
- 3) GHG auditor status (at least Assessor)
- 4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)
- A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE
- B) No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Technical Experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

Statements of competence for the above mentioned team members are enclosed in annex 6 of this report.

### **3.4 Consideration of Public Stakeholder Comments**

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments are received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

### **3.5 Validation Protocol**

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

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

The validation protocol is described in Figure 1.

<b>Validation Protocol Table A-1: Requirement checklist</b>				
<b>Checklist Item</b>	<b>Validation Team Comment</b>	<b>Reference</b>	<b>Draft Conclusion</b>	<b>Final Conclusion</b>
<i>The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.</i>	<i>In case a corrective action or a clarification the final assessment at the final validation stage is given.</i>

**Figure 1:** Validation protocol table

The completed validation protocol is enclosed in Annex 1 to this report.

### 3.6 Review of Documents

The published PDD and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

### 3.7 Follow-up Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

**Table 3-3:** Interviewed persons and interview topics

<b>Interviewed Persons / Entities</b>	<b>Interview topics</b>
Project proponent representatives Project consultant	- Chronological description of the project activity with documents of key steps of the implementation.

Interviewed Persons / Entities	Interview topics
	<ul style="list-style-type: none"> <li>- Current status of plant design</li> <li>- Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project</li> <li>- Host Government Approval</li> <li>- Approval procedures and status</li> <li>- Monitoring and measurement equipment and system.</li> <li>- Financial aspects</li> <li>- Crediting period</li> <li>- Project activity starting date</li> <li>- CER allocation / ownership</li> <li>- Baseline study assumptions</li> <li>- Additionality</li> <li>- Sustainable development issues</li> <li>- Monitoring</li> <li>- Analysis of local stakeholder consultation</li> <li>- Roles &amp; responsibilities of the project participants w.r.t. project management, monitoring and reporting</li> <li>- National Legislation</li> <li>- Editorial issues of the PDD</li> </ul>

A comprehensive list of all interviewed persons is part of section 7 'References'.

### 3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

### 3.9 Resolution of Clarification and Corrective Action Requests

#### 3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

### 3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

### 3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs, CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

## 3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

### **3.11 Final approval**

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive validation opinion).

## 4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised:

**Table 4-1:** Summary of CARs, CLs and FARs issued

Validation topic <sup>1)</sup>	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) <ul style="list-style-type: none"> <li>- Project specification</li> <li>- Technical project description</li> <li>- Participation</li> <li>- Contribution to sustainable development</li> <li>- PDD editorial aspects</li> <li>- Technology to be employed</li> </ul>	2	3	-
Project Baseline, Additionality and Monitoring Plan (B) <ul style="list-style-type: none"> <li>- Application of the Methodology</li> <li>- Project Boundary</li> <li>- Baseline identification</li> <li>- Calculation of GHG emission reductions <ul style="list-style-type: none"> <li>Project emissions</li> <li>Baseline emissions</li> <li>Leakage</li> </ul> </li> <li>- Additionality determination</li> <li>- Monitoring Methodology</li> <li>- Monitoring Plan</li> <li>- Project management planning</li> </ul>	13	4	-
Duration of the Project / Crediting Period (C)	1	-	-
Environmental impacts (D)	-	-	-
Stakeholder Comments (E)	-	-	-
<b>SUM</b>	<b>16</b>	<b>7</b>	<b>-</b>

<sup>1)</sup> The letters in brackets refer to the validation protocol

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).



The findings of validation process are summarized in the tables below.

Finding	A1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP is requested to provide the letters of approval from India and Sweden.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Should arrive by End-June.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>LOA India:</p> <p>The host country approval has been provided by the PP as coloured scanned version. It is issued by the Ministry of Environment and Forests of the Government of India. The document is signed by Rajiv Kumar. By means of checking the UNFCCC website it could be confirmed that the organisation is listed as DNA of India and the officer signed is the contact person listed. Hence, the VT concluded that the HCA is authentic. <sup>/unfccc/, /HCA/</sup></p> <p>The HCA confirms the following:</p> <ol style="list-style-type: none"> <li>1. India has ratified the KP.</li> <li>2. The participation is voluntarily.</li> <li>3. The project contributes to SD in India.</li> </ol> <p>The project title referenced in the HCA is "Jangi 91.8 MW wind farm in Gujarat". This is consistent to the PDD and the MOC.</p> <p>It should be noted that the HCA has only been granted if sustainability indicators required by the Indian DNA are part of the monitoring. As this is not part of regular CDM rules it has been included as an Annex to the PDD. Verify DOE to check this. The project participant from India is GP Wind (Jangi) Private Limited. This company is also listed in the PDD.</p> <p>LOA Sweden:</p> <p>The letter of approval has been provided by the PP as coloured scanned version. It is issued by the Swedish Energy Agency. The document is signed by Erik Eriksson. By means of checking the UNFCCC website it could be confirmed that the organisation is listed as DNA of Sweden. Hence, the VT concluded that the LOA is authentic. <sup>/unfccc/, /LOA/</sup></p> <p>The LOA confirms the following:</p> <ol style="list-style-type: none"> <li>1. Sweden has ratified the KP.</li> <li>2. The participation is voluntarily.</li> </ol> <p>The project title referenced in the HCA is "Jangi 91.8 MW wind farm in Gujarat". This is consistent to the PDD, the HCA and the MOC.</p> <p>The LOA is unconditional. The project participant from Sweden is Tricorona Carbon Asset Management Pte Ltd. This company is also listed in the PDD.</p> <p>The DOE could not observe that any other entity is approved as PP but not listed in the PDD.</p> <p>The documents provided are following all CDM rules and are therefore accepted.</p> <p>CAR is closed.</p>		

Finding	A1
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	A2
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP is requested to clarify (and correct the PPD accordingly) if "Pte Ltd" is with dots (as per Annex 1) or without (as per section A.3.)
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The dots were deleted in Annex 1 of the revised PDD.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PDD has been revised accordingly. The correct company name is Tricorona Carbon Asset Management Pte Ltd. This has been confirmed by means of checking the official website of the respective company: <a href="http://www.tricorona.com/contact/6/157/">http://www.tricorona.com/contact/6/157/</a> (access: 2011-06-20). The dots to the company name in the Annex have been deleted. Section A.3. and Annex 1 in the PDD are internally consistent. CL is therefore closed out.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	A3
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The technology transfer to a country with 5 <sup>th</sup> highest installed capacity of wind turbines in the world is questionable (World Wind Energy Report 2010, page 8). In addition, Vestas is also producing in India (refer to <a href="http://www.vestas.com/en/about-vestas/find-vestas.aspx">http://www.vestas.com/en/about-vestas/find-vestas.aspx</a> ; access 2011-05-27). Hence, PP is requested to clarify why technology is transferred. In addition, the link provided to the sustainability indicators is not working. Correction is requested.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The wind turbine type used for this project is produced in Denmark. The PDD is corrected accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	An e-mail from the wind turbine manufacturer Vestas could proof that parts of the WTGs have been imported and were therefore not constructed in India. <sup>/TTD/</sup> Hence, TÜV NORD comes to the conclusion that technology has been transferred. The e-mail referenced has been assessed as reliable, since it is addressed to the company and an employer thereof. The statement in the PDD is therefore confirmed.

Finding	A3
	CL is closed.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	A4
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP is pointing out that the project has not been started construction. As per oral confirmation this is not correct. Revision is requested. The guidance further requires information about the type and level of service provided and about monitoring system. If information is available it should be included in the PDD.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	To date, the project has barely started construction. The monitoring equipment (normal electricity meters) and their location have not yet been decided on. They will for sure be in line with relevant national and sectoral standards and the requirements of ACM0002. The PDD is corrected accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>According to the project implementation schedule as per the Erection and Commissioning Agreement the proposed project is almost implemented (e.g. erection wind turbines from March to July). Hence, the statement as provided above "To date, the project has barely started construction." cannot be considered as correct.</p> <p>In addition information about the type and level of service provided as stated in the finding above has not been incorporated.</p> <p>CL is still open.</p>
<b>Corrective Action #2</b>	To date, only 12 turbines are erected. The PDD has been changed to read "the project is still under construction". The type and level of service provided have been included.
<b>DOE Assessment #2</b>	<p>According to the implementation schedule<sup>/PIS/</sup> the implementation status as provided in the response above is reasonable. According to this schedule the project is expected to be commissioned by end of August. Hence, explanation above is accepted.</p> <p>Further the PDD has been revised providing the information about the expected amount of electricity supplied to the grid as per the guidelines for completing a PDD.</p> <p>CL is closed out.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	A5
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b>	Section A.4.5.: PP is requested to provide a written affirmation that public

Finding	A5
<i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	funding is not part of the project activity.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The evidence of equity and bank loan contracts up to the amount of the total costs has been provided, proving that there is no public funding involved.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PP provided the financing plan of the project activity. By means of checking the document it could be confirmed that ODA is not involved in financing./FP/ The document is provided by Clifford Chance, a reputable global consulting company. Based on this third party evidence TÜV NORD comes to the conclusion that ODA is not part of financing. CAR is closed.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B1
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Section B.2.: PP is requested to clarify where the third criterion (grid characteristics) is derived from. In addition the abbreviation "NEWNE" shall be specified.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The third criterion has been removed. NEWNE means "Integrated Northern, Eastern, Western, and North-Eastern regional grids" in line with the official definition given by the Indian Central Electricity Authority. The PDD is corrected accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	OK, PDD section B.2. has been corrected as per the justification provided by PP above. The third criterion has been deleted as it is not derived from the applied methodology version and calculation tool for GEF. The meaning of the abbreviation "NEWNE" is "Integrated Northern, Eastern, Western, and North-Eastern regional grids". The Indian country is divided into 2 main grids which is the South Grid and the NEWNE Grid. The correctness is confirmed by local expertise of the proposed project and by mean of checking the the official published "CO <sub>2</sub> Baseline Database for the Indian Power Sector - User Guide", Version 6.0, March 2011, Ministry of Power, CEA.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B2
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR

Finding	B2
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Section B.3.: The PP should justify and include this information in the PDD why the NEWNE grid has been identified as the correct spatial boundary.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The NEWNE grid has been identified as the correct boundary, in line with the Indian Central Electricity Authority's delineations (see <a href="http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver6.pdf">www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver6.pdf</a> , page 4). The PDD is corrected accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	As per the above user guide, which has been checked by the validation team, it is confirmed that the grid boundary is correctly chosen. Gujarat, the province where the proposed project is located, is part of the western area which is associated to NEWNE Grid. In conclusion, the PP provided the correct information and revised the PDD correspondingly.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B3
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP provided data for emission factor calculation in section B.6.1., B.6.2. and B.6.3. as well as in a XLS calculation sheet. This data is derived from the Central Electricity Authority from India, CO <sub>2</sub> Baseline Database, Version 5.0, Nov. 2009. The validation team observed that the most recent available database is Version 6 from March 2011. Since the project has been published in May 2011, the calculated EF is wrong as per the grid emission factor tool, page 5. The correctness and conservativeness of the baseline could therefore not be validated.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The PDD is updated with version 6, the exact link to the database is <a href="http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm">www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm</a>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The link provided in the PDD refers to the database of the Indian government where the raw data and calculation of the emission factor is transparently provided. The XLS calculation has been checked and verified. It is the latest applicable data at the time of validation and therefore valid. CAR is closed.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B4
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Finding	B4		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The source where the net electricity generation is derived from could not be undoubtedly identified. PP is requested to provide all sources, if possible, in the following scheme: Document name, page, author and date. This will ensure a more transparent way of providing information and simplifies the validation.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The source of net electricity generation has been provided. PP is taking the 1-year period Net Energy (GWh/y) at certainty level of 90%, same basis with the bank.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The net electricity generation as stated in the PDD is 268,177 MWh. This exact value could not be tracked in the provided evidence: "Wind resource and Energy Yield Assessment" prepared by PB Power Group. PP further claims that the value is based on a 90 % certainty level. PP is arguing that this value has been chosen to apply for bank loan. However, the document substantiating that 90 % is utilized for loan application is not provided. Hence, CAR cannot be considered as closed out. In addition, it should be clarified why 90 % is chosen?		
<b>Corrective Action #2</b>	<p><u>Generation number</u></p> <p>(1) All 51 WTGs will be commissioned in 10 batches, with 5 units per batch for the first 9 batches and 6 units for last batch.</p> <p>(2) Vestas guaranteed availability level at the decision date: 92% from commissioning of last batch, and 96% thereafter. Production estimation from technical advisor is based on availability guaranteed of 96%. Some adjustment was made to reflect 92% availability factor during the initial period.</p> <p><u>90% certainty level</u></p> <p>Debt sizing criteria under the financing documents is based on 90% certainty level. Please refer to Financing Term Sheet shared earlier, Page 7 Repayment.</p>		
<b>DOE Assessment #2</b>	<p>The implementation schedule has been checked by the verification team to confirm that the commissioning of the 10 batches is correctly considered in the IRR calculation.<sup>/PIS/</sup> The availability factors have been substantiated and shown in the O&amp;M Agreement.<sup>/OMA/</sup> In addition an e-mail has been provided to the project owner showing the same figures.</p> <p>The financing term sheet has been checked.<sup>/BLA/</sup> It could be confirmed by the validation team that the scenario of 90 % certainty level is the base for the bank loan agreement. Hence, TÜV NORD accepted the assumed net electricity generation of 268,177,083 kWh/y, since it is in line with EB 48, Annex 11 paragraph 3 (a). In addition this parameter has been determined by a qualified engineering company who developed the wind yield assessment: Parsons Brinckerhoff Asia Ltd., PB Power Group.</p> <p>This is in line with EB 48, Annex 11 paragraph 3 (b).</p> <p>In conclusion, the validation team assessed the net electricity generation as reliable and in line with the CDM requirements based on the evidence provided.</p>		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input type="checkbox"/> The project complies with the requirements</p>		

Finding	B5		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Even though information is addressed that fossil fuel fired power plants serving the grid is utilized to calculate EF, PP did not provide information about the specific technologies serving the grid. Correction is requested, additional information can be included in Annex 3.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The baseline database from India's Central Electricity Authority contains detailed information on all fossil fuel fired power plants serving the grid and utilized to calculate the emission factor. The information is directly available at <a href="http://cea.nic.in">http://cea.nic.in</a> and referred to in the PDD.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The internet link is not specific enough referring to the exact source. CAR not yet closed out.		
<b>Corrective Action #2</b>	The exact link is <a href="http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm">www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm</a>		
<b>DOE Assessment #2</b>	The web link provided has been checked. TÜV NORD confirms that it provides the latest available emission factor calculation of the respective Indian grid at the time of PDD submission for global stakeholder consultation. In addition to the link which is publicly available the XLS file is attached as separate document in a traceable manner to the request for registration. The requirements as stipulated in the guidelines for completing CDM PDD are therefore fulfilled. The content of the PDD meets the requirements. CAR B5 is closed.		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

Finding	B6		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In general the basic assumptions of the project activity shall be incorporated in 1 XLS tab. Based on this the PP shall conduct the financial analysis providing the formulae sourced with parameters from basic input tab. The basic parameters shall be referenced in the same fashion as expressed in CAR B4. If possible the PP is requested to backup the basic parameters with additional sources. Example: Cell D6 in tab "cashflows": The following formula is provided: =Parameters!\$B\$4*0,00514582184712385. Question arises where the value 0,00514582184712385 is derived from. It is expected that the mentioned value is addressed in the basic parameter tab.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The excel file has been updated accordingly.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-</i>	Ok, the updated XLS file fulfils the CDM requirements. All cells are traceable and unprotected. The calculations are mainly based on a sheet		

Finding	B6
1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	including all assumptions. The calculations have been checked and are assessed correct.
<b>Conclusion</b> Tick the appropriate checkbox	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B7
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> Describe the finding in unambiguous style; address the context (e.g. section)	The XLS calculation only provides a full year operation of 18 years. PP is requested to clarify why 20 years full operation has not been considered.
<b>Corrective Action #1</b> This section shall be filled by the PP. It shall address the corrective action taken in details.	The XLS calculation has been corrected accordingly.
<b>DOE Assessment #1</b> The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	20 years of full operation have been considered. The XLS file has been corrected correspondingly. Since the lifetime is determined to be 20 years and cash flow analysis for wind farms are generally conducted about a lifetime of 20 year, the correction is assessed as appropriate.
<b>Conclusion</b> Tick the appropriate checkbox	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B8
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> Describe the finding in unambiguous style; address the context (e.g. section)	PP is requested to provide the source of 20 years operation lifetime.
<b>Corrective Action #1</b> This section shall be filled by the PP. It shall address the corrective action taken in details.	EPC contract mentions that the design lifespan of the turbines is 20 years.
<b>DOE Assessment #1</b> The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	As per the supply agreement between Vestas (manufacturer) and the project owner, the manufacturer refers to an operational lifetime of at least 20 years. <sup>/EPC/</sup> The reasonability of the expected lifetime is further cross checked with the following weblink: <a href="http://www.wind-energy-the-facts.org/documents/download/Chapter3.pdf">http://www.wind-energy-the-facts.org/documents/download/Chapter3.pdf</a> (access: 2011-06-20), drafted by the European Wind Energy Association (EWEA). In addition the type





Finding	B8
	certificate of the installed WTG issued by an independent certification body shows the same value. <sup>/TCW/</sup> These 3 independent sources provide TÜV NORD with sufficient confidence that the lifetime of 20 years is correctly chosen. CL is closed.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B9
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PP is requested to clarify why a residual value has not been taken into account considering that a lifetime of 25 years is reasonable in accordance to EB 50 Annex 15 but only 18 years have been considered.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The XLS calculation has been corrected accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Even though the operational lifetime is defined to be 20 years as per CL B8 above, the PP took a residual value into account for the sake of conservativeness. It is determined as 5 % of total investment and considered as cash inflow in the last year. The value is deemed acceptable based on the experiences of the validation team in the wind energy sector. CL is closed.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B10
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The validation team could not clearly validate if inclusion of income tax is appropriate since the PDD does not define whether the IRR is calculated before or after tax. PDD need to be corrected before forming an opinion.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The benchmark and IRR are both post tax. The PDD is corrected accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure,</i>	Ok, correction has been provided. Calculated IRR and benchmark are both post tax and hence comparable.

Finding	B10
<i>additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B11
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PP is requested to provide the board meeting minutes and all relevant sources for input parameters of the financial analysis to ensure that the validation team can provide an assessment whether the values applied are valid on 2010-09-27.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> <li>Board meeting minutes</li> <li>Installed capacity – Refer to B8 (Para 2, 3<sup>rd</sup> bullet point)</li> <li>Electricity generation – Refer to B4</li> <li>Electricity tariff</li> <li>Generation Based Incentives, registration fee</li> <li>Capital expenditures</li> <li>Upfront fee, monitoring fee, commitment fee, IDC, initial debt service reserve account</li> <li>Corporate tax rate and minimum alternate tax rate  <a href="http://indiabudget.nic.in/ub2010-11/fb/bill91.pdf">http://indiabudget.nic.in/ub2010-11/fb/bill91.pdf</a>  <a href="http://indiabudget.nic.in/ub2010-11/fb/bill2.pdf">http://indiabudget.nic.in/ub2010-11/fb/bill2.pdf</a>  <a href="http://bit.ly/indiaincomeact_MATrate">http://bit.ly/indiaincomeact_MATrate</a> </li> </ol>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> <li>The board decided to invest in the project on 2010-09-27 considering the additional benefits from CERs.</li> <li>Installed capacity could not be verified since the EPC is not dated.</li> <li>The net electricity generation is derived from the Wind Resource and Energy Yield Assessment issued on 2010-09-07.</li> <li>The electricity tariff has been derived from the tariff order issued by Gujarat Electricity Regulatory Commission in the beginning of 2010 available under the following weblink:  <a href="http://www.gercin.org/renewablepdf/en_1303211765.pdf">http://www.gercin.org/renewablepdf/en_1303211765.pdf</a> (access 2011-06-20). </li> <li>Generation Based Incentives granted by the Indian Government from 2009-12-17: <a href="http://mnre.gov.in/gbi-scheme.htm">http://mnre.gov.in/gbi-scheme.htm</a> (access 2011-06-20).</li> <li>Capital expenditures are derived from the Supply Agreement<sup>/EPC/</sup>, Erection and Commissioning Agreement<sup>/ECA/</sup> and Development Agreement<sup>/DA/</sup> between the project owner and Vestas. However, the documents are dated 2010-12-02, so after the management decision. Clarification is requested.</li> <li>For the Fees the date of doc provided is 2010-10-06 which is after the CDM management decision.</li> <li>For tax rates no dates are provided.</li> </ol> <p>Based on the information provided it cannot be assessed on which databases the management decision was taken and whether the</p>

Finding	B11
	documents were valid.
<b>Corrective Action #2</b>	<p>2. Installed capacity (refer definition of WTG in Page 15)</p> <p>6. To finalize and sign the execution version of such agreements is a long process. The date is only a bit more than two months after the board decision. Clearly, these costs were known to the board at time of decision making and did not change between 27 September and 2 December. However, we have added the memorandum of understanding with Vestas dated 2010-06-10. This document shows the capital expenditures as 6273 Mio Rs which is higher than the finally agreed 6196.5 Mio Rs. In compliance with the CDM rule that the data which was available at the time of management decision has to be applied the figure from the memorandum of understanding (6273 Mio Rs) was taken and the IRR has been slightly reduced.</p> <p>7. The document's date is only 9 days after the board decision. However, we have attached the Indicative Term Sheet provided by HSBC on 2010-09-24 (before the investment decision) which show the same values.</p> <p>8. Corporate tax rate and cess is announced during Union Budget 2010-2011. It is effective from 1 April 2010 (please refer to Cess supporting document, first para).</p>
<b>DOE Assessment #2</b>	<p>2. The installed capacity has been substantiated with the execution version of the supply agreement between PP and Vestas.<sup>/EPC/</sup> The document is dated 2010-12-02 and signed and stamped. It is reliable and clearly confirms the installed capacity.</p> <p>6. The management decision is taken on 2010-09-27 while the contract with the manufacturer has been signed on 2010-12-02. The explanation provided by PP is reasonable. Between the decision and the validity of the contract 2 month past. TÜV NORD accepted the explanation since it is the case that due to the negotiation process the value of the contracts should be available to the decision makers in advance.<sup>/MDI/, /EPC/, /ECA/, /DA/</sup> In addition the memorandum of understanding has been forwarded which substantiate the investment costs in the IRR calculation. The figure provided by the PP above has been checked. The validation team accepted the approach of utilizing the lower value for the sake of conservativeness, even though it was only documented after the investment decision. However, since the MOU is dated before the decision and clearly show a higher value TÜV NORD assessed the approach as acceptable.</p> <p>7. The Indicative Term Sheet from HSBC has been checked by the validation team. It is dated 2010-09-24 which is 3 days before the management decision.<sup>/ITM/</sup> The validation team could confirm that the figures presented are the same as in the valid contract.<sup>/FTS/</sup> Hence, the figures presented in the financial analysis have been accepted.</p> <p>8. The income tax rate was available before the management decision, which could be confirmed by means of checking the provided web link. The MAT came into effect after the management decision (April 2011).<sup>/MAT/</sup> However, it was already publicly announced in beginning of 2010, well before the management decision. Hence, it is assessed as applicable. All issue have been sufficiently explained and backed-up with documented evidences. Therefore, CAR is closed.</p>

Finding	B11
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B12
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	With regard to the financial analysis the following has been observed: <ol style="list-style-type: none"> <li>1. The PP is requested to clarify the meaning of the term "Non-capitalised Project Cost" included in tab "Parameters" of the XLS file.</li> <li>2. The PP shall provide a clear breakdown of all costs.</li> <li>3. On PDD page 8 "table sensitivity analysis: Decrease in total costs" it is indicated that "Interest % is likely to be higher". PP is requested to clarify this statement.</li> </ol>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> <li>1. "Non-capitalised Project Cost" refers to Initial Debt Service Reserve and registration fee for Generation Based Incentives. The XLS is updated accordingly.</li> <li>2. XLS is updated accordingly.</li> <li>3. The PDD is corrected accordingly.</li> </ol>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PP revised the XLS file to be more transparent. All Revenues and costs are detailed shown, described and sourced. Transparency is ensured. For a detailed assessment of each financial parameter please refer to Annex 3 of this report. CAR is closed.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B13
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	With regard to the common practice analysis the PP shall provide evidence that 15 MW installed capacity can be considered as a benchmark for better negotiation conditions.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The evidence that 15 MW can be considered a meaningful threshold is that the CDM itself distinguishes between projects with installed capacity higher or lower than 15 MW. It is obvious that projects with higher installed capacity have better economies of scale. The PDD has been amended accordingly.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-</i>	Ok, the explanation is accepted. Through economies of scale and even through the distinction of CDM regulations all projects above 15 MW are considered in the common practice analysis.

Finding	B13
1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	CAR is closed. It should be noted that an incompleteness notification leads to the application of the version 6.1.0 of the additionality tool. This has resulted in changing the common practice approach which is shown in CAR B17.
<b>Conclusion</b> Tick the appropriate checkbox	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B14																				
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR																		
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	With regard to the common practice analysis the following has been observed: Even though other projects not applying CDM have been identified the information could not be confirmed by the validation team since the sources are not adequately addressed. Therefore PP is requested to revise the PDD and provide the evidence.																				
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The PDD is corrected accordingly.																				
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>All projects listed have been checked. TÜV NORD confirms that the installed capacities are all above the limit of 15 MW. The links and sources provided could be tracked and information is publicly available.</p> <p>In addition the validation team has checked latest available figures of the electricity generation facilities in the state of Gujarat. As per the annual report of the Central Electricity Authority 2009-2010 the following capacities have been installed as of 2010-03-31:<sup>/ARE/</sup></p> <table><tr><th>Type</th><th>Capacity (MW)</th><th>%</th></tr><tr><td>Thermal</td><td>10920.86</td><td>78.5</td></tr><tr><td>Nuclear</td><td>559.32</td><td>4.0</td></tr><tr><td>Hydro</td><td>772.0</td><td>5.5</td></tr><tr><td>Renewables</td><td>1655.91</td><td>12.0</td></tr><tr><td>Total</td><td>13908.09</td><td>100</td></tr></table> <p>Besides wind the figures for renewable also include small hydro power, PV, power from biomass and waste. Even though the main share would be wind the share on the total installed capacity is still considerably low. Hence, TÜV NORD comes to the conclusion that the project is not common practice.</p> <p>CAR is closed.</p> <p>It should be noted that an incompleteness notification leads to the application of the version 6.1.0 of the additionality tool. This has resulted in changing the common practice approach which is shown in CAR B17.</p>			Type	Capacity (MW)	%	Thermal	10920.86	78.5	Nuclear	559.32	4.0	Hydro	772.0	5.5	Renewables	1655.91	12.0	Total	13908.09	100
Type	Capacity (MW)	%																			
Thermal	10920.86	78.5																			
Nuclear	559.32	4.0																			
Hydro	772.0	5.5																			
Renewables	1655.91	12.0																			
Total	13908.09	100																			

Finding	B14
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B15
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>With regard to the common practice analysis the following has been observed:</p> <p>No discussion is provided under sub-step 4b to describe and justify the distinctions between the two projects identified and the proposed project. Correction is necessary.</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The PDD is corrected accordingly. Actually, the SREI project is under validation too and hence also a CDM project: <a href="http://cdm.unfccc.int/Projects/Validation/DB/K0ZTRSQUQH8WZN76AA11ZAZW16BPNH/view.html">http://cdm.unfccc.int/Projects/Validation/DB/K0ZTRSQUQH8WZN76AA11ZAZW16BPNH/view.html</a>. There is only one project similar to this proposed project, which receives VERs and produces electricity for captive demand. The analysis clearly shows that the installation of wind turbines is not widely observed in Gujarat.</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The information provided by the PP has been verified by the validation team. The internet links provided by the PP show that the SREI project is also seeking for CDM benefits.</p> <p>In addition the VCS (Voluntary Carbon Standard) database has been checked and a VCS validation report from an independent entity confirms that the other similar project is mainly captive generation and applying verified emission reductions credits under the VCS scheme.</p> <p>Both sources (from UNFCCC and VCS) are publicly available. Both sources are evaluated to be reliable.</p> <p>Hence, distinctions between the proposed project and similar identified projects are well elaborated.</p> <p>CAR is closed out.</p> <p>It should be noted that an incompleteness notification leads to the application of the version 6.1.0 of the additionality tool. This has resulted in changing the common practice approach which is shown in CAR B17.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding	B16
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>With regard to the section B.6.1. the following has been observed:</p> <ol style="list-style-type: none"> <li>1. The formulae provided for BE seem to be derived from an outdated version of ACM0002. Correction is required.</li> <li>2. The same applies to the emission factor tool. While a 7 step</li> </ol>



Finding	B16
	<p>approach is shown in the latest applicable version 2, the PDD only includes a 6 step approach.</p> <ol style="list-style-type: none"> <li>Justification is not provided why simple OM has been used even though the tool defines clear requirements (page 5)</li> <li>For OM the PP did not define whether the ex-ante or ex-post approach has been utilized.</li> <li>Different approaches to calculate the simple OM are defined and need to be chosen. However, information is missing in the PDD.</li> <li>Equations for EF calculations are not provided.</li> </ol> <p>Corrections shall be conducted.</p>
<p><b>Corrective Action #1</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	<p>The PDD is corrected accordingly.</p>
<p><b>DOE Assessment #1</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<ol style="list-style-type: none"> <li>Still not OK EG<sub>PJ,y</sub> shall be transferred to the applicable parameter for Greenfield projects.</li> <li>Step 1: Why is the grid defined as “Central Region” when the whole PDD refers to the NEWNE Grid? Are there any electricity imports from other grids? If yes, how have they been considered? Step 2: Ok, in line with the tool and available raw data for EF calculation. Step 3: No selection has been provided. Step 4: Ok, the approach is in accordance to the approach which has been published by the DNA of India. Step 5: Why has option B instead of option A been chosen, i.e. it shall be substantiated that the set of power units comprises the larger annual generation is 20 %? Further, has option 1 or 2 been chosen? Step 6: The BM has been calculated as per the approach provided by the DNA of India. Hence, the validation team accepted it. Step 7: Ok, in line with the tool and available raw data for EF calculation.</li> </ol>
<p><b>Corrective Action #2</b></p>	<ol style="list-style-type: none"> <li>The PDD is revised accordingly.</li> <li>Step 1: The PDD is revised accordingly. Import adjustments are based on approach (c) i.e. the simple operating margin emission rate of the exporting grid. Step 3: The PDD has been revised accordingly. Simple OM is chosen because low-cost/must-run resources constitute less than 50% of total grid generation Step 5: the 20% have been used in line with the CEA’s explanations, see the latest user guide on page 9. Option 1 has been chosen i.e. fixed BM ex ante. The PDD has been updated accordingly.</li> </ol>
<p><b>DOE Assessment #2</b></p>	<ol style="list-style-type: none"> <li>Ok, the PDD has been revised. The correct grid is indicated. The formula indicated reflects the requirement of the methodology. Issue is assessed as closed.</li> <li>Step 1: OK, the PDD has been revised. Information provided is confirmed. Step 3: The PDD has been revised. It is confirmed that simple OM can be applied since low-cost/must-run sources constitute less than 50 % of electricity generation. The requirement of the methodology is met. Step 5: The PDD has been corrected providing a link to the relevant information which is published by the Indian government. All calculations and data is provided by the Indian government.</li> </ol>

Finding	B16
	<p>The data is publicly available and accessible by everybody. TÜV NORD confirms that the correct data has been chosen for the EF calculation and the correct EF has been utilized to determine the emission reductions.</p> <p>In conclusion, CAR is closed.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding	B17
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The version of the additionality tool is not the latest one.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The version of the additionality tool has been updated to 6.1.0. The impact is mainly referring to the change of the common practice analysis.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Ok, the PDD references the correct version of the additionality tool. As indicated by the PP above, the analysis has been revised considering the new approach. 5 projects have been correctly identified in a capacity range between 45.9-137.7 MW in the state of Gujarat which are commissioned after June 2003 due to the implementation of the Electricity Act. With the Electricity Act the electricity market in India was reformed leading to a comparatively different investment environment as before 2003. Hence, considering projects which are commissioned after this date is in line with the CP requirements and therefore accepted. In line with the latest guidelines on common practice from EB 69, Annex 8 only wind power projects have been considered.</p> <p>By means of checking the Indian Windpower Directory from 2011 it could be confirmed that the 5 projects are correctly chosen.<sup>/WPD/</sup> The Directory is summarizing all wind power projects which are under commission. It is a publicly available document provided by a consulting company under the supervision of the Indian government. Hence, it is assessed reliable. By means of checking the UNFCCC website it could be confirmed that all these projects are registered under the CDM or applying CDM. Hence, no any project remains which is similar to the proposed activity. Thus, the validation team concluded that it is not common practice.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements





Finding	C1		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The start date of the crediting period cannot be met.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The start date of the crediting period has been revised to 2013-06-01.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	OK, the crediting period start date is reasonably chosen.		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

## 5 VALIDATION ASSESSMENT SUMMARY

### 5.1 General Description of the Project Activity

#### 5.1.1 Participation

##### LOA

India is the host country. The Annex 1 country is Sweden. The letter of approval<sup>/HCA/</sup> has been issued by the Indian DNA named Ministry of Environment and Forests. The LOA of Sweden is issued by the Swedish Energy Agency, which serves as the DNA. The names of the DNAs have been cross checked with the publicly announced information on the UNFCCC website. No deviation has been observed. Both letters have been provided by the PP as scanned versions. The letters are in their appearance similar to LOAs issued in the past. Thus, the DNAs and the letters thereof are assessed authentic and reliable.<sup>/LOA/</sup>

The precise title as indicated in the LOA, PDD and all other relevant documents is: "Jangi 91.8 MW wind farm in Gujarat"

All documents have been checked and verified to be consistent.

##### Project Participants

The PP from India is GP Wind (Jangi) Private Limited. The PP from Sweden is Tricorona Carbon Asset Management Pte Ltd. Both parties are clearly announced in the PDD section A.3. and Annex 1. Furthermore both parties are appointed as project participants as per the LOA of each country.<sup>/LOA/</sup>

#### 5.1.2 Contribution to Sustainable Development

The LOA of India clearly states that the project contributes to the sustainable development targets of India. In addition the PP summarized several sustainable development opportunities related to the proposed project activity in PDD section A.2.

#### 5.1.3 PDD editorial Aspects

The PP applies the latest available version 3 of the PDD report template available on the UNFCCC website.<sup>/unfccc/</sup> The published format has been compared to the filled version of the PP and no deviations have been observed.

The latest version of the guidance for completing PDD is available from EB 41 Annex 12 which is version no. 7. The PDD has been filled in accordance to this guidance.

Deviations have been observed during the validation process and have been addressed in CARs and CLs which could be closed out by the PP.

#### **5.1.4 Technology to be employed**

The project is a Greenfield project activity. In the PDD section A.2 and A.4.3, technical aspects of the proposed project activity are described. The description is found to be in accordance with the latest PDD guidelines and found to be complete and accurate. It is confirmed through document check<sup>WYA/EPC/</sup> that the description provided is correct and is in line with the actual conditions. Parts of the technology are transferred from Denmark to India. Hence, technology transfer is involved in the proposed project activity. Moreover as the wind turbines harness renewable sources of energy viz. wind power for electricity generation, the technology employed is environmentally safe and sound.

#### **5.1.5 Small Scale Projects**

The proposed project activity is large scale project activity.

### **5.2 Project Baseline, Additionality and Monitoring Plan**

#### **5.2.1 Application of the Methodology**

The selected baseline methodology is the approved baseline methodology “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (ACM0002 Ver.12.3.0), available on UNFCCC web site. The applied methodology is valid from 17<sup>th</sup> September 2010 onwards.

The selected baseline methodology, i.e., ACM0002 is correctly applied to this type of wind project. All the applicability criteria of the applied methodology are appropriately justified in section B.2 of the PDD.

The project is a newly built (Greenfield) wind farm which utilizes wind to generate electricity which is supplied to a regional grid, served by other power plants.

Moreover as assessed by the DOE during desk review of the technical design of the project and signed contracts there are no other emissions involved with the proposed project activity except listed in the methodology.

#### **5.2.2 Project Boundary**

As required by the applied methodology and latest PDD guidelines project boundaries are described and depicted correctly in the PDD. It has been confirmed

by means of document review of the validation team. Carbon dioxide is the only gas taken into account for the baseline emission which complies with the applied methodology. There are no other sources affected by the project. The boundary encompasses all power plants connected to the Northern, Eastern, Western and North-Eastern Regional Grid of India (NEWNE) and the project activity site. Project boundary description complies with the requirements. The definition is as per the central electricity authority of India.

### 5.2.3 Baseline Identification

The selected baseline methodology is the approved baseline methodology "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002 Ver.12.3.0).

The selected baseline methodology is correctly applied to this type of wind project. The baseline scenario under the adopted methodology is "*Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"*".

Baseline emissions include only CO<sub>2</sub> emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions are calculated by multiplying the electricity baseline emission factor which is the grid emission factor (EF<sub>y</sub>) in this case, and the net electricity exported to the NEWNE grid (EG<sub>facility,y</sub>). The grid emission factor (EF<sub>y</sub>) is estimated as a combined margin (CM), consisting of the combination of the operating margin (OM) and the build margin (BM) factors. In this case the Combined Margin (weighted average of Simple Operating Margin and Build Margin) is estimated based on three years generation weighted average (07-08, 08-09, 09-10) of Simple Operating Margin and Build Margin of current year (09-10) in line with steps of the tool to calculate the emission factor for an electricity system (ver. 02.2). Both the value of Simple Operating Margin and Build Margin are selected under ex-ante approach. The grid boundary w.r.t the connected state grid is NEWNE Regional Grid of India.

In accordance with of tool to calculate the emission factor for an electricity system (ver. 02.2.1), follows the 6 step approach to identify the correct emission factor. The simple OM is applied to calculate the OM emission factor since the grid is served by less as 50 % of low-cost/must-run hydro power plants. The same fact is also considered by the Central Electricity Authority {Ref the user guide for CO<sub>2</sub> Baseline Database for the Indian Power Sector (version 06, March 2011)}<sup>/cea/</sup>.

In accordance with tool to calculate emission factor for an electricity system weight factors of  $w_{OM} = 0.75$  and  $w_{BM} = 0.25$  have been used and the resultant grid emission factor (EF<sub>grid,CM,y</sub>) works out as 0.9491 tCO<sub>2</sub>/MWh. The calculation of EF<sub>grid,CM,y</sub> is

publicly available and published by the Central Electricity Authority on its web-site<sup>/cea/</sup>. The validation team is convinced of the result of the emission coefficient calculation.<sup>/XLS/</sup> It is deemed to be adequate and transparent.

The annual net exportable power generation is estimated to be 268,177 MWh.

Altogether the project activity reduces emissions of **2,545,270** tCO<sub>2</sub>e over the ten year fixed crediting period.

Relevant national & sectoral policies have been considered such as decisions of the Gujarat Electricity Regulatory Commission and the energy policy of the Government of India. The project is also in line with New Renewable Energy Policies.

TÜV NORD comes to conclusion that the chosen baseline scenario is plausible, conservative and in accordance with the applied methodology.

#### **5.2.4 Calculation of GHG Emission Reductions**

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO<sub>2</sub>) emissions by generating electricity from a renewable energy wind project, which will be exported to the NEWNE Regional Grid of India.

There are no GHG emissions arising from the project being a wind project. Hence, the project emissions are zero. As per the methodology ACM0002 version 12.3.0, there are no emissions related to leakage in this project.

The calculation approach and calculation of the baseline emission and emission reduction are documented in section B.6.3 of the PDD. For assessment please refer to section 5.2.3 of this report.

Acc. to the final PDD the project is expected to reduce emissions of **2,545,270** tCO<sub>2</sub>e over a 10 year fixed crediting period. The DOE has assessed the emission reduction calculation sheet<sup>/XLS/</sup> and parameters used therein, and found that estimated emission reductions are according to the applied methodology and tool and thus concluded them plausible and conservative for the proposed project activity

#### **5.2.5 Additionality Determination**

##### **Consideration of CDM in decision making (if project start before validation)**

As per the documents made available to the validation the project start date is on 2010-12-02. This is evidenced by the equipment supplier agreement<sup>/EPC/</sup>, operation and maintenance agreement<sup>/OMA/</sup>, Erection and Commissioning Agreement<sup>/ECA/</sup> and the development agreement. All these documents are dated 2010-12-02, since these have been contracted with Vestas the manufacturer of the wind turbines.

As per EB62 Annex 13 paragraph 2 this project qualifies as new activity. Hence, the PP has to inform the UNFCCC and the Indian DNA in writing that the project seeks for CDM benefits within 6 month from the defined starting date. This has been done. Evidence provided are the official notification letter to the DNA and subsequent e-

mail communication between the project owner and the DNA in May 2011.<sup>/NOD/</sup> In addition the UNFCCC has been informed on 2010-09-14 in written form well before the project starting date. The UNFCCC website and the notification form from the PP have been checked.<sup>/unfccc/, /NOU/</sup>

Hence, TÜV NORD concluded that the requirements for prior consideration as set out in EB 62 Annex 13 are met.

### **Application of methodology / methodological tools**

The project is a large scale project. Therefore, in accordance with ACM0002 version 12.3.0, the additionality was demonstrated based on the valid version of the “Tool for demonstration and assessment of additionality (Ver 06.1.0)”. This is appropriate for the assessment of additionality for this project activity.

### **Alternatives**

The project developer has considered two alternatives for the project activity, viz.,

- i) the proposed project activity not undertaken as a CDM project activity;
- ii) no project activity, in which case equivalent amount of electricity would be produced by the grid electricity system through its currently running power plants and by new capacity addition to the grid (which are mostly thermal), i.e., continuation of current situation.

With regard to the fact that the project activity under consideration is a wind power project, TÜV is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- the Electricity Act 2003 does not restrict or empower any authority to restrict the fuel choice for power generation;
- the applicable environmental regulations do not restrict the use of wind energy; and
- there is no legal requirement on the choice of a particular technology.

However, of the two alternatives identified, alternative (i) cannot be considered realistic as further analysis in the following paragraph reveals that it is not economically feasible option. Hence, alternative (ii) alone could be justified as realistic, credible and plausible alternative to the PP. However, this alternative would result in higher GHG emissions.

## Investment analysis

The project is a large scale project. Therefore, the additionality of the project activity has been demonstrated using Additionality Tool (Ver. 6.1.0) and Guidance given vide Annex 5 of EB 62. This approach has been assessed to be appropriate for demonstration of additionality for this project activity.

### **Appropriateness of the financial indicator and investment analysis:**

The project owner had demonstrated that the project is not economically or financially feasible, without the revenue from the sale of certified emission reductions (conformity to paragraphs 108 (b) and 109 (c) of VVM 1.2). The project owner had chosen investment barrier and to demonstrate the barrier had selected the benchmark analysis and project IRR post tax as financial indicator. With regards to the fact that the project is funded by debt, and equity, project IRR is considered as appropriate financial indicator to demonstrate the additionality as it takes into account the return on both debt and equity. Moreover, the project IRR is invariably used by the banks and investors alike to gauge the investment-worthiness of the project. Since in this instant case, as subsequent section would reveal, baseline is outside the direct control of the project developer (grid connected power) and hence, the choice of the project developer is restricted to "*invest or not to invest*", the benchmark approach is most suited as per Guidance 19 of Annex 5 of EB 62.

### **Evaluation of Additionality:**

Project proponent has demonstrated through the investment analysis that the financial returns of the project activity are insufficient to justify the required investment. TÜV NORD has adopted a five-pronged strategy to ascertain the veracity of the conclusion drawn by the project proponent, viz.

- a) determining the suitability of the benchmark applied for the type of financial indicator presented;
- b) conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters;
- c) cross-checking the parameters against third-party or publicly available sources;
- d) assessing the correctness of computations carried out and documented; and
- e) subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.

Suitability of financial indicator and benchmark: The project proponent has chosen project IRR on post tax basis to demonstrate the additionality of the project. Additionality Tool (Ver. 06.1.0) permits the use of financial indicator, viz., IRR, for demonstrating the additionality using benchmark analysis. The tool permits the use of



either project IRR or equity IRR<sup>1</sup>. The project developer has chosen to demonstrate the financial unattractiveness of the project through project IRR. Since the project proponent is demonstrating the financial unattractiveness of the project, project IRR is appropriate, as it is often used by the project developers to make a decision on investing in the project. As such, selection of project IRR as financial indicator to demonstrate the additionality of the project is appropriate and conforms to the requirements of the Additionality Tool (Ver 06.1.0).

The management decided to invest in the project on 2010-09-27. The figures provided for the investment analysis are mainly from negotiation documents between the PP and the manufacturer, PP and the loan provider, the wind yield assessment from 2010-09-07 and governmental regulations available at the time of the management decision. The validation team checked the negotiation documents with the technology and service provider Vestas. The memorandum of understanding (dated 2010-06-10) shows a higher value than finally agreed upon.<sup>/MOU/</sup> The validation team checked the IRR also with the contracted values. However, it has only been slightly increased. The impact on the IRR is minor. The same applies to the financial term sheet. The Indicative financial Term Sheet (dated 2010-09-24) has been provided by the PP.<sup>/ITS/</sup> It shows the same figures as provided in the contract.<sup>/FTS/</sup> Also the O&M costs have partly been negotiated which could be clearly evidenced by e-mail communication or projected based expertise of the manufacturer and the PP.<sup>/EOMA/, /IM01/</sup>

The values applied in the financial analysis have been assessed as correct and appropriate.

Additionality tool (ver.06.1.0) states that the discount rates and benchmarks shall be derived from "Government/official approved benchmark, where such benchmarks are used for investment decisions"<sup>2</sup>, among others. However, it is imperative that the benchmark selected should be suitable for the type of financial indicator presented. The proponent has chosen the benchmark in accordance with EB 62 Annex 5 para 12 i.e. weighted Average Cost of Capital. The validation team checked the input data and found that the data used are from reliable and credible sources, methodology/formulae adopted are correct and the calculations are in order. It should be referred to Annex 3 of this report.

The benchmark chosen is suitable for the type of financial indicator selected, what is sought to be compared is the expected return on investment (project IRR) with the weighted average cost of capital which is in conformity with the Additionality Tool and conforms to guidance 112 (a) of VVM (1.2).

The project proponent has also demonstrated that the expected return from the project activity i.e. project IRR after tax (8.02 %) is lower than determined benchmark (11.80%).

#### **Parameters and assumptions used:**

<sup>1</sup> Tool for the demonstration and assessment of additionality (Version 06.1.0) p.7

<sup>2</sup> Tool for the demonstration and assessment of additionality (Version 06.1.0) p.7



The three important parameters, which determine the IRR of the project, are project cost, power generation and electricity price. The project cost includes, WEG cost, construction costs, financing costs etc. The financing cost consists of upfront and syndication fees payable to the bank as a percentage of debt for project along with interest during construction.

All the constituents of the project cost are based on the contracts with the WTG manufacturer and detailed estimation, whereas the financing cost is calculated based on the bank term loan sheet contracted with the loan providing credit institute. The tax rate is as per the service tax rate applicable at that time. The financing pattern yields a gearing of 70:30, which is normally accepted financing pattern for wind power projects. The profitability estimates of the project, which forms the basis for IRR calculation is based on installed capacity, plant load factor (PLF), power tariff, O&M cost, insurance cost, taxation. The installed capacity is a computed figures based on the number of WEGs installed and the capacity thereof.

The PLF works out to 33.3% at a 90 % certainty level as given in the wind yield assessment<sup>/WYA/</sup>, in contrast to 23% recommended by GERC in its order and hence it is conservative<sup>/ET/</sup>. Project developer has submitted the same PLF while applying for the loan as evidenced by the letter from HSBC dated 2010-10-06<sup>/FTS/</sup>. This complies with the requirements of the Guidelines for the reporting and validation of plant load factors (EB48, Annex 11). Power tariff i.e. Rs.3.56/kWh is based on the Tariff Order of GERC for Wind Power projects in Gujarat. In addition the project owner applies for generation based incentives as adder to the electricity tariff.<sup>/GBI/</sup> O&M cost and insurance cost are based on offer provided by e-mail<sup>/EOMA/</sup>. It should be noted that the O&M cost in total is about 2.5 % of total investment before escalation and 7.5 % in the last year. This is assessed as reasonable.

Interest is based on detailed computation forming part of the worksheet. The project proponent has adopted Companies Act recommended straight line depreciation for computing book profit and Income Tax Act stipulated WDV (written down value) depreciation for income tax calculation, which are accepted accounting methods. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules. The tax rate assumed corresponds to the tax rate prevailing at the time of taking decision.

### **Assessment of correctness of computation:**

The assessment involves checking the data input taken from quotation/documents, adoption of correct accounting principle and arithmetical accuracy. TÜV checked the quotation/ documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted with respect to the computation of interest during construction, block of assets, prorata expenses and tax computation are found to be in order. The arithmetical accuracy is also found to be correct.

The principle adopted by the project proponent for computing IRR is in conformity with the "Guidance on the Assessment of Investment Analysis" version 5 as

contained in annex 5 of EB 62 report. IRR has been computed for 23 years. In computing the IRR, the project proponent has taken into account profit after tax. This IRR has been compared against the WACC. Thus, the validation takes into account the guidance given vide paragraphs 95 and 111 (d) of VVM (1.2)

Based on the above, the IRR of the project works out to 8.02% in contrast to the benchmark of 11.80%. In the above background, TÜV is convinced that the project is additional and not a business-as-usual scenario. However, this conclusion was checked by subjecting the critical assumptions to reasonable variations.

### **Sensitivity analysis:**

The Guidance on assessment of investment analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation ( $\pm 10\%$ ). The project proponent has identified project costs, grid tariff and grid supply as the most critical assumptions. Accordingly, sensitivity analysis has been conducted to analyze the impact of a change in (a) decrease of project cost by 10% and (b) net generation increase by 10% and (c) increase of the tariff on the profitability of the project activity. The sensitivity analysis reveals that the benchmark of 11.80% will not be crossed if the parameters increase/decrease 10 %. A continual and favorable fluctuation of the input parameters is not expected. The contract of the total investment could be checked and it is slightly lower than the assumption. Therefore, the total investment will not change. The tariff which is fixed electricity Tariff Order for long time will also not change.<sup>/ET/</sup> The Electricity generation is estimated based on long-term wind availability measurements and therefore a significant continuous increase is also unlikely. Besides it is the highest PLF compared to other registered CDM projects in the same region (refer to Annex 3). The validation team therefore assessed that the additionality is robust.

### **Barrier analysis**

Not applicable.

### **Common practice analysis**

The common practice analysis has been conducted mainly on three main indicators the geographical region, the technology installed and the size.

The project is located in the state of Gujarat. India is divided in several states where the economical conditions differ from state to state. Different legal requirements and investment conditions leads to a different investment environment. Based on the local expertise of the validation team it is assessed suitable to define the regional

boundary as the state of Gujarat since e.g. the Gujarat Electricity Regulatory Commission sets the tariffs with the Tariff Order.<sup>/ET/</sup>

Only wind projects have been considered since this type of electricity production is different from regular production capacities like fossil fuel power plants or base load hydro power activities. The validation team assessed this as suitable and in line with EB 69 Annex 8 para 6.

In addition the PP correctly identified other project activities within the range of 45.9 - 137.7 MW which is in line with EB 69 Annex 8 para 5 (installed capacity 91.8 MW +/- 50%).

In total 5 projects have been identified. All applying for CDM or have been successfully registered as CDM projects. The sources of the identified projects have been carefully checked by the validation team. Mainly the Indian Windpower Directory 2011 and the UNFCCC website have been taken into account to assess the correctness. No project remains which is of similar nature but not applying CDM. Therefore, the validation team came to the conclusion that the project is not common practice in the state of Gujarat.

It should be further noted that the share of wind power generation (< 12 %) is comparatively low in Gujarat taking into account a share of 78.5 % provided by thermal power plants at 2010-03-31.<sup>/ARE/</sup>

## Summary

The summary of the additionality of the project activity is summarized below.

Step 1)	Argument PP	Assessment of the validation team	
1a	Project Alternatives		
	Alternative 1 - The proposed project activity not undertaken as a CDM project activity.	The alternatives presented are assessed to be appropriate and out of the two, second one could be justified as a realistic and credible alternative to the PP.	<input checked="" type="checkbox"/> step passed <input type="checkbox"/> step not passed <input type="checkbox"/> not applicable
	Alternative 2 - No project activity and equivalent amount of energy would have been produced by the project grid electricity system through its currently running power plants and by new capacity addition to the grid i.e. Continuation of current situation.		
1b	All the above alternatives are in compliance with all applicable legal and regulatory requirements.	All alternatives are in line with the national regulations.	

Step 1)	Argument PP	Assessment of the validation team	
2a	Option III: benchmark analysis is selected for the investment	In accordance with the Additionality Tool, the option III is selected and deemed to be appropriate.	<input checked="" type="checkbox"/> step passed <input type="checkbox"/> step not passed <input type="checkbox"/> not applicable (step 2 or 3 has to be passed)
2b	The financial indicator "project IRR" is chosen and correspondingly the benchmark is taken as weighted average cost of capital (WACC) to demonstrate the benchmark analysis as per guidance on investment analysis.	The identification of the financial indicator is OK.	
2c	<p>The IRR for the proposed project activity without CDM revenues was computed for a period of 23 years, corresponding to the lifetime of the 91.8 MW wind power project based on the assumptions presented in the PDD.</p> <p>The project IRR calculated is 8,02 % which is less than the benchmark 11.80 %</p>	The identification of the benchmark is appropriate as per the Annex 5 of EB 62. Moreover the calculation of benchmark and project IRR is in accordance with standard practice and conservative assumptions are used therein wherever applicable.	
2d	<p>The project activity has been found sensitive to the following parameters:</p> <ul style="list-style-type: none"> <li>Investment costs</li> <li>Net power generation</li> <li>Electricity Tariff</li> </ul> <p>The results of the sensitivity analysis conducted confirm that the post-tax project IRR for the project activity without CDM revenues is lower than that which would make the project economically attractive for the investors, under circumstances which could bring about variations in the critical factor used for the IRR computations.</p>	The project revenue is sensitive to the electricity generated (and in turn to the PLF), investment costs and electricity tariff as all of them constitute more than 20% of the total project cost or total project revenues. Hence, the sensitivity analysis has been carried out for these three variables.	
4 a	The PP applied the guidance provided in EB 69 Annex 8 to conduct the common practice analysis. 5 projects have been identified which are implemented in the same geographical area (Gujarat), all of them are Wind energy projects (same measure, same energy source, all provide electricity). All the project started commercial operation before the PDD has been uploaded for GSP (2011-05-06). All the projects apply CDM or are registered under CDM. Hence, no	<input type="checkbox"/> Argument not justified <input type="checkbox"/> Argument not convincing <input type="checkbox"/> Argument justified but not decisive <input checked="" type="checkbox"/> Argument justified / significant  The DOE confirms that the guidance from EB 69 Annex 8 has been correctly	

Step 1)	Argument PP	Assessment of the validation team	
	projects remain.	applied. The validation team has verified the wind power directory and the UNFCCC database. No projects similar to the proposed have been identified.	
4 b	As discussed above the project activity is not a common practice being followed in the region. Due to the unattractive returns associated with the project activity, it is being carried out only after taking CDM revenues into consideration.	<input type="checkbox"/> Argument not justified <input type="checkbox"/> Argument not convincing <input type="checkbox"/> Argument justified but not decisive <input checked="" type="checkbox"/> Argument justified / significant	<input checked="" type="checkbox"/> step passed <input type="checkbox"/> step not passed <input type="checkbox"/> not applicable
Assessment of the validation team		<input checked="" type="checkbox"/> project is additional <input type="checkbox"/> project is not additional	

### 5.2.6 Monitoring Methodology

The project complies with the monitoring methodology ACM0002 Version 12.3.0, for grid-connected electricity generation from renewable sources.

### 5.2.7 Monitoring Plan

This methodology stipulates that monitoring shall consist of metering the electricity supplied by the project activity to the grid by the renewable technology. In this case the net electricity generated by the proposed project will be monitored by the project owner. The net electricity generation is determined based in the exports deducted by the imports from the grid. The monitoring plan is in line with the requirements of the methodology and defined based on information available at the time of validation.

Calibration, periodical testing and maintenance procedures of monitoring equipment are clearly mentioned in the section B.7.2 as per QA/QC procedure of PDD in line with national requirements.

It should be noted that the HCA has only been granted if sustainability indicators required by the Indian DNA are part of the monitoring. As this is not part of regular CDM rules it has been included as an Annex to the PDD. The verifying DOE to check this during the periodic verifications

The OM and BM are calculated as fixed for the fixed crediting period by choosing data vintage<sup>/cea/</sup> based on ex-ante published data by CEA. Hence, data needed to recalculate OM and BM does not apply. According to the monitoring plan of the PDD this requirement is fulfilled.

All the monitored data will be archived electronically for a period of 2 years after the crediting period.

### **5.2.8 Project Management Planning**

Basic information has been provided which ensures that the monitoring plan is implemented without any problems. The project owner is supported by Vestas, the manufacturer of the wind turbines<sup>/OMA/</sup> and of course the grid operator who is responsible issuing invoices based on the net electricity supplied by the project owner. Hence, based on the information at the time of validation the information deemed to be appropriate.

### **5.2.9 Crediting Period**

The crediting period starts from 2013-06-01 and is fixed for 10 years. The starting date is deemed reasonable based on the implementation schedule of the proposed project.<sup>/PIS/</sup>

### **5.2.10 Environmental Impacts**

Social & environmental impacts of the project have been sufficiently addressed. No adverse environmental impacts as well as trans-boundary impacts have been envisaged from this project activity. Environmental Impact Assessment (EIA) is not required for this type of project activity as per the rules and regulations of host country (India). However, an independent consulting company conducted a social-environmental impact assessment

### **5.2.11 Comments by Local Stakeholders**

Section E of the PDD provides all required information which have been backed up with documented evidence. Within the scope of the social and environmental impact assessment conducted by TATA<sup>/EIA/</sup> stakeholder meeting has been conducted. The attendance list of this meeting has been provided to the validation team.<sup>/SHCP/</sup> Further part of the debt is based on a loan issued by Eksport Kredit Fonden a Danish credit institute<sup>/FTS/</sup> which is following the Equator Principles from June 2006. These principles provide a benchmark for banks investing in social and environmental

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projects.<sup>/EQP/</sup> Eksport Kredit Fonden does only provide the loan when the stakeholders of the projects have been involved in the project activity. In conclusion, TÜV NORD came to the result that all stipulations and requirements of stakeholder involvement are fulfilled.



## 6 VALIDATION OPINION

Tricorona Carbon Asset Management Pte Ltd has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: “Jangi 91.8 MW wind farm in Gujarat” with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation 16 Corrective Action Requests (CARs) and 7 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of India vide the Letter of Approval (HCA) dated 2012-03-14 and from DNA of Sweden dated 2012-07-04.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 2,545,270 tCO<sub>2</sub>e are most likely to be achieved within the (fixed) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Essen, 2012-10-15



Martin Saalmann  
TÜV NORD JI/CDM CP  
Validation Team Leader

Essen, 2012-10-15



Jochen Schubert  
TÜV NORD JI/CDM CP  
Final Approval

## 7 REFERENCES

**Table 7-1:** Documents provided by the project participant

Reference	Document
<b>/CA/</b>	Companies Act, 1956 to justify depreciation
<b>/CEMD/</b>	Capital Expenditures at the time of management decision e-mail from Vestas to the project owner 2010-08-11
<b>/DA/</b>	Development Agreement between Vestas and PP on 2010-12-02
<b>/DPPA/</b>	Draft Version of a Power Purchase Agreement
<b>/EA/</b>	Electricity Act 2003
<b>/ECA/</b>	Erection and commissioning agreement (dated: 2010-12-02)
<b>/EER/</b>	Escalation Rate provided by Ministry of Commerce & Industry: <a href="http://eaindustry.nic.in/">http://eaindustry.nic.in/</a>
<b>/EF/</b>	Emission Factor Calculation, Central Electricity Authority of India, March 2011
<b>/EIA/</b>	Social-Environmental Impact Assessment by TATA Consulting Engineers Limited, March 2011
<b>/EOMA/</b>	Email between Vestas (namely Mr. Naveen Balachandran, Head Commercial Planning) and the PP offering the O&M service, dated 2010-09-17
<b>/EPC/</b>	Equipment Supply Agreement (dated: 2010-12-02)
<b>/EQP/</b>	Equator Principles June 2006
<b>/ET/</b>	Electricity Tariff according to Gujarat Electricity Regulatory Commission, Order No. of 2010
<b>/FTS/</b>	Financial Term Sheet between HSBC and the Project Owner, dated 2010-10-06 Financial Term Sheet between HSBC, Eksport Kredit Fonden and Project Owner, dated 2011-03-24
<b>/GBI/</b>	Generation Based Incentives by Indian Renewable Energy Development Agency Ltd. from February 2010

Reference	Document
<b>/HCA/</b>	Host Country Approval from Indian DNA
<b>/IRR/</b>	IRR calculation sheet
<b>/ITM/</b>	Indicative Financial Term Sheet from HSBC dated 2010-09-24
<b>/LCF/</b>	Letter of Credit Fee, Definition of Payment Security as per equipment supply agreement
<b>/LOA/</b>	Letter of Approval from DNA of Sweden
<b>/MAT/</b>	Minimum Alternate Tax Law
<b>/MD/</b>	CDM Management Decision taken by the Board of Directors on 2010-09-27
<b>/MOC/</b>	Modalities of Communication
<b>/MOU/</b>	Memorandum of understanding with Vestas dated 2010-06-10
<b>/NOD/</b>	<ul style="list-style-type: none"> <li>Notification from PP to the Indian DNA for prior consideration (dated: 2011-05-19);</li> <li>E-mail correspondence between Indian DNA and PP (dated: starting 2011-05-22)</li> </ul>
<b>/NOU/</b>	Notification from PP to the UNFCCC CDM Secretariat for prior consideration (dated: 2010-09-14)
<b>/OMA/</b>	Operation and Maintenance Agreement between Vestas and PO, dated 2010-12-02
<b>/PDD/</b>	Draft Project Design Document named “Jangi 91.8 MW wind farm in Gujarat” hosted from 2011-05-06 to 2011-06-04 Final Project Design Document named “Jangi 91.8 MW wind farm in Gujarat” Version 3
<b>/PIS/</b>	Project Implementation Schedule
<b>/PSL/</b>	Project Site Layout
<b>/SHCP/</b>	Stakeholder consultation process evidence: <ul style="list-style-type: none"> <li>Attendance list dated 2010-10-13</li> <li>Social-Environmental Impact Assessment report provided by TATA Engineers Consulting Limited in March 2011</li> </ul>
<b>/TCW/</b>	Type Certificate of installed wind turbines

Reference	Document
<b>/TDS/</b>	Technical Design Sheet of the Wind Turbines
<b>/TTD/</b>	E-mail with breakdown of costs and split of from imported and exported parts; Manufacturer Vestas Asia Pacific, Mr. Naveen Raghavan Balachandran; dated: 2010-12-21
<b>/WYA/</b>	Wind Yield Assessment, PB Power Group, dated 2010-09-07
<b>/XLS/</b>	Emission reduction calculation spreadsheet

**Table 7-2:** Background investigation and assessment documents

Reference	Document
<b>/ACM2/</b>	ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 12.3.0)
<b>/ARE/</b>	Annual Report 2009 – 2010 from the Central Electricity Authority of India, September 2010
<b>/CESS/</b>	Education Cess calculation in accordance to Finance Bill 2010, chapter 2
<b>/CPM/</b>	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
<b>/GCP/</b>	UNFCCC: Guidelines for completing CDM-PDD and CDM-NM
<b>/IPCC-GP/</b>	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
<b>/IPCC-RM/</b>	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
<b>/ICT/</b>	Income tax and surcharge calculation in accordance to Finance Bill 2010, first schedule, page 29
<b>/IWE/</b>	Indian Wind Energy Outlook 2011, Global Wind Energy Council, April 2011
<b>/KP/</b>	Kyoto Protocol (1997)
<b>/MA/</b>	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
<b>/PDD-T/</b>	Project Design Document Form (CDM PDD) – Version 03
<b>/RE/</b>	Renewable Energy – Technology, Economics and Environment, 2007

Reference	Document
<b>/TA/</b>	Tool for the demonstration and assessment of additionality (Ver. 6.1.0).
<b>/TEF/</b>	Tool to calculate the grid emission factor
<b>/VVM/</b>	Validation and Verification Manual (Version 01.2, Annex 1, EB 55)
<b>/WPD/</b>	Indian Windpower Directory 2011, 11 <sup>th</sup> Edition, Consolidated Energy Consultants Ltd., July 2011
<b>/WWR/</b>	World Wind Energy Report 2010, World Wind Energy Association, April 2011

**Table 7-3:** Websites used

Reference	Link	Organisation
<b>/cd4cdm/</b>	<a href="http://www.cd4cdm.org">www.cd4cdm.org</a>	UNEP Riso Centre
<b>/cea/</b>	<a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a>	Central Electricity Authority of India
<b>/ewea/</b>	<a href="http://www.wind-energy-the-facts.org/">http://www.wind-energy-the-facts.org/</a>	Wind Energy Facts
<b>/gerc/</b>	<a href="http://www.gercin.org">http://www.gercin.org</a>	Gujarat Electricity Regulatory Commission
<b>/ipcc/</b>	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	IPCC publications
<b>/itd/</b>	<a href="http://bit.ly/indiaincometaxruledeprate">http://bit.ly/indiaincometaxruledeprate</a>	Income Tax Department of India
<b>/iwp/</b>	<a href="http://www.indianwindpower.com/">http://www.indianwindpower.com/</a>	Indian Wind Turbine Manufacturers Association
<b>/iwpa/</b>	<a href="http://www.windpro.org">http://www.windpro.org</a>	Indian Wind Power Association
<b>/tce/</b>	<a href="http://www.tce.co.in/">http://www.tce.co.in/</a>	TATA Consulting Engineers Limited
<b>/unfccc/</b>	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNFCCC

**Table 7-4:** List of interviewed persons

Reference	Mol <sup>1</sup>		Name	Organisation / Function
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Reference	Mol <sup>1</sup>		Name	Organisation / Function
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Fion Chan	Assistant Manager - Business Development and Finance
/IM02/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Susanne Haefeli-Hestvik	Technical Director, Carbon Asset Management Sweden AB

<sup>1)</sup> Means of Interview: (Telephone, E-Mail, Visit)

# ANNEX

- A1:** Validation Protocol
- A2:** Assessment of Baseline Identification
- A3:** Assessment of Financial Parameters
- A4:** Assessment of Barrier analysis
- A5:** Outcome of the GSCP
- A6:** Appointment certificates of the team members



## ANNEX 1: VALIDATION PROTOCOL

**Table A-1: Requirements Checklist**

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<b>A. General Description of Project Activity</b>				
<b>A.1. Approval</b> <i>The written approval of the parties involved is a mandatory requirement</i>				
A.1.1. Has the project provided written approvals of all parties involved? (EB 55 Annex 1, § 44) <i>Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.</i> <i>Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA</i>	<i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.  <i>Justification of evidence:</i> PP did not provide the letter of approvals.  <i>Conclusion:</i> CAR A1 is raised: PP is requested to provide the letters of approval from India and Sweden.	/LOA/ /HCA/	CAR A1	OK
A.1.2. Are the approvals issued from organisations listed as DNAs on the UNFCCC CDM website?  (EB 55 Annex 1, §§ 44, 47, 48, 49 (b), 49 (c), 53) <i>Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been</i>	<i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.  <i>Justification of evidence:</i> PP did not provide the letter of approvals.  <i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.	/LOA/ /HCA/	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<i>verified with the DNA. Further describe which entity submitted the LoA for validation.</i>				
A.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol? (EB 55 Annex 1, § 45(a))	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.</p>	/LOA/ /HCA/	CAR A1	OK
A.1.4. Do the written approvals confirm that the participation is voluntary? (EB 55 Annex 1, § 45(b))	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.</p>	/LOA/ /HCA/	CAR A1	OK
A.1.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country? (EB 55 Annex 1, § 45(c))	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.</p>	/LOA/ /HCA/	CAR A1	OK
A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the project activity, e.g. PDD version number?	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be</p>	/LOA/ /HCA/	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 45(d), 50)	satisfactorily assessed by the validation team.			
A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6? (EB 55 Annex 1, § 46)	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.</p>	/LOA/ /HCA/	CAR A1	OK
A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other? (EB 55 Annex 1, § 51)	<p><i>Description:</i> Section A.3. and Annex 1 of the PDD state the following participating entities: GP Wind (Jangi) Private Limited and Tricorona Carbon Asset Management Pte Ltd</p> <p><i>Justification of evidence:</i> Both sections in the PDD have been checked by the validation team.</p> <p><i>Conclusion:</i> A slight difference in the name of the PP from Annex 1 country has been observed. Hence, the following CL has been raised: PP is requested to clarify (and correct the PPD accordingly) if "Pte Ltd" is with dots (as per Annex 1) or without (as per section A.3.)</p>	/PDD/	CL A2	OK
A.1.9. Are all project participants listed in the PDD approved at least by one Party involved? (EB 55 Annex 1, § 51) <i>Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.</i> <i>Describe the means of validation employed to draw this conclusion.</i>	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.</p>	/LOA/ /HCA/	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
A.1.10. Are any other project participants approved but not listed in the PDD? (EB 55 Annex 1, § 52)	<p><i>Description:</i> India and Sweden are announced as the participating countries. However, the LOA from non Annex 1 as well from Annex 1 country are pending.</p> <p><i>Justification of evidence:</i> PP did not provide the letter of approvals.</p> <p><i>Conclusion:</i> Only upon receipt of the approvals the issue can be satisfactorily assessed by the validation team.</p>	/LOA/ /HCA/	CAR A1	OK
A.1.11. Does the DoE have a direct contractual relationship with the PP? (EB 55 Annex 1, § 51; EB 50 Annex 48, §§ 7–9) <i>Check whether the PPs listed in the published PDD are still listed in the PDD going to be submitted to request for registration.</i>	A contract is established with one of the PPs. It can be provided upon request of the CDM EB.		OK	
<b>A.2. Contribution to Sustainable Development</b> <i>The project's contribution to sustainable development is assessed.</i>				
A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development? (EB 55 Annex 1, §§ 125–127) <i>Contains a statement confirming whether the letter of approval by the DNA of the host party confirmed the contribution of the project to the sustainable development of the Host Party.</i>	<p><i>Description:</i> The letter of approval from India is pending.</p> <p><i>Justification of evidence:</i> The document has not been provided.</p> <p><i>Conclusion:</i> CAR A1 has been raised. Upon receipt of the LOA, the validation team can come to a conclusion.</p>	/HCA/	CAR A1	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>A.2.2. Will the project create other environmental or social benefits than GHG emission reductions? (EB 55 Annex 1, §§ 125–127) <i>Describe the other positive aspects not related to GHG emission reduction on the environment.</i></p>	<p><i>Description:</i> Section A.2. of the PDD provides a rough description of the sustainability impacts of the proposed project. According to the description the project activity leads to additional employment, tax contribution, reduction of CO<sub>2</sub> emissions and clean technology transfer.</p> <p><i>Justification of evidence:</i> Additional wind farms need additional employees for maintenance. Tax benefits for the country can also be confirmed. Further emission reductions due to the zero emission technology wind are assessed reasonable.</p> <p><i>Conclusion:</i> However, the technology transfer to a country with 5<sup>th</sup> highest installed capacity of wind turbines in the world is questionable (World Wind Energy Report 2010, page 8). Hence, PP is requested to clarify why technology is transferred. In addition, the link provided to the sustainability indicators is not working. Correction is requested.</p>	<p>/EIA/ /PDD/ /TTD/</p>	<p>CL A3</p>	<p>OK</p>
<p><b>A.3. PDD editorial aspects</b> <i>The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.</i></p>				
<p>A.3.1. Has the latest version of the PDD form been applied? (EB 55 Annex 1, § 55)</p>	<p><i>Description:</i> The applied version is no. 3 from 2006-07-28. The form has remained unaltered in accordance to the guidance.</p> <p><i>Justification of evidence:</i> UNFCCC website has been checked to confirm the latest available version at the time of publishing for GSP.</p> <p><i>Conclusion:</i> The correct version has been utilized by PP.</p>	<p>/PDD/ /unfccc/</p>	<p>OK</p>	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)?  (EB 55 Annex 1, §§ 56–57)	<p><i>Description:</i> The PDD sections have been mostly filled appropriate in accordance with the guidance.</p> <p><i>Justification of evidence:</i> The content has been compared to the stipulations as set out in the guidance.</p> <p><i>Conclusion:</i> PDD is mostly duly filled. However, the following has been observed and should be corrected:</p> <p>Section A.4.5.: PP is requested to provide a written affirmation that public funding is not part of the project activity.</p>	/PDD/	CAR A5	OK
<p><b>A.4. Technology to be employed</b></p> <p><i>Validation of project technology focuses on the project engineering, choice of technology and competence/maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.</i></p>				
<p>A.4.1. Does the PDD contain a clear, accurate and complete project description?</p> <p>EB 55 Annex 1, §§ 58–59, 64)</p> <p><i>The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.</i></p> <p><i>Pl. consider esp. chapters A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.</i></p> <p><i>§64 (a) Describe the process undertaken to validate the</i></p>	<p><i>Description:</i> The PDD provides information that the proposed project activity is an installation of a wind farm constituting of 51 turbines each with a capacity of 1.8 MW resulting in a total capacity of 91.8 MW. The turbines are produced by Vestas.</p> <p><i>Justification of evidence:</i></p> <p>The following documents have been checked to confirm this:</p> <ul style="list-style-type: none"> <li>• Equipment Supply Contract</li> <li>• Technical Design Sheet of Turbines</li> <li>• Type Certificate of Turbines</li> </ul>	<p>/EPC/ /TDS/ /TCW/ /WYA/</p>	CL A4	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>accuracy and completeness of the project description.</i> §64 (b) Contain the DOE's opinion on the accuracy and completeness of the project description.	<ul style="list-style-type: none"> <li>Wind Energy Yield Assessment</li> </ul> <i>Conclusion:</i> In general information provided help to understand the project activity. However the following needs to be clarified: PP is pointing out that the project has not been started construction. As per oral confirmation this is not correct. Revision is requested. The guidance further requires information about the type and level of service provided and about monitoring system. If information is available it should be included in the PDD.			
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?	<i>Description:</i> The project will be constructed in the state of Gujarat in India. Longitudes and latitudes are provided in the PDD. In addition refer to assessment above. <i>Justification of evidence:</i> The project location is included in the equipment supply contract which has been checked by the validation team. <i>Conclusion:</i> Based on the above documented evidence, the validation team confirms that the project will be most likely implemented as per the information provided.	/EPC/ /PDD/	OK	
A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? (EB 55 Annex 1, §§ 63–64) Describe the steps taken to validate this issue.	<i>Description:</i> As per the information in the PDD, the project is a new installation of wind turbines. <i>Justification of evidence:</i> PDD content has been compared to the following documented evidence: <ul style="list-style-type: none"> <li>Equipment Supply Contract</li> <li>Technical Design Sheet of Turbines</li> <li>Type Certificate of Turbines</li> </ul>	/PDD/ /EPC/ /TDS/ /TCW/ /WYA/	OK	



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
	<ul style="list-style-type: none"> <li>Wind Energy Yield Assessment</li> </ul> <p><i>Conclusion:</i> The validation team confirms that the project is new and not altered.</p>			
<p>A.4.4. Does the project design engineering reflect current good practices?</p> <p><i>Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.</i></p>	<p><i>Description:</i> The turbines installed are 1.8 MW capacity each.</p> <p><i>Justification of evidence:</i> The type certificate as well as the technical design sheet has been checked.</p> <p><i>Conclusion:</i> The turbines are state of the art and reflect current good practice.</p>	<p>/TCW/ /TDS/</p>	OK	
<p>A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?</p> <p><i>Describe the process undertaken to assess the state of the art technology.</i></p>	<p><i>Description:</i> Thermal power plants provide the major share of electricity in Gujarat. The proposed project is utilizing wind, which is an emission free source for power generation.</p> <p><i>Justification of evidence:</i> The website of the Central Electricity Authority of India has been checked and the type certificate as well as the technical design sheet was referred to.</p> <p><i>Conclusion:</i> In terms of mitigation of climate change the project has been assessed to be significantly better than common technology. The turbines are state of the art.</p>	<p>/TCW/ /TDS/ /cea/</p>	OK	
<p>A.4.6. Does the project make provisions for meeting training and maintenance needs?</p> <p><i>Describe the process undertaken to assess the maintenance and training needs.</i></p>	<p><i>Description:</i> The PDD does not provide this information.</p> <p><i>Justification of evidence:</i> The PDD has been checked.</p> <p><i>Conclusion:</i> The project is still in an advance stage of implementation. It is confirmed orally that training will be conducted.</p>	/IM01/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<b>A.5. Small scale project activity</b> <i>It is assessed whether the project qualifies as small-scale CDM project activity</i>				
A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? (EB 55 Annex 1, §§ 135–136 (a))	<p><i>Description:</i> The proposed project has an installed capacity of 91.8 MW.</p> <p><i>Justification of evidence:</i> The PDD and the documented evidence, i.e. the equipment purchase agreement have been checked to confirm this. Oral confirmation has been provided as well.</p> <p><i>Conclusion:</i> According to the CDM regulation the proposed project is of large scale nature.</p>	/EPC/ /IM01/	N/A	
A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? (EB 55 Annex 1, § 136 (b)) <i>Check, if applicable the expiry dates of the applied methodology. Further, take into consideration the general guidance to the methodologies<sup>3</sup>, which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.</i>	Please refer to A.5.1.		N/A	
A.5.3. Is the small scale project activity not a debundled component of a larger project activity?	Please refer to A.5.1.		N/A	

<sup>3</sup> <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, § 136 (c)) <i>Describe the steps taken to validate this issue. PI refer to the Compendium of guidance on debundling (EB 36, Annex 27 54, Annex 13).</i>				
A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party? (EB 55 Annex 1, § 136 (d))	Please refer to A.5.1.		N/A	
<b>B. Project Baseline, Additionality and Monitoring Plan</b>				
<b>B.1. Application of the Methodology</b>				
B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof? (EB 55 Annex 1, § 65) <i>Describe the steps taken to validate this issue.</i>	<i>Description:</i> The methodology applied is ACM0002, version 12.3.0. <i>Justification of evidence:</i> The validity has been confirmed by means of checking the UNFCCC website. <i>Conclusion:</i> The methodology is approved and the version is valid.	/ACM2/ /unfccc/	OK	
B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website? (EB 55 Annex 1, §§ 65, 70)	<i>Description:</i> The version applied is addressed in section B.1. of the PDD. <i>Justification of evidence:</i> The latest version available on the UNFCCC website has been downloaded by the validation team and confirmed with the one referenced in the PDD.	/ACM2/ /unfccc/	OK	

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>Describe the steps taken to validate this issue.</i>	<i>Conclusion:</i> The methodology in the PDD is identical with the latest available on the UNFCCC website.			
<p>B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled?</p> <p>(EB 55 Annex 1, §§ 66(a)–(b), 68, 71, 76)</p> <p><i>Describe for <u>each</u> applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.</i></p>	<p><i>Description:</i> PDD section B.2. provides information about the applicability of the methodology ACM0002. The following is addressed:</p> <ol style="list-style-type: none"> <li>1. New build wind farm (Greenfield) connected to an electricity grid.</li> <li>2. No involvement of switching from fossil fuel to renewable energy.</li> <li>3. Grid characteristics and boundaries of the grid are identifiable.</li> </ol> <p><i>Justification of evidence:</i> The PDD, the methodology and the applied tool to calculate the emission factor for an electricity system have been compared to check if all conditions are covered.</p> <p><i>Conclusion:</i> TÜV NORD could confirm that the 1<sup>st</sup> two criteria cover the applicability conditions. However, PP is requested to clarify where the third criterion (grid characteristics) is derived from. In addition the abbreviation “NEWNE” shall be specified.</p>	/ACM2/	CL B1	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>B.1.4. In case one or more applicability criteria have not been met, has the validation team requested clarification to, revision of or deviation from the methodology in accordance with the latest guidelines?</p> <p>(EB 55 Annex 1, §§ 72–75)</p>	<p><i>Description:</i> The PDD does not include information about criteria which have not been met.</p> <p><i>Justification of evidence:</i> The validation team has compared the content of the PDD, the applied methodology as well as the tool.</p> <p><i>Conclusion:</i> It could be confirmed that all relevant applicability criteria are addressed in section B.2. of the PDD.</p>	<p>/PDD/ /ACM2/</p>	<p>OK</p>	
<p>B.1.5. Is the project in accordance with every other stipulation or requirement mentioned in all sections of the methodology and in guidances for approved methodologies provided by the CDM EB?</p> <p>(EB 55 Annex 1, § 69, 71)</p> <p><i>Describe the steps taken to check whether the proposed project activity meets all the other possible stipulations and /or limitations mentioned in all sections of the approved methodology selected.</i></p>	<p><i>Description:</i> The PDD provides a clear description of the project activity with references to all relevant parts of the applied methodology and grid emission factor tool.</p> <p><i>Justification of evidence:</i> The PDD content has been compared to the requirements applied methodology and tool.</p> <p><i>Conclusion:</i> TÜV NORD could not observe any deviation and hence, concluded that the project fulfils are required stipulations.</p>	<p>PDD/ /ACM2/</p>	<p>OK</p>	
<p><b>B.2. Project Boundaries</b></p> <p><i>Project Boundaries are the limits and borders defining the GHG emission reduction project</i></p>				
<p>B.2.1. Are the project's spatial boundaries (geographical) clearly defined?</p>	<p><i>Description:</i> In section B.3. of the PDD the PP indicates the table and a figure showing the project activity and the electricity flow to the identified grid as required in the guidance to complete the PDD.</p>	<p>/PDD/ /ACM2/</p>	<p>CAR B2</p>	<p>OK</p>

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(EB 55 Annex 1, §§ 67(a), 78–80) <i>Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i>	As per the methodology the spatial extent also includes all power plants serving the identified grid.  <i>Justification of evidence:</i> Information included in the PDD has been checked with the stipulations of the guidance and the methodology.  <i>Conclusion:</i> In general the approach is acceptable. However, the PP should justify and include this information in the PDD why the NEWNE grid has been identified as the correct spatial boundary.			
B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?  (EB 55 Annex 1, §§ 67(a), 78–80) <i>Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i>	<i>Description:</i> The methodology requires CO <sub>2</sub> solely to be considered as GHG in wind project activities. The emission source is the fossil fuel fired power plants serving the grid, i. e. the baseline. Project emissions are not applicable to this type of renewable energy project. Same is stated in the PDD section B.3.  <i>Justification of evidence:</i> Information provided in the PDD has been compared to the methodology requirements.  <i>Conclusion:</i> TÜV NORD confirms that the sources and CO <sub>2</sub> as sole GHG have been correctly chosen by the PP.	/PDD/  /ACM2/	OK	
B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified?  (EB 55 Annex 1, §§ 67(a), 78–80) <i>Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.</i>	<i>Description:</i> For this type of project the methodology prescribes the sources and GHG.  <i>Justification of evidence:</i> The methodology requirement has been checked by the DOE.  <i>Conclusion:</i> The methodology unambiguously defines the source and GHG for the proposed project. PP does not have a choice to define another source or GHG. This is reflected in the PDD.	/ACM2/  /PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<b>B.3. Baseline Identification</b> <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>				
<b>B.3.1. What possible baseline scenarios have been considered?</b> (EB 55 Annex 1, §§ 67(b), 83) <i>Fill in all alternatives in table A-2.</i>	<p><i>Description:</i> For a new installation of a renewable energy project the applied methodology predefines the baseline scenario on page 4: <i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".</i> In section B.4. the PDD includes the same information.</p> <p><i>Justification of evidence:</i> The content of the PDD has been compared to the methodology requirement.</p> <p><i>Conclusion:</i> Since the proposed project activity is a newly installation of a wind farm, the only applicable baseline scenario is correctly indicated in the PDD.</p>	/PDD/ /ACM2/	OK	
<b>B.3.2. Is the list of alternatives complete?</b> (EB 55 Annex 1, §§ 67(b), 83) <i>Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration</i>	<p><input checked="" type="checkbox"/> All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted.</p> <p><input type="checkbox"/> The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been</p>	/PDD/ /ACM2/	OK	



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
	issued Please also refer to the assessment in B.3.1. above.			
<b>B.3.3. What has been identified as the baseline scenario?</b> (EB 55 Annex 1, §§ 81–82, 86) <i>Describe the chosen BL scenario, taking into consideration the technology that would be employed and / or the activities that would take place in the absence of the proposed CDM project activity.</i>	<i>Description:</i> The baseline is: <i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.</i> <i>Justification of evidence:</i> The PDD and the definition in ACM0002 have been checked. <i>Conclusion:</i> TÜV NORD confirms that the baseline is correctly chosen.	/PDD/ /ACM2/	OK	
<b>B.3.4. Has the baseline scenario been determined according to the methodology?</b> (EB 55 Annex 1, §§ 82, 87(e)) <i>Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.</i>	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. <input checked="" type="checkbox"/> The determination has been carried out as per the procedure contained in the applied methodology. <input type="checkbox"/> The following CARs / CLs have been identified with respect to the selection of the baseline scenario:	/PDD/ /ACM2/	OK	
<b>B.3.5. Has any plausible alternative scenario been excluded?</b> (EB 55 Annex 1, § 83) <i>Describe how it is validated that no plausible alternative scenario has been excluded.</i>	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. <input checked="" type="checkbox"/> No plausible baseline scenario has been excluded. <input type="checkbox"/> The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued:	/PDD/ /ACM2/	OK	

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>B.3.6. Is the identified baseline scenario reasonable and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources?</p> <p>(EB 55 Annex 1, §§ 84–86(a)–(c))</p> <p><i>Describe whether the choice of the identified baseline scenario is reasonable by validating the <u>key assumptions, calculations and rationales</u> used in the PDD. Describe whether these are listed, relevant and <u>conservatively interpreted</u> in the PDD.</i></p>	<p><input checked="" type="checkbox"/> The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer to comments in table A-2 and sections B.3.2 to B.3.5 above.</p> <p><input type="checkbox"/> The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative</p> <p>The baseline consists of two important parameters:</p> <ol style="list-style-type: none"> <li>1. The Net electricity supply from the project to the identified grid. The figure (268,177 MWh/a) provided in the PDD is derived from Wind Yield Assessment based on a PLF of 33.3 % and 90 % availability. The document has been carefully checked and the value is confirmed.</li> <li>2. The combined margin emission factor of the relevant grid. It is calculated as a weighted average (75 % vs 25 %) of an operating margin (OM) and a build margin (BM). This is in line with the methodology.</li> </ol> <p>In general the baseline is defined correctly. However , the following is observed: PP provided data for emission factor calculation in section B.6.1., B.6.2. and B.6.3. as well as in a XLS calculation sheet. This data is derived from the Central Electricity Authority from India, CO<sub>2</sub> Baseline Database, Version 5.0, Nov. 2009. The validation team observed that the most recent available database is Version 6 from March 2011. Since the project has been published in May 2011, the calculated EF is wrong as per the grid emission factor tool, page 5. The correctness and conservativeness of the baseline could</p>	<p>/WYA/ /cea/ /EF/</p>	<p>CAR B3</p>	<p>OK</p>

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	therefore not be validated.			
<p>B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?</p> <p>(EB 55 Annex 1, §§ 85, 87(d))</p> <p><i>Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).</i></p>	<p><i>Description:</i> The baseline scenario is predefined by the methodology consisting of the 2 parameters net electricity generation and emission factor. The emission factor is derived from publicly available data provided by the government of India.</p> <p><i>Justification of evidence:</i> The website of the Central Electricity Authority of India has been checked to confirm that data for emission factor determination is provided. The source is assessed as reliable.</p> <p><i>Conclusion:</i> TÜV NORD concluded that any relevant policies would be considered by the government in establishing the figures. E+ or E- policies have not been observed.</p>	/cea/ /PDD/	OK	
<p>B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?</p> <p>(EB 55 Annex 1, § 87(a)–(c))</p> <p><i>Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.</i></p>	<p><i>Description:</i> The source of the emission factor is clearly addressed on page 10 under the table.</p> <p>The source of the net electricity generation could not be identified in the PDD. Even though table under sub-step 2c on page 7 is providing a description of a source, the validation team cannot undoubtedly identify the relevant document, page, author and date.</p> <p><i>Justification of evidence:</i> The PDD has been checked to confirm whether the required sources can be clearly identified.</p> <p><i>Conclusion:</i> Besides the outdated data of the emission factor calculation which is already expressed in CAR B3, the validation team identified the following:</p> <p>The source where the net electricity generation is derived from could not be undoubtedly identified. PP is requested to provide all source, if possible, in the following scheme: Document name, page,</p>	/cea/ /PDD/	CAR B4	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
	author and date. This will ensure a more transparent way of providing information and simplifies the validation.			
B.3.9. Does the PDD contain a <i>verifiable</i> description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity. (EB 55 Annex 1, § 86)	<p><i>Description:</i> The PDD refers to fossil fuel fired power plants which are connected to the identified grid. The specific data is derived from a detailed database provided by the government of India.</p> <p><i>Justification of evidence:</i> The PDD content has been checked and the database has been downloaded by the validation team.</p> <p><i>Conclusion:</i> Even though information is addressed that fossil fuel fired power plants serving the grid is utilized to calculate EF, PP did not provide information about the specific technologies serving the grid. Correction is requested, additional information can be included in Annex 3.</p>	/cea/ /PDD/	CAR B5	OK
<b>B.4. Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>				
<b>B.4.1. Methodology</b>				
B.4.1.1. Does the PDD describe how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools?	<p><i>Description:</i> The PDD section B.5. provides information of how the project is additional. The methodology refers to the Tool for the demonstration and assessment of additionality, which shall be applied. The PDD follows this stipulation providing a step wise approach to justify the additionality in accordance to the referenced tool.</p>	/PDD/ /ACM2/	CAR B17	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 67(d), 94–95) <i>Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.</i>	<i>Justification of evidence:</i> The PDD content has been compared to the stipulation in the methodology. The applied methodology refers to the additionality tool, which has been checked: “Tool for the demonstration and assessment of additionality”.  <i>Conclusion:</i> TÜV NORD confirms that the correct approach has been chosen. However, the version of the tool expired.			
<b>B.4.2. Consideration of CDM before project start</b>				
B.4.2.1. Is the project starting date reported in accordance with the CDM glossary of terms?  (EB 55 Annex 1, § 104(a)) <i>Assess why the chosen starting date can be considered as the earliest date at which either the implementation or construction or real action of a project has begun or will begin.</i>  <i>Check that no other activities related to the project that happened before the identified start date can be considered as start date. In this context please also take into consideration infrastructural expenses if they are relevant (in terms of costs and importance for the project implementation) in the specific context of the project activity.</i>	<i>Description:</i> The start date is indicated in section B.5. and C.1.1. of the PDD. It is the date when the equipment purchase contract (EPC) has been signed: 2010-12-02.  <i>Justification of evidence:</i> TÜV NORD checked all available contracts: <ul style="list-style-type: none"> <li>- Equipment Supply Agreement</li> <li>- Erection and Commissioning Agreement</li> <li>- Operation and Maintenance Agreement</li> <li>- Development Agreement</li> </ul> The contracts have been assessed as reliable since the original and duly signed versions have been presented to the validation team.  <i>Conclusion:</i> The starting date has been confirmed as the earliest date on which the PP committed to reasonable expenditures in accordance to the CDM Glossary of Terms.	/EPC/ /ECA/ /OMA/ /DA/	OK	
B.4.2.2. In case the project start date is on or after 2 <sup>nd</sup> August 2008 has the PP informed the	<i>Description:</i> The start date is after 2 <sup>nd</sup> August 2008. PP provides information in section B.5. that the UNFCCC as well as the host	/NOD/ /NOU/	OK	

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>DNA and UNFCCC about the intension to seek CDM status?</p> <p>(EB 55 Annex 1, §§ 99–101)</p> <p><i>Describe whether such a notification has been provided by the project participants within six months of the project activity start date; if NOT it shall be determined that the CDM was not seriously considered.</i></p>	<p>country DNA have been informed about the project activity in due time, within 6 month after the starting date. In fact the UN has been informed in September 2010, i.e. before the starting date, while the DNA of India has been informed in May 2011.</p> <p><i>Justification of evidence:</i> The validation team has checked the UNFCCC website to confirm the notification. The date published is 8<sup>th</sup> October 2010. The letter sent by the PP notifying the DNA about the project as well as e-mail communications between the PP and the Indian DNA have been provided to the validation team. The letter is assessed as reliable since it has been duly signed and provided in original version. The e-mail correspondence could doubtlessly proof that PP had continuous interaction with the DNA.</p> <p><i>Conclusion:</i> Prior consideration has been well evidenced with the necessary documents in line with EB 49, Annex 22 part B.</p>			
<p>B.4.2.3. In case the project start date is before commencing of validation and 2<sup>nd</sup> August 2008, was the incentive from the CDM seriously considered and are details given in the PDD?</p> <p>(EB 55 Annex 1, §§ 100, 102)</p> <p><i>Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i></p>	<p>Since the project is a new activity, this criterion does not apply.</p>		N/A	
<p>B.4.2.4. How and when was the decision to proceed with the project taken?</p> <p><i>Describe the steps taken to validate the starting date.</i></p>	<p>Since the project is a new activity, this criterion does not apply.</p>		N/A	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<p>B.4.2.5. Is the project start date consistent with the available evidence? (EB 55 Annex 1, § 102)</p> <p><i>Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i></p>	Since the project is a new activity, this criterion does not apply.		N/A	
<p>B.4.2.6. Was the decision to proceed with the project taken by a person which has the authority to do so? (EB 55 Annex 1, § 102(a))</p> <p><i>Describe the steps taken to validate this issue.</i></p>	Since the project is a new activity, this criterion does not apply.		N/A	
<p>B.4.2.7. How was the CDM involved in the decision making process? (EB 55 Annex 1, § 102)</p> <p><i>Describe why CDM was a decisive factor in the decision making process.</i></p>	Since the project is a new activity, this criterion does not apply.		N/A	
<p>B.4.2.8. Do the evidence provided doubtlessly prove that continuous and real actions were taken in order to secure the CDM status? (EB 55 Annex 1, § 102; EB 49 Annex 22 § 7)</p>	Since the project is a new activity, this criterion does not apply.		N/A	



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<p>B.4.2.9. Is the gap of documented evidence to secure the CDM status less than 3 years and are the evidence relevant for substantiating the action taken, credible, reliable and complete?</p> <p>(EB 49 Annex 22 § 8)</p>	<p>Since the project is a new activity, this criterion does not apply.</p>		<p>N/A</p>	
<p>B.4.2.10. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM?</p> <p>(EB 62 Annex 5, § 7)</p> <p><i>Describe the reasons for ceasing the project and explain why the incentive from CDM was necessary to recommence the implementation.</i></p>	<p><i>Description:</i> The PDD does not provide information about ceasing of the project activity.</p> <p><i>Justification of evidence:</i> By means of interview and check of the project planning schedule, the validation team could confirm that the project is not ceased.</p> <p><i>Conclusion:</i> No ceasing has been observed by the validation team.</p>	<p>/IM01/ /PIS/</p>	<p>OK</p>	
<p>B.4.2.11. Can the CDM involvement in the decision assessed as serious?</p> <p>(EB 55 Annex 1, § 104(b)–(c))</p> <p><i>Describe whether or not the project would have been undertaken without the incentive of the CDM.</i></p>	<p><i>Description:</i> The proposed project met all stipulations as set out in EB 49 Annex 22 part B. All necessary requirements to prove prior consideration have been fulfilled. This is clearly shown in the assessment above.</p> <p><i>Justification of evidence:</i> All required documents as indicated in sections above have been checked by the validation team. All documents have been evaluated to be reliable since these are either publicly available or duly signed by relevant authority (Indian DNA).</p> <p><i>Conclusion:</i> Therefore TÜV NORD concluded that the CDM involvement is serious and necessary actions have been taken to secure the status. Based on this information it is assessed that</p>	<p>/NOD/ /NOU/ /MD/</p>	<p>OK</p>	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
	CDM is decisive for the implementation of the project activity.			
<b>B.4.3. Identification of alternatives Step 1</b> (in case of SSC projects pl. skip steps 1 and 2 if appropriate)				
<p>B.4.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?</p> <p>(EB 55 Annex 1, §§ 105–107) Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.</p>	<p><i>Description:</i> PP identified the following alternatives to the proposed project activity:</p> <ol style="list-style-type: none"> <li>1. Project implementation without CDM</li> <li>2. Grid supply (Continuation of pre-project scenario)</li> </ol> <p><i>Justification of evidence:</i> The PDD has been checked to confirm the two scenarios. <i>Conclusion:</i> It is confirmed that the scenarios “status-quo” and the project without CDM benefits are considered. In line with § 105 of the VVM the baseline scenario is prescribed as continuation of grid supply in an equivalent amount like the net supply of the proposed project. Thus, other alternatives are not required to be considered.</p>	/PDD/	OK	
<p>B.4.3.2. Have all realistic alternatives been identified to the project?</p> <p>(EB 55 Annex 1, §§ 105–107) Describe whether the list of alternatives is credible and complete. Describe how it is validated that the alternatives are realistic.</p>	<p><i>Description:</i> Please refer to assessment above.</p> <p><i>Justification of evidence:</i></p> <p><i>Conclusion:</i></p>	/PDD/	OK	
<p>B.4.3.3. Do all identified alternatives comply with enforced legislations?</p> <p>(EB 55 Annex 1, §§ 106(c)) Describe the steps taken to validate this issue. Refer to the</p>	<p><i>Description:</i> The PP confirms under sub-step 1b in the PDD that both identified alternatives are not restricted by law.</p> <p><i>Justification of evidence:</i> Based on the local experiences of the validation, this statement is confirmed.</p>	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<i>legislations.</i>	<i>Conclusion:</i> Both alternatives are in compliance with the local regulation.			
<b>B.4.4. Investment analysis Step 2</b>  <i>In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide additional details of the calculation parameters..</i>				
<b>B.4.4.1.</b> Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasible without the revenues from the sale of CERs?  (EB 55 Annex 1, § 108)	<i>Description:</i> Under step 2 in section B.5. of the PDD the PP provide evidence that the project is not financially attractive compared to a benchmark.  <i>Justification of evidence:</i> The content of the PDD has been checked and compared to the requirements of the additionality tool.  <i>Conclusion:</i> Evidence and justification is provided that the project is financially not attractive. The subsequent assessments shall be considered to verify this.	/PDD/	OK	
<b>B.4.4.2.</b> Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)?  (EB 55 Annex 1, § 108; EB 39 Annex 10) <i>Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.</i>	<i>Description:</i> Between the three options provided in the additionality tool the PP chose the benchmark. The simple cost analysis has been excluded since the project earns revenues from selling electricity. The investment comparison is excluded since the alternative identified (existing grid supply) is not a real alternative to the PP.  <i>Justification of evidence:</i> The validation team compared the requirements of the additionality tool and the content to the PDD.  <i>Conclusion:</i> Based on this analysis the validation team concluded that an appropriate analysis method has been chosen.	/PDD/ /AT/	OK	

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>B.4.4.3. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation?</p> <p>(EB 55 Annex 1, § 110; EB 51, Annex 58, §8)  Describe the steps taken to validate this issue.</p>	<p><i>Description:</i> The PP provided a viewable and unprotected XLS sheet.</p> <p><i>Justification of evidence:</i> XLS sheet has been checked.</p> <p><i>Conclusion:</i> However, the criterion “clear” is not sufficiently addressed by the provided XLS file. In general the basic assumptions of the project activity shall be incorporated in 1 XLS tab. Based on this the PP shall conduct the financial analysis providing the formulae sourced with parameters from basic input tab. The basic parameters shall be referenced in the same fashion as expressed in CAR B4. If possible the PP is requested to backup the basic parameters with additional sources.</p> <p>Example: Cell D6 in tab “cashflows”: The following formula is provided: =Parameters!\$B\$4*0,00514582184712385. Question arises where the value 0,00514582184712385 is derived from. It is expected that the mentioned value is addressed in the basic parameter tab.</p> <p>PP is requested to ensure that all assumptions are traceable.</p>	/EF/ /XLS/	CAR B6	OK
<p>B.4.4.4. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash inflow) included?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 3 – 4)  Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which</p>	<p><i>Description:</i> PP chose an assessment period of 20 years which is reflected in the table under sub-step 2c.</p> <p><i>Justification of evidence:</i> The validation team checked the information in the PDD and compared it to the assessment period in the XLS file. In addition the requirements of EB 51 Annex 58 § 3 have been checked.</p> <p><i>Conclusion:</i> The requirements from EB 51 Annex 58 § 3 that a maximum period of 20 years is acceptable is confirmed. However, the XLS calculation only provides a full year operation of 18 years. PP is requested to clarify why 20 years full operation has not been</p>	/IRR/	CL B7	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.</i>	considered.			
<p>B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the <i>Tool to determine the remaining lifetime of equipment?</i></p> <p>(EB 50 Annex 15)</p>	<p><i>Description:</i> As per section C.1.2. the technical/ operational lifetime is 20 years.</p> <p><i>Justification of evidence:</i> The validation team checked the guidance provided in EB 50 Annex 15 page 4. It is indicated that the technical lifetime of onshore wind turbines (which is the case) is 25 years.</p> <p><i>Conclusion:</i> Hence, a deviation of 5 years is observed. This leads to the following CL:</p> <p>PP is requested to provide the source of 20 years operation lifetime.</p>	/PDD/ /IRR/	CL B8	OK
<p>B.4.4.6. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 4)</p> <p><i>State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.</i></p>	<p><i>Description:</i> A fair value has not been taken into account when calculating the cash flow.</p> <p><i>Justification of evidence:</i> The validation team has checked the XLS file provided. No fair value has been observed.</p> <p><i>Conclusion:</i> The PP is requested to clarify why a fair value has not been taken into account considering that a lifetime of 25 years is reasonable in accordance to EB 50 Annex 15 but only 18 years have been considered.</p>	/IRR/ /TCW/	CL B9	OK
<p>B.4.4.7. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 4)</p>	Please refer to the assessment in B.4.4.6. CL B9 has been raised. Upon closure an assessment can be provided	/IRR/ /TCW/	CL B9	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>B.4.4.8. Are depreciation and other non-cash related items only considered in the tax calculation and not as cash outflow?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 5)</p>	<p><i>Description:</i> Depreciation and other non-cash related items (financing expenditures) are not included in the cash-flow analysis.</p> <p><i>Justification of evidence:</i> The XLS file has been checked.</p> <p><i>Conclusion:</i> Depreciation and other non-cash related items are only considered to for tax calculation.</p>	/IRR/	OK	
<p>B.4.4.9. Is taxation excluded in the investment analysis or is the benchmark intended for post tax comparisons?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 5)</p>	<p><i>Description:</i> The investment analysis shows that income tax is considered as cash outflow.</p> <p><i>Justification of evidence:</i> The XLS file and the PDD have been checked.</p> <p><i>Conclusion:</i> The validation team could not clearly validate if inclusion of income tax is appropriate since the PDD does not define whether the IRR is calculated before or after tax. PDD need to be corrected before forming an opinion.</p>	/IRR/ /PDD/	CAR B10	OK
<p>B.4.4.10. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?</p> <p>(EB 55 Annex 1, § 109,112; EB 62 Annex 5, § 6)</p> <p><i>In case the basis for input values is a Feasibility Study Report (FSR) describe how it has been ensured that the period in time between the finalisation of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed. Further confirm the consistency of values in FSR and PDD.</i></p>	<p><i>Description:</i> The investment decision has been taken on 2010-09-27. This has been decided by the management Board and is documented in the Board meeting minutes.</p> <p><i>Justification of evidence:</i> The PDD has been checked and it is confirmed that the information is included.</p> <p><i>Conclusion:</i> The validation team could not come to a conclusion since the board meeting minutes have not been provided and the input sources to the investment analysis are not clearly referenced. Hence, the following CAR has been raised: The PP is requested to provide the board meeting minutes and all relevant sources for input parameters of the financial analysis to ensure that the validation team can provide an assessment whether the values applied are valid on 2010-09-27.</p>	/PDD/ /MD/ /OMA/ /MAT/ /LCF/ /GBI/ /FTS/ /ET/ /EPC/ /IRR/	CAR B11	OK



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
B.4.4.11. Is the plant load factor (PLF) chosen in a conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER? (EB 48, Annex 11)	<p><i>Description:</i> The PLF chosen is 33.3 %.</p> <p><i>Justification of evidence:</i> The PLF is derived from the Wind Yield Assessment. In addition it has been applied for receiving the loan. The source is assessed as reliable and in line with EB 48 Annex 11. It is applied for the ER calculation as well as for additionality justification. The PDD has been checked to confirm this.</p> <p><i>Conclusion:</i> TÜV NORD concluded that applying the PLF for ER as well as for additionality justification is appropriate, since no other (lower or higher) value is available in the context of this project activity.</p>	/WYA/ /FTS/	OK	
B.4.4.12. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR? (EB 55 Annex 1, § 109; EB 62 Annex 5, § 9)	<p><i>Description:</i> The XLS file provided shows that costs of financing have only been utilized to calculate the income tax, but not impacting the cash flow directly.</p> <p><i>Justification of evidence:</i> The XLS file has been checked.</p> <p><i>Conclusion:</i> A final conclusion cannot be provided in this stage due to the following reasons:</p> <ol style="list-style-type: none"> <li>1. The PP is requested to clarify the meaning of the term "Non-capitalised Project Cost" included in tab "Parameters" of the XLS file.</li> <li>2. The PP shall provide a clear breakdown of all costs.</li> <li>3. On PDD page 8 "table sensitivity analysis: Decrease in total costs" it is indicated that "Interest % is likely to be higher". PP is requested to clarify this statement.</li> </ol>	/IRR/	CAR B12	OK
B.4.4.13. In cases where a post-tax benchmark is applied please ensure that actual interest payable is taken into account in the calculation of income tax.	<p><i>Description:</i> The benchmark applied is post tax. The tax benefits due to debt funding have already been considered in calculating the WACC. The PP computed the cost of debt by means of multiplying the interest rate with 1 minus the corporate tax rate. This leads to the effective cost of debt. Hence, the validation team came to the</p>	/BEN/ /IRR/	OK	



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
(EB 62 Annex 5, § 11)  <i>As per the guidance it is recommended to select a pre tax benchmark in order to Describe the steps taken in assessing this requirement.</i>	conclusion that it is correct to not consider the interest payable in the free cash flow while calculating the taxable income since the benchmark already reflects the tax shield benefits.  <i>Justification of evidence:</i> The benchmark and IRR calculation have been checked.  <i>Conclusion:</i> The approach presented is in line with the accounting principles.			
B.4.4.14. In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow?  (EB 55 Annex 1, § 109; EB 62 Annex 5, § 10)	The project applies the project IRR.	/PDD/	N/A	
B.4.4.15. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)?  (EB 55 Annex 1, § 111; EB 62 Annex 5, §§12 – 15) <i>In case risk premiums are applied precisely describe its suitability to reflect the risks associated with the project activity, considering the project type and market situation.</i>	<i>Description:</i> The PP chose a WACC approach to compare it with a project IRR. This is included in the PDD section B.5.  <i>Justification of evidence:</i> The PDD, as well as the XLS file provided have been checked. In addition EB 51 Annex 58 paragraph 12 has been consulted to confirm that a WACC is comparable to a project IRR.  <i>Conclusion:</i> The validation team confirms that the benchmark chosen is appropriate for comparison.	/PDD/ /BEN/	OK	
B.4.4.16. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made	Yes, the WACC approach is a internationally well known method to decide whether to invest in a project.	/PDD/ /BEN/	OK	

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<p>at a rate of a lower return than the benchmark?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, §§13 – 15)</p> <p><i>Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.</i></p>				
<p>B.4.4.17. Is it ensured that the project cannot be developed by other developers than the PP?</p> <p>(EB 55 Annex 1 § 109; EB 62 Annex 5, §§ 13 – 14)</p> <p><i>Describe why the benchmark does not include the subjective profitability expectations or risk profile of the project developer. If applicable assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.</i></p>	<p><i>Description:</i> N/A</p> <p><i>Justification of evidence:</i></p> <p><i>Conclusion:</i></p>		N/A	
<p>B.4.4.18. Was the benchmark consistently used in the past for similar projects with similar risks?</p> <p>(EB 55 Annex 1, § 112(c))</p>	<p><i>Description:</i> The WACC has been utilized for benchmark calculation. This approach takes into account the financing structure of a project activity and the expectations of the asset providers. It is a common applied method for investment decision.</p> <p><i>Justification of evidence:</i> Based on the experiences of the validation team gained during many validations around the world, it could be verified that the WACC approach is suitable for an investment decision.</p> <p><i>Conclusion:</i> The benchmark has been used in the past for such kind of project activities.</p>	/BEN/	OK	
<p>B.4.4.19. Does the PDD and related spreadsheets contain a sensitivity analysis and does the same contain variation of parameters</p>	<p><i>Description:</i> As per sub-step 2d of the additionality tool the PP conducted a sensitivity analysis considering a range of <math>\pm 10\%</math> for:</p> <ul style="list-style-type: none"> <li>• Total costs</li> </ul>	/IRR/ /PDD/	OK	

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<p>which may vary throughout the project lifetime,</p> <p>(EB 55 Annex 1, §§ 109–110(e); EB 62 Annex 5, § 17–18)</p> <p><i>Describe relevance of parameters used in the sensitivity analysis as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.</i></p>	<ul style="list-style-type: none"> <li>• Increase in power generation and</li> <li>• Increase in the electricity tariff.</li> </ul> <p>The total costs are hardly unlikely to increase since the project has been contracted for the equipment and construction. These figures have been considered in the IRR calculation.</p> <p>The increase in power generation mainly depends on the wind availability, machine availability and grid evacuation. The PLF assumed is 33.3 % which is considerably higher than the assumptions of the Gujarat Electricity Regulatory Commission. Hence, also a significant permanent increase is unlikely.</p> <p>The electricity tariff is fixed for 25 years and hence an increase is unlikely.</p> <p><i>Justification of evidence:</i> The validation team checked the IRR calculation which includes a sensitivity analysis. The calculation provided is correct. In addition the following documents have been checked:</p> <ul style="list-style-type: none"> <li>• Tariff Order of Gujarat</li> <li>• Draft Power Purchase Agreement</li> <li>• Wind Yield Assessment</li> <li>• Equipment Supply Agreement</li> <li>• Development Agreement</li> <li>• Erection and Commissioning Agreement</li> </ul> <p><i>Conclusion:</i> All documents were assessed as reliable and authentic since they are either publicly available or signed. TÜV NORD concludes, that the correct parameters have been considered for the</p>	/ET/ /DPPA/ /WYA/ /EPC/ /DA/ /ECA/		

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	sensitivity analysis.			
<p>B.4.4.20. Were only variables that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 17)</p>	<p><i>Description:</i> The above mentioned parameters have been chosen for sensitivity analysis. Operating costs were considered to have a negligible impact on the financial situation.</p> <p><i>Justification of evidence:</i> The IRR sheet has been checked and parameters chosen are correct since these have the most impact on either a positive or negative influence on the IRR.</p> <p><i>Conclusion:</i> TÜV NORD accepted not taking O&amp;M costs into account since it could be confirmed by means of re-calculation that the impact on the financial situation is negligible. The sensitivity analysis is conducted in line with the CDM regulation.</p>	/IRR/	OK	
<p>B.4.4.21. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 17)</p> <p><i>Describe whether those parameters are considered in the sensitivity analysis?</i></p>	<p><i>Description:</i> Please refer to the assessment in B.4.4.20.</p> <p><i>Justification of evidence:</i></p> <p><i>Conclusion:</i></p>		OK	
<p>B.4.4.22. Is the range of variation reasonable in the specific context of the project activity, taking into consideration historic trends in the business sector?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 18)</p> <p><i>Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.</i></p>	<p><i>Description:</i> The range chosen is <math>\pm 10</math> which is the usual approach for wind projects. The project costs are fixed by contracts, the PLF is already quite high compared to other projects in Gujarat and the tariff is fixed for 25 years.</p> <p><i>Justification of evidence:</i> Based on sector specific experiences of the validation team and based on a review of the documents summarized in B.4.4.19. the following conclusion is taken:</p> <p><i>Conclusion:</i> The range of <math>\pm 10</math> % is reasonable, since a higher</p>	/IRR/	OK	

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	fluctuation is not reasonable in the context of a wind project.			
<b>B.4.5. Barrier analysis Step 3 or SSC additionality assessment</b>				
<b>B.4.5.1.</b> Are there any barriers given which have a clear and direct impact on the financial returns of the project?  (EB 55 Annex 1, §§ 115, 134, 137) <i>In case of LSC projects those issues cannot be considered as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 62 Annex 5.</i>	The barrier analysis is not applied.		N/A	
<b>B.4.5.2.</b> Are the barriers described risk related (e.g technology failure, other performance related risks)?  (EB 55 Annex 1, §§ 116, 134, 137) <i>Are there other barriers or barriers due to prevailing practice existent which would have led to higher emissions?</i>	The barrier analysis is not applied.		N/A	
<b>B.4.5.3.</b> Has the unavailability of means of finance for the project been described and adequately substantiated? Do evidence doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM?  (EB 55 Annex 1, §§ 116, 137, EB 50 Annex 13, § 9)	The barrier analysis is not applied.		N/A	

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B.4.5.4. How is it justified and evidenced that the barriers given in the PDD are real? (EB 55 Annex 1, § 116(a))	The barrier analysis is not applied.		N/A	
B.4.5.5. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives? (EB 55 Annex 1, § 116(b))	The barrier analysis is not applied.		N/A	
B.4.5.6. Does the review of relevant background information on the nature of the company(ies) and entity(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real? (EB 50 Annex 13, § 4)	The barrier analysis is not applied.		N/A	
B.4.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers? (EB 50 Annex 13, § 5)	The barrier analysis is not applied.		N/A	
B.4.5.8. Would provision of additional financial	The barrier analysis is not applied.		N/A	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
means lead to the mitigation of the barrier(s) demonstrated?  (EB 50 Annex 13, § 7) <i>Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analysing the project's additionality within the framework of an investment analysis is inappropriate. .</i>				
<b>B.4.6. Common practice analysis Step 4</b> (in case of SSC projects skip this step)				
B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type?  (EB 55 Annex 1, § 120(a)) <i>Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.</i>	<p><i>Description:</i> The PP identified Gujarat as an appropriate region. All projects beginning from June 2003 have been considered after the Electricity Act came into force and all projects above 15 MW capacity were also taken into account.</p> <p><i>Justification of evidence:</i> Based on the local expertise of the validation team it is confirmed that Gujarat is appropriately chosen. In fact, the legal requirements and economical framework differ from state to state.</p> <p>It is further confirmed that the Electricity Act from 2003 is a blueprint in the Indian Energy Sector report, which leads to significant changes in the electricity system.</p> <p><i>Conclusion:</i> The regional boundary as well as the time point can be considered as appropriate and is therefore accepted. However, evidence shall be provided that 15 MW installed capacity can be considered as a benchmark for better negotiation conditions.</p>	/PDD/ /EA/	CAR B13	OK
B.4.6.2. To what extent similar projects have been undertaken in the relevant region?	<i>Description:</i> 9 projects have been identified by the PP and listed in the PDD.	/PDD/	CAR B14	OK



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(EB 55 Annex 1, § 120(b))	<p><i>Justification of evidence:</i> The PDD has been checked. Other sources are not clearly referenced which can substantiate the information.</p> <p><i>Conclusion:</i> Even though other projects not applying CDM have been identified the information could not be confirmed by the validation team since the sources are not adequately addressed. Therefore PP is requested to revise the PDD and provide the evidence. In addition the capacities of the projects shall be provided to confirm whether these fit into the defined capacity minimum of 15 MW.</p>			
<p>B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed?</p> <p>(EB 55 Annex 1, § 120(c))</p>	<p><i>Description:</i> According to the description in the PDD 2 projects have been identified. 1 project is utilized for captive power supply and also received carbon credits from a scheme different to the CDM and the other project is also seeking for CDM benefits.</p> <p><i>Justification of evidence:</i> The PDD has been checked. Other sources are not clearly referenced which can substantiate the information.</p> <p><i>Conclusion:</i> A final evaluation cannot be provided. This depends on closure of CAR B14. In addition, no discussion is provided under sub-step 4b to describe and justify the distinctions between the two projects identified and the proposed project. Correction is necessary.</p>	/PDD/	CAR B14  CAR B15	OK

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<b>B.5. Ex-Ante Calculation of GHG Emission Reductions</b>  <i>It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.</i>				
<p>B.5.1. Are the equations applied correctly according to the applied approved methodology?</p> <p>(EB 55 Annex 1, §§ 67(c), 89–90, 92)</p> <p><i>Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.</i></p>	<p><input type="checkbox"/> The equations applied for calculation are correctly applied according to the approved methodology.</p> <p><input checked="" type="checkbox"/> The following mistakes have been identified in this context:</p> <p><i>Description:</i> The section B.6.1. provides a theoretical approach of how the baseline emissions are calculated. The project and leakage emissions are defined as zero in line with the methodology. Besides the PP provides rough information about the determination of the emission factor.</p> <p><i>Justification of evidence:</i> The content of the PDD has been compared to the requirements of the methodology and emission factor tool.</p> <p><i>Conclusion:</i> Even though the purpose of this section has been understood, the validation team observed the following:</p> <ol style="list-style-type: none"> <li>1. The formulae provided for BE seem to be derived from an outdated version of ACM0002. Correction is required.</li> <li>2. The same applies to the emission factor tool. While a 7 step approach is shown in the latest applicable version 2, the</li> </ol>	/PDD/ /ACM2/	CAR B16	OK

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	<p>PDD only includes a 6 step approach.</p> <ol style="list-style-type: none"> <li>Justification is not provided why simple OM has been used even though the tool defines clear requirements (page 5)</li> <li>For OM the PP did not define whether the ex-ante or ex-post approach has been utilized.</li> <li>Different approaches to calculate the simple OM are defined and need to be chosen. However, information is missing in the PDD.</li> <li>Equations for EF calculations are not provided.</li> </ol> <p>Corrections shall be conducted.</p>			
<p>B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)?</p> <p>(EB 55 Annex 1, §§ 90–91)</p> <p><i>Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.</i></p>	<p><i>Description:</i> The methodology clearly shows how to derive the emission reductions. Different choices are not possible.</p> <p>The emission factor is provided by the Indian government calculated on the basis of the tool to calculate the grid emission factor.</p> <p><i>Justification of evidence:</i> The methodology as well as the grid tool and the published data from the Indian DNA have been checked.</p> <p><i>Conclusion:</i> The approach of determining the baseline and the emission reductions are in line with the applied methodology and the grid tool.</p>	/ACM2/ /TEF/ /XLS/	OK	
<p>B.5.3. Have conservative assumptions been used when calculating the project emissions?</p> <p>(EB 55 Annex 1, §§ 90–91)</p> <p><i>Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively</i></p>	<p><i>Description:</i> Project Emissions are 0.</p> <p><i>Justification of evidence:</i> The methodology has been checked.</p> <p><i>Conclusion:</i> Project emissions are not applicable for wind power projects.</p>	/ACM2/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<i>interpreted in the PDD.</i>				
<p>B.5.4. Does the implementation of the project activity lead to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology?</p> <p>(EB 55 Annex 1, § 77)</p>	<p><i>Description:</i> No such emission sources are observed.</p> <p><i>Justification of evidence:</i> Based on the experiences made in several wind power validations the validation team confirms that other emission sources than addressed in the methodology are not applicable.</p> <p><i>Conclusion:</i> No GHG emission sources are applicable for project emissions not addressed by the methodology.</p>	ACM2	OK	
<p>B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions?</p> <p>(EB 48 Annex 11, §§ 1, 3–4)</p> <p><i>Describe why the PLF is conservative in the framework of calculating emissions reductions and whether the PLF is the same in the framework of demonstrating additionality by applying the investment analysis. Note, in order to be conservative in both cases the PLF may be different.</i></p>	<p>The PLF utilized for the investment analysis is the same as the one for the emission reduction calculation. The appropriateness of this factor as been assessed. Please refer to Annex 3 of this report.</p>	/WYA/ /FTS/	OK	
<p>B.5.5. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions?</p> <p>(EB 55 Annex 1, § 91)</p> <p><i>Describe clearly the steps taken to assess whether the</i></p>	<p><i>Description:</i> The emission reductions have been determined as per the applied methodology ACM0002. The emission reductions are equal to the baseline emissions which are determined with the net electricity generation and the emission factor of the identified grid. Both parameters have been determined based on experienced wind energy consulting company and publicly available data from the Indian government.</p> <p>While the net electricity generation is a parameter to be monitored, the emission factor is determined ex-ante and remains fixed</p>	/XLS/ /PDD/ /ACM2/ /WYA/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<i>values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.</i>	throughout the crediting period.  <i>Justification of evidence:</i> The methodology has been checked and sources for emission factor calculation as well as net electricity determination were verified by the validation team.  <i>Conclusion:</i> Sources and parameters are appropriate and transparently provided.			
B.5.6. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable?  (EB 55 Annex 1, § 91) <i>Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity</i>	<input checked="" type="checkbox"/> All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative.  <input type="checkbox"/> The following mistakes have been identified in this context:	/XLS/ /PDD/ /ACM2/ /WYA/	OK	
B.5.7. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change. <i>Describe the steps taken to validate this issue.</i>	Yes, as assessed during the course of validation, the emission reductions generated by the project will be real, measurable and give long-term benefits related to the mitigation of climate change.	/XLS/ /PDD/ /ACM2/ /WYA/	OK	
<b>B.6. Monitoring of Emission Reductions</b> <i>It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.</i>				
B.6.1. Are all monitoring parameters required by the	<i>Description:</i> The monitoring parameter addressed is EG <sub>facility,y</sub> which	/PDD/	OK	

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<p>applied methodology contained in the monitoring plan?</p> <p>(EB 55 Annex 1, §§ 67(e), 121, 123(a), 124)</p> <p><i>Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.</i></p> <p><i>Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.</i></p> <p><i>In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.</i></p>	<p>is the net electricity generation.</p> <p><i>Justification of evidence:</i> The methodology has been compared to the content of the PDD.</p> <p><i>Conclusion:</i> The only parameter necessary for monitoring has been included in section B.7. of the PDD.</p>	/ACM2/		
<p>B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology?</p> <p>(EB 55 Annex 1, § 123(a)–(b), 124)</p> <p><i>Assess whether the provided information for all parameters w.r.t.</i></p> <ul style="list-style-type: none"> <li>a) <i>Label (name of the data / parameter)</i></li> <li>b) <i>data unit</i></li> <li>c) <i>description</i></li> <li>d) <i>source of data</i></li> <li>e) <i>measurement equipment / method / procedure</i></li> <li>f) <i>monitoring frequency</i></li> </ul>	<p><i>Description:</i> The parameter to be monitored is <math>EG_{\text{facility},y}</math>. It will be measured in MWh. It is the net electricity generation consisting of the electricity exports subtracted by the imports to the project. It will be measured by electricity meter, which will have the accuracy and the calibration frequency as per the Indian regulations. The electricity will be continuously measured and data will be recorded monthly. The meter records will be cross-checked with the invoice.</p> <p><i>Justification of evidence:</i> Since the project is not yet in operation a more detailed description could not be presented in the PDD. However, all relevant information as required by the methodology is incorporated.</p> <p><i>Conclusion:</i> The description in the PDD meets all requirements of the methodology and has been assessed as sufficient in this stage of project implementation.</p>	/PDD/ /ACM2/	OK	

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g) <i>QA/QC procedures are appropriately described and in compliance with the requirements of the methodology..</i>				
<p>B.6.3. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology?</p> <p>(EB 55 Annex 1, §§ 123(b), 124)</p> <p><i>Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.</i></p> <p><i>Please consider that additional equations might be necessary to calculate auxiliary parameters.</i></p>	<p><i>Description:</i> Yes, all requirements are appropriately addressed.</p> <p><i>Justification of evidence:</i> The content of the PDD has been compared to the requirements of the methodology.</p> <p><i>Conclusion:</i> All information provided is in line with the methodology.</p>	/PDD/ /ACM2/	OK	
<p>B.6.4. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity?</p> <p>(EB 55 Annex 1, § 124(c))</p> <p><i>Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.</i></p>	<p>The monitoring will be conducted by the PP and the grid operator. The project is in an early stage of implementation. Detailed information could therefore not be provided. However, the information shows that the minimum requirements are met. Hence, it is assessed as appropriate. The validation team checked the PDD and the methodology requirement.</p>	/PDD/ /ACM2/	OK	



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<p>B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activity can be reported ex-post and verified?</p> <p>(EB 55 Annex 1, § 124(b))  <i>Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.</i></p>	<p>Please refer to assessment in B.6.5.</p>	<p>/PDD/ /ACM2/</p>	<p>OK</p>	
<p>B.6.6. Are procedures identified for data management?</p> <p>(EB 55 Annex 1, § 124(b))  <i>Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation</i>  <i>Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.</i></p>	<p>Please refer to assessment in B.6.5.</p>	<p>/PDD/ /ACM2/</p>	<p>OK</p>	
<p><b>C. Duration of the Project/ Crediting Period</b></p> <p><i>It is assessed whether the temporary boundaries of the project are clearly defined.</i></p>				

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>C.1. Is the project's starting date clearly defined and evidenced?</p> <p>(EB 55 Annex 1, § 99)</p> <p><i>Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".</i></p>	<p><i>Description:</i> The project starting date is 2010-12-02 when the equipment supply contract has been signed.</p> <p><i>Justification of evidence:</i> The following contracts have been checked to confirm the date:</p> <ul style="list-style-type: none"> <li>• Equipment supply contract</li> <li>• Development Agreement</li> <li>• Erection and Commissioning Agreement</li> <li>• Operation and Maintenance Agreement</li> </ul> <p>The authenticity has been confirmed during the document check.</p> <p><i>Conclusion:</i> All contracts mentioned above have been signed on the same day with the same manufacturer. Earlier signed contracts have not been seen. Hence, the starting date is assessed as correct.</p>	<p>/PDD/ /EPD/ /DA/ /ECA/ /OMA/</p>	<p>OK</p>	
<p>C.2. Is the project's operational lifetime clearly defined and evidenced?</p> <p><i>Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).</i></p> <p><i>Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.</i></p>	<p><i>Description:</i> The project lifetime is defined as 20 years.</p> <p><i>Justification of evidence:</i> The type certificate of the installed wind turbines has been checked.</p> <p><i>Conclusion:</i> The 20 years lifetime is confirmed.</p>	<p>/TCW/</p>	<p>OK</p>	
<p>C.3. Is the start of the crediting period clearly defined and reasonable?</p>	<p><i>Description:</i> The start is 2012-01-01.</p> <p><i>Justification of evidence:</i> Oral confirmation has been provided that this date will be met.</p>	<p>/IM01/ /PIS/</p>	<p>CAR G1</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<i>Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.</i>	<i>Conclusion:</i> Starting date of crediting period cannot be met. Hence, CAR C1 is raised.			
<b>D. Environmental Impacts</b>  <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.</i>				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? (EB 55 Annex 1, §§ 131–133) <i>Check the host party regulations, regarding EIA.</i>	<i>Description:</i> For wind projects and environmental impact assessment is not necessary. However, the project owner conducted a voluntary socio-environmental impact assessment. This has been conducted by TATA Consulting Engineers Limited.  <i>Justification of evidence:</i> The report has been provided to the validation team.  <i>Conclusion:</i> Voluntary EIA has been conducted.	/EIA/	OK	
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved? (EB 55 Annex 1, §§ 131–133) <i>Check the EIA and its approval, if applicable.</i>	<i>Description:</i> Please refer to the assessment in D.1.1.  <i>Justification of evidence:</i>  <i>Conclusion:</i>	/EIA/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidence)	Ref.	Draft Concl.	Final Concl.
<p>D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation?</p> <p>(EB 55 Annex 1, §§ 130–132)  <i>Check the PDD (section D). Check whether the project will create any adverse environmental effects.</i>  <i>Check the relevant national environmental legislation.</i></p>	<p><i>Description:</i> As per the assessment above EIA is not required by the Indian government. However, voluntary EIA has been conducted which addresses an adverse impact from the project, i.e. noise. Major impact on animal life is not expected.</p> <p><i>Justification of evidence:</i> The report has been checked. Information provided in the PDD is confirmed. The TATA Consulting Engineers Limited is a reputable consulting company.</p> <p><i>Conclusion:</i> Information in the PDD is provided and confirms that major environmental impacts are not predicted.</p>	/EIA/ /tce/	OK	
<p>D.1.4. Are transboundary environmental impacts considered in the analysis?</p> <p>(EB 55 Annex 1, §§ 131–133)  <i>Check the documents and local official sources / expertise regarding transboundary environmental impacts.</i></p>	<p><i>Description:</i> The project boundary is not sharing a border to another country.</p> <p><i>Justification of evidence:</i> Maps have been studied to confirm this.</p> <p><i>Conclusion:</i> Transboundary impacts are therefore not considered.</p>	/PDD/	OK	
<p><b>E. Stakeholder Comments</b></p> <p><i>The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i></p>				
<p>E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD?</p> <p>(EB 55 Annex 1, § 128)  <i>Check by means of document review and interviews with</i></p>	<p><i>Description:</i> A stakeholder meeting has been conducted on 2010-10-13 in the course of the EIA development. Local people and villagers have provided comments.</p> <p><i>Justification of evidence:</i> The attendance list as well as the EIA report has been checked by the validation team to confirm this.</p>	/SHCP/	OK	

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidence)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>local stakeholders if and when a local stakeholder consultation process has been carried out.</i>	<i>Conclusion:</i> Relevant stakeholders have been invited.			
<p>E.2. Can the local stakeholder consultation process be assessed as adequate? (EB 55 Annex 1, § 129(a)–(c))</p> <p><i>Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.</i></p> <p><i>Please consider the following requirements in this context:</i></p> <p><i>(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited;</i></p> <p><i>(b) The summary of the comments received as provided in the PDD is complete;</i></p> <p><i>(c) The project participants have taken due account of any comments received and have described this process in the PDD.</i></p>	<p><i>Description:</i> The PDD provides a description of the process, that invitation has been provided orally and that comments have been made. The PP followed the Equator Principles which have been established as credit risk management in terms of social and environmental impacts of investment projects for banks like the World Bank. These principles have been followed since the EKF loan was granted on the basis of fulfilment of these principles. In general, the project stakeholders welcomed the project as improvement of infrastructure and employment opportunities.</p> <p><i>Justification of evidence:</i> On the basis of the report provided by TATA Consulting Engineers Limited, oral confirmation of PP and checking the guiding principles the validation team confirmed the information provided.</p> <p><i>Conclusion:</i> The stakeholder consultation process has been conducted in line with the requirements.</p>	/SHCP/ /IM01/ /EQP/	OK	

## ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

**Table A-2:** Assessment of Baseline Identification (EB 51 Annex 3, §§ 82 – 85)

<input type="checkbox"/>	Baseline is not identified
<input checked="" type="checkbox"/>	Assessment of baseline see below

Baseline Alternatives identified	Inline with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	DOE Assessment	
					Appropriateness of elimination	Assessment of validation team (results and means of assessment)
The proposed project activity not undertaken as a CDM project activity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Proposed project activity is not attractive option without CDM revenue as concluded by investment analysis in section B.5 of PDD.	/IRR/	<input checked="" type="checkbox"/>	The investment analysis has been assessed by the validation team and found appropriate in the context of the proposed project activity.
Continuation of the current situation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	This alternative is not facing any type of barrier.	/ADD/	<input type="checkbox"/>	Continuation of the current situation i.e. import of power from the NEWNE grid in the absence of the proposed project activity is the only baseline scenario applicable as per the applied methodology.

### ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

**Table A-3:** Assessment of Financial Parameters (EB 51 Annex 3, §§110, 111, 113/ in case financial parameters stem from FSR §112,)

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
Installed Capacity	91.8	MW	Wind Yield Assessment	/WYA/	<input checked="" type="checkbox"/>	The value is derived from the wind yield assessment provided by the PB Power Group a qualified third party. Further the PP has backed-up the information with the duly signed Equipment Supply Contract between Vestas and the project owner. <sup>/EPC/</sup> Hence, capacity is assessed as reasonable.
PLF	33.3	%	Wind Yield Assessment	/WYA/	<input checked="" type="checkbox"/>	The PLF has been determined in the wind yield assessment which has been developed by an experienced and authorized consulting company: PB Power Group. In addition the figure has been provided to the bank for loan approval. <sup>/FTS/</sup> Hence, TÜV NORD concludes that EB 48 Annex 11 paragraph 3 a) and b) is met and the value is appropriate.
						For plausibility purposes the validation team checked the PLF of other registered CDM projects in the state of Gujarat, where available. The result is shown in the table below:
						<table><tr><td>5239</td><td>26,95%</td></tr><tr><td>5184</td><td>23,00%</td></tr></table>
5239	26,95%					
5184	23,00%					



<input type="checkbox"/>	No financial parameters are used for additionality justification							
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below							
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT			
					Correctness of value applied	Comment		
						5141	26,48%	
						4964	24,30%	
						4959	25,16%	
						4920	25,88%	
						4892	28,69%	
						4756	21,84%	
						4700	25,71%	
						3372	23,38%	
						2925	26,95%	
						2856	22,28%	
						2400	23%	
						2400	23%	
						2347	26,50%	
						2347	26,50%	
						It clearly shows that the PLF of the proposed project is the highest. Hence, the validation team is convinced that the PLF is applicable.		
Electricity Generation	268,177,083	kWh	Wind Yield Assessment	/WYA/	<input checked="" type="checkbox"/>	The electricity generation is a result of the multiplication of the total installed capacity and the operation hours derived from PLF. It is derived from the wind yield assessment and provided to banks for		

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						loan application. Hence, TÜV NORD assessed the value as reasonable.
Standard Electricity Tariff	3.56	INR/kWh	Electricity Tariff Order	/ET/	<input checked="" type="checkbox"/>	The value is based on the Electricity Tariff Order No. 1 of 2010 issued by the Gujarat Electricity Regulatory Commission. It is the value which is available at the time of management decision. As per the draft power purchase agreement this value is fixed for a period of 25 years as per Article 5. <sup>/DPPA/</sup> Based on these information TÜV NORD concluded that the tariff is applicable.
Generation Based Incentives	0.5	INR/kWh	Generation Based Incentives	/GBI/	<input checked="" type="checkbox"/>	The generation based incentives are granted by the Indian Renewable Energy Development Agency from 2010 onwards. It is an incentive to the regular electricity price to support renewable energy facilities. The value is from February 2010 and hence, it is considered as an E- policy as per EB 22 Annex 3 paragraph 6 b). This means that it must not be considered in the financial analysis for additionality justification as per paragraph 7 b), since the policy has been established after 11 <sup>th</sup> November 2001. However, for conservative purposes the project owner took them into account, which makes the additionality even more robust. The generation based incentives are only granted till a limit of 569,160,000 INR. This has been considered in the calculation of sales from electricity and deemed OK.
Total Project Costs	7,023,689,851.6	INR	Capitalised Project Costs Non Capitalised Project Costs	/EPC/ /ECA/ /DA/ /LCF/	<input checked="" type="checkbox"/>	The total project costs consist of the capitalized costs and the non capitalized costs. The capitalized costs are derived from the following sources:

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
				/FTS/ /GBI/ /MOU/ /ITS/		<p>The memorandum of understanding signed between Vestas and the PP on 2010-06-10 includes the supply and erection, commissioning and development. The value included in the MOU is 6,273,000,000 INR. This value has been cross-checked with contracts already signed. The following is the result:</p> <p><b>Equipment Supply Agreement</b> with Vestas: 5,753,563,674 INR  <b>Erection and Commissioning Agreement</b> with Vestas: 377,570,136 INR (incl. 10.3 % Service Tax)  <b>Development Agreement</b> with Vestas: 65,366,190 INR (incl. 10.3 % Service Tax)</p> <p>This results in a real investment based on contracts with Vestas of 6,199,841,250 INR which is slightly lower. However, even with this figure the benchmark could not be touched. This has been confirmed by the validation team.</p> <p><b>Development Fee</b> which cannot be considered as sunk costs: 1 % of Payment Security: 3,341,250 INR  The <b>Upfront Fee</b> is payable based on the loan amount which is in this case 70 %. This is based on international accounting principle and widely observed in construction projects. The 70 % consist of a commercial loan which is 40 % contracted with HSBC and a soft (FTS) loan of 60 % with Eksport Kredit Fonden. The interest rates are 2.65 % and 0.8 % respectively. The value is calculated as following: Amount of loan (70 %) x Commercial Loan (40 %) x 2.65 % + Amount of loan (70 %) x EKF Loan (60 %) x 0.8 % =</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>74,890,706 INR.</p> <p><b>Security Trustee Fee, EKF Agency Fee and Facility Agency Fee</b> in sum 60,000 USD converted to INR with an exchange rate of 46.4575 INR/USD for 9 month during construction phase resulting in total 2,090,587 INR. It has been sourced from the indicative term sheet from HSBC and cross-checked with the financial term sheet with HSBC.</p> <p>The <b>Commitment Fee</b> is defined as 0.75 % of undrawn amount during the construction period resulting in 29,736,688 INR. This has been sourced from the indicative term sheet from HSBC and cross-checked with the financial term sheet with HSBC.</p> <p>The <b>Interest Rate during construction</b> is defined as 11.42 % per year and applied to a monthly draw down amount. The value considered is 205,665,346 INR and has been estimated by the management of the project owner.</p> <p>The non capitalized costs are as following:</p> <p>The <b>GBI registration fee</b> is payable due to application of the GBI per kWh and is set at 7,594,155 INR (91.8 MW x 75,000 Rs/MW x 1.103 (Service tax and Cess)) defined by governmental authorities. This is assessed and verified by checking the relevant rule.<sup>/GBI/</sup></p> <p>The <b>initial debt service reserve account</b> is estimated to be 854,742,234 INR per year considered for 6 month refers to a value of 427,371,116 INR.</p> <p>TÜV NORD checked all available sources carefully. The indicative term sheet from HSBC and the Memorandum of Understanding</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification																																												
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																																												
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT																																								
					Correctness of value applied	Comment																																							
						<p>with Vestas is the basis for the investment decision. Other values are derived from publicly available governmental documents.<sup>/GBI/</sup> Contracts and loan agreement have been considered for cross-check purposes. The documents are duly signed and stamped. The reliability is therefore granted and authenticity is ensured. It shows that the estimated investment amount is slightly higher than what has been achieved under real contract conditions. However, the impact on the IRR is minor with an increase less than 1 %.</p> <p>Besides the validation team checked the plausibility of the figures provided in the contracts by means of comparing the unit investment costs of all registered CDM projects in India which utilize turbines in a capacity range of 1.5 MW – 2.1 MW. The result is shown in the following table:</p> <table><tr><th>UN Reg No.</th><th>Capacity</th><th>Invest (10<sup>6</sup>Rs)</th><th>10<sup>6</sup>Rs/MW</th></tr><tr><td>4740</td><td>18</td><td>1086</td><td>60,3</td></tr><tr><td>5864</td><td>24</td><td>1640</td><td>68,3</td></tr><tr><td>6610</td><td>5,5</td><td>380</td><td>69,1</td></tr><tr><td>6563</td><td>1,5</td><td>91</td><td>60,6</td></tr><tr><td>5370</td><td>1,5</td><td>100</td><td>66,7</td></tr><tr><td>6521</td><td>4,5</td><td>292</td><td>64,8</td></tr><tr><td>5087</td><td>60</td><td>3600</td><td>60,0</td></tr><tr><td>6437</td><td>4,5</td><td>280</td><td>62,3</td></tr></table>				UN Reg No.	Capacity	Invest (10 <sup>6</sup> Rs)	10 <sup>6</sup> Rs/MW	4740	18	1086	60,3	5864	24	1640	68,3	6610	5,5	380	69,1	6563	1,5	91	60,6	5370	1,5	100	66,7	6521	4,5	292	64,8	5087	60	3600	60,0	6437	4,5	280	62,3
UN Reg No.	Capacity	Invest (10 <sup>6</sup> Rs)	10 <sup>6</sup> Rs/MW																																										
4740	18	1086	60,3																																										
5864	24	1640	68,3																																										
6610	5,5	380	69,1																																										
6563	1,5	91	60,6																																										
5370	1,5	100	66,7																																										
6521	4,5	292	64,8																																										
5087	60	3600	60,0																																										
6437	4,5	280	62,3																																										

<input type="checkbox"/>	No financial parameters are used for additionality justification								
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below								
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT				
					Correctness of value applied	Comment			
						6403	1,5	89	59,1
						6220	1,5	92	61,0
						5001	3	190	63,4
						5767	9	585	65,0
						5531	1,5	90	60,0
						5923	7,5	450	60,0
						5558	10,5	665	63,3
						5527	3	186	61,9
						5790	12	851	70,9
						5794	7,5	442	58,9
						4990	15	975	65,0
						5480	4,5	271	60,2
						5350	1,5	91	60,4
						5384	7,5	499	66,5
						5335	10,5	611	58,2
						5271	3	186	62,0
						4920	4,5	277	61,6
						5228	6	377	62,9
						4997	3	188	62,5

<input type="checkbox"/>	No financial parameters are used for additionality justification								
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below								
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT				
					Correctness of value applied	Comment			
						5141	19,5	1185	60,8
						5076	4,5	297	66,1
						4575	6	400	66,7
						4813	1,5	93	61,7
						4119	10,5	661	62,9
						4756	21	1314	62,6
						4739	4,5	266	59,0
						4718	4,5	283	62,8
						4992	1,5	90	60,0
						4541	3	195	65,0
						4458	7,5	469	62,6
						4433	3	186	62,0
						4436	1,5	89	59,2
						4050	3	195	65,0
						4243	3	185	61,7
						4209	21	1463	69,7
						4223	1,5	92	61,2
						4197	3	181	60,4
						3946	7,5	450	60,0



<input type="checkbox"/>	No financial parameters are used for additionality justification								
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below								
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT				
					Correctness of value applied	Comment			
						3996	22,5	1320	58,7
						3981	1,5	94	62,7
						3884	33	2000	60,6
						3855	10,5	626	59,6
						3642	67,5	3996	59,2
						3444	4,5	271	60,3
						3578	7,5	455	60,7
						3575	3	188	62,7
						3445	3	181	60,3
						3554	1,5	90	60,0
						3550	1,5	100	66,7
						3511	7,5	434	57,9
						3494	3	182	60,7
						3257	9	548	60,9
						3046	9	578	64,2
						2856	51	3116	61,1
						2770	1,5	97	64,9
						2706	1,5	88	58,6
2679	9	597	66,3						

<input type="checkbox"/>	No financial parameters are used for additionality justification								
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below								
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT				
					Correctness of value applied	Comment			
						2546	12	724	60,3
						2400	12	680	56,7
						2347	150	8833	58,9
						2092	45	2721	60,5
						6491	3,6	260	72,2
						6498	3,3	212	64,2
						6445	3,3	208	63,0
						6390	39,6	2316	58,5
						6056	4,2	240	57,1
						5814	8,4	465	55,3
						6121	9,9	631	63,7
						6113	4	254	63,5
						5845	8,4	465	55,3
						5548	4,95	320	64,5
						5537	23,1	1624	70,3
						5198	56,1	3287	58,6
						5239	16,5	921	55,8
						5096	6,3	339	53,8
5439	8,4	469	55,8						

<input type="checkbox"/>	No financial parameters are used for additionality justification													
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below													
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT									
					Correctness of value applied	Comment								
						5344	4,95	333	67,3					
						5123	14,7	794	54,0					
						5010	1,65	112	67,9					
						4475	9,9	693	70,0					
						4767	2,1	109	52,0					
						4761	2,5	127	50,9					
						4693	2,1	115	54,5					
						4540	19,8	1287	65,0					
						4572	9,9	654	66,0					
						4351	1,65	111	67,1					
						3870	37,95	2633	69,4					
						3632	14,85	977	65,8					
						3479	3,3	206	62,3					
						3327	16,5	1090	66,1					
						2710	3,3	230	69,6					
						1949	29,7	2120	71,4					
						1615	23,1	1625	70,4					
						Prop. Project	91,8	6197	67,5					
						Source: <a href="http://www.iges.or.jp/en/cdm/report_cdm.html">http://www.iges.or.jp/en/cdm/report_cdm.html</a> and UNFCCC								
						The unit investment costs range between 50.9 and 72.2 Rs/MW								

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						The proposed project is within this range. The average unit investment cost of all the projects is 62.3 Mio Rs. It is 8.8 % higher, i.e. well within the range of the sensitivity analysis. Based on the real contracts and the plausibility check the validation team deemed the financial analysis appropriate.
O&M escalation before	132,600,000	INR/y	Operation and Maintenance Agreement	/OMA/ /EOMA/	<input checked="" type="checkbox"/>	The O&M costs as introduced in the IRR XLS calculation sheet is derived from e-mail communication between the manufacturer Vestas and the PP from 2010-09-17 (before the investment decision). Vestas is offering the 2.6 Mio INR/unit for O&M. Hence, the value has been accepted. The e-mail is assessed reliable since it is provided from an official account of Vestas. The O&M Agreement with Vestas has been utilized for cross-check purposes. The value indicated there is equal to the offer in the e-mail: 2.6 Mio INR/unit. The agreement grants a period of 2 years which is free of charge. From year 4 onwards it is escalating by 5 % annually. The escalation rate is derived from the Ministry of Commerce and Industry of India. <sup>/EER/</sup> The O&M Agreement has been checked by the validation team. It is duly signed and executed. The source is assessed as reliable. Further the escalation rate has been accepted since it is derived from the Indian government from publicly available sources. <sup>/EER/</sup>
Insurance	13,663,282	INR/y	Assumption by PO	/XLS/	<input checked="" type="checkbox"/>	The project owner assumed that the insurance is 0.2 % of the capital expenditures with an escalation of 5 %. Compared to the value of total O&M before escalation above, the insurance has a

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						10 % share on the O&M costs. This is assumed as reasonable compared to a value of 13 % provided in "Wind Energy – The Facts", the economics of wind, page 100, Figure 3.1. <sup>/eweal/</sup>
Administration Expenses	5,621,000	INR/y	Assumption by PO based on manufacturers experiences	/XLS/	<input checked="" type="checkbox"/>	The administrative expenses include salaries, land tax and metering and certification charges. The assumptions are based on the experiences of the turbine manufacturer Vestas. The validation team checked an e-mail between the manufacturer and the PP where these values are indicated. The validation team confirms the figures based on experiences gained in the wind power sector in India.
Other Expenses before escalation	2,136,477	INR/y	Gujarat Urja Vikas Nigam Limited Draft Power Purchase Agreement	/GUVNL/ /DPPA/	<input checked="" type="checkbox"/>	Other expenses are including reactive power consumptions which are 5 % of electricity generation based on expertise of Vestas. The value charged is (0.1 INR/kVARh) and is derived from the GUVNL Vadodara, the grid operator. <sup>/GUVNL/</sup> The Letter of credit fee under the PPA is determined as per the draft power purchase agreement as 1 % of monthly revenue from electricity generation. <sup>/DPPA/</sup>
O&M (Sum)					<input checked="" type="checkbox"/>	<b>Adding total O&amp;M, Insurance, Administrative Expenses and total other expenses the annual costs are about 2.5 % in the beginning years and about 7 % in the last year (after escalating) of capital expenditures which is assessed as reasonable based on technical literature<sup>/RE/</sup> and experiences gained in other wind power validations in India.</b>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
Corporate Tax	33.22	%	Income Tax Act	/ICT/ /CESS/	<input checked="" type="checkbox"/>	The rate of corporate tax has been correctly assumed as per the Income Tax Act. It consists of the income tax rate which is defined as 30 %, the surcharge which is defined as 7.5 % of the income tax and the Education Cess and Higher Education Cess, which is 2 % and 1 % of income tax and surcharge. The relevant regulations have been checked and value is confirmed.
Minimum Alternate Tax	19.93	%	Income Tax Act	/MAT/ /CESS/ /ICT/	<input checked="" type="checkbox"/>	The MAT has been derived from the Income Tax Act which is assessed appropriate. The MAT consists of the minimum alternate tax rate which is 18 % a surcharge of 7.5 % of the MAT rate and a, the Education Cess and Higher Education Cess, which is 2 % and 1 % of income tax and surcharge. According to the tax law of India the higher tax compared between the income tax and the MAT is applicable. The XLS calculation sheet provided by the PP has been checked. Under the tab "Tax" both taxes are compared and the higher value is applied. The calculation is deemed as appropriate and correct.
Tax depreciation rate	7.84	%	Income Tax Department	/itd/	<input checked="" type="checkbox"/>	Tax depreciation rate has been derived from the following source which has been checked and assessed as OK: <a href="http://bit.ly/indiaincometaxrule_deprate">http://bit.ly/indiaincometaxrule_deprate</a> The depreciation is straight line in accordance to accounting principles.
Accounting depreciation rate	5.28	%	Companies Act, 1956	/CA/	<input checked="" type="checkbox"/>	Accounting depreciation rate has been derived from the following source which has been checked and assessed as OK: <a href="http://www.mca.gov.in/Ministry/companies_act.html">http://www.mca.gov.in/Ministry/companies_act.html</a>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						The depreciation is straight line in accordance to accounting principles.
Residual Value	5	%	Companies Act, 1956	/CA/	<input checked="" type="checkbox"/>	The value is based on the Companies Act from 1956 which defines that 95 % of the capital expenditures and be depreciated.
WACC (benchmark)	11.8	%	Benchmark calculation	/BEN/	<input checked="" type="checkbox"/>	<p>The WACC is calculated based on the formula:</p> $WACC = \frac{E}{V} \times R_e + \frac{D}{V} \times R_d$ <p>Where:  Re: cost of equity  Rd: cost of debt  E: Amount of equity in the project  D: Amount of debt in the project  V: Total Investment</p> <p>The formula is correctly applied. The approach to establish a comparable benchmark to the project IRR is in compliance with EB 61, Annex 13, clause 12. The calculation was conducted without any mistakes. The result has been re-calculated by the validation team. Hence, TÜV NORD comes to the conclusion that the approach chosen is suitable.</p> <p>The benchmark is calculated based on parameters that are standard in the market. All parameters applied are assessed as correct and appropriate. Each parameter will be assessed subsequently.</p>



<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						It should be noted that the WACC is solely calculated based on values which are standard in the market. This has been clearly shown in the assessment. Applying the default values from the EB is just an option and not mandatory “(...) cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) (...)” (EB 62 Annex 5 para 15). TÜV NORD came to the conclusion that the benchmark applied is correct.
Cost of Equity	21.3	%	Capital Asset Pricing Model	/BEN/	<input checked="" type="checkbox"/>	<p>The cost of equity is determined by utilizing the Capital Asset Pricing Model (CAPM). The CAPM defines the compensation of investors for investments taken. One part of the formula is related to the time value of money (risk free rate) compensating for investment over a time period, the other part represents the risks for investment. This is calculated by taking a risk measure, so called beta (<math>\beta</math>). The beta compares the returns of the asset to the market over a period of time and to the market premium. The formula correctly applied is as following:</p> $R_e = R_f + \beta \times (R_m - R_f)$ <p>Where:  <math>R_e</math>: Cost of equity  <math>R_f</math>: Risk free rate  <math>\beta</math>: Beta  <math>R_m</math>: Expected market return</p> <p>The applied model is internationally known and applied in making investment decision. Hence, it is assessed to be appropriate. The</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>relevant input parameters are assessed as following:</p> <p><b>R<sub>f</sub>: 7.23 %</b>  The risk free rate is determined by applying the interest rate on government securities issued in September 2010. This rate was available at the time of making the investment decision. The internet source provided by the PP has been checked: <a href="http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/119T_HBSE200910.pdf">http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/119T_HBSE200910.pdf</a>. The table is part of the Handbook of Statistics of Indian Economy published by the Reserve Bank of India, an official and publicly available source. The value applied could be verified and cross checked with a press release by Reuters in September 2010 identifying a bond rate of 7.9 % (<a href="http://in.reuters.com/article/2010/09/23/markets-india-money-idINSGE68M0H920100923">http://in.reuters.com/article/2010/09/23/markets-india-money-idINSGE68M0H920100923</a>; access 2011-08-01) which is higher than the utilized figure and hence, less conservative. Therefore, TÜV NORD concluded that the applied value is acceptable.</p> <p><b>β: 1.28</b>  The Beta was calculated based on data available for companies listed in stock market of India. Figures are considered which were applicable at the time of investment decision in 2010 (from Jan 2001 – Sep 2010) (information provided by Bombay stock Exchange).<sup>/BEN/</sup> 7 companies have been identified which are involved in the power generation market. The average beta from</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification																	
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																	
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT													
					Correctness of value applied	Comment												
						<p>these companies has been applied. The calculation and sources have been checked and no mistake could be observed. Hence, the beta is assessed as appropriate.</p> <p><b>R<sub>m</sub>: 18.38 %</b>  The expected market return is calculated based on average returns in Indian Stock Market till date of management decision. The data to calculate the value has been checked. It could be verified by the validation team. /BEN/</p> <p>Considering the formula above the calculation resulted in cost of equity of <b>21.03 %</b>. All sources and calculation have been checked. The value is verified. It can be further confirmed that the approach is fully in line with the CDM regulations EB 61, Annex 13, clause 15 b) and Additionality Tool, EB 39, Annex 10, sub-step 2 b, clause 5.  The cost of equity is calculated correctly and in line with the requirements.</p>												
Cost of Debt	7.73	%	e-mail from loan provider HSBC	/BEN/	<input checked="" type="checkbox"/>	<p>The interest rate 11.58 is the average of the interest rate based on a 3 months and 6 months LIBOR as proposed by the loan providing bank HSBC. The following rates have been applied:</p> <table border="1"> <thead> <tr> <th></th> <th>3 month LIBOR</th> <th>6 month LIBOR</th> </tr> </thead> <tbody> <tr> <td>LIBOR rate</td> <td>0.47 %</td> <td>0.68 %</td> </tr> <tr> <td>Interest Margin</td> <td>3.25 %</td> <td>3.25 %</td> </tr> <tr> <td>Borrowing costs</td> <td>10.71 %</td> <td>10.83 %</td> </tr> </tbody> </table>		3 month LIBOR	6 month LIBOR	LIBOR rate	0.47 %	0.68 %	Interest Margin	3.25 %	3.25 %	Borrowing costs	10.71 %	10.83 %
	3 month LIBOR	6 month LIBOR																
LIBOR rate	0.47 %	0.68 %																
Interest Margin	3.25 %	3.25 %																
Borrowing costs	10.71 %	10.83 %																

<input type="checkbox"/>	No financial parameters are used for additionality justification						
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below						
Parameter	Value applied	Unit	Source of Information (please indicate document)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Comment	
						Withholding tax rate on LIBOR + interest margin	0.79 %
							0.83 %
						Total interest	11.50 %
							11.66 %
						<p>The value is indicated in an e-mail sent by HSBC to the project owner on 29<sup>th</sup> July 2010. The e-mail is assessed as authentic and reliable. The information is provided in a formal business letter with the contact ID of the originator Mr. Manav Futnani. TÜV NORD assessed the value as reasonable and applicable.</p> <p>The cost of debt is calculated as 7.73 % considering the tax benefits leading to the effective cost of debts. The PP computed the cost of debt by means of multiplying the interest rate with 1 minus the corporate tax rate. Hence, the validation team came to the conclusion that it is correct to not consider the interest payable in the free cash flow while calculating the taxable income since the benchmark already reflects the tax shield benefits.</p>	
Equity share	30	%	Financial Term Sheet	/FTS/	<input checked="" type="checkbox"/>	This is defined in the financial term sheet. Further it is common practice internationally to assume this share of equity when doing an investment. The value is appropriate.	
Debt share	70	%	Financial Term Sheet	/FTS/	<input checked="" type="checkbox"/>	Based on the definition of the equity share the share of debt is assessed as appropriate.	

## ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

**Table A-4:** Assessment of Barrier Analysis (EB 51 Annex 3, § 117)

<input checked="" type="checkbox"/>		No barrier parameters are used for additionality justification		
<input type="checkbox"/>		Assessment of barriers see below		
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			<input type="checkbox"/>	

## ANNEX 5: OUTCOME OF THE GSCP

**Table A-5:** Outcome of the Global Stakeholder Consultation Process

(§§ 40-42, VVM Version 1.2)

<input checked="" type="checkbox"/>	No comments were received during the global stakeholder consultation period					
<input type="checkbox"/>	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:					
Comment No.:	Comment by:	Inserted on:	Subject	Comment <sup>*)</sup>	Action taken by the validation team to take due account on the comment <sup>*)</sup>	Conclusion (incl. CARs CLs or FARs)
1	Babloo, babloosinghindia@yahoo.com	2011-05-12		1. The PP states that they have considered 80% accelerated depreciation. However the PDD is silent on the tax shielding as a result from accelerated depreciation. PPs cleverly do not consider the accounting tax offsetting in their companies while calculating the IRR. This is evident from the recently registered projects and those requesting registration. The DOE is therefore requested to critically analyze how the accelerated depreciation benefit has been taken into	1. TÜV NORD points out that the first issue raised by the commenter has been checked by means of the following: The regulation on generation based incentives from the Indian Renewable Energy Development Agency (IREDA). This regulation grants the project operator to increase the income from the electricity sales with a certain adder (please refer to assessment in Annex 3). Applying this adder the incentives from accelerated depreciation	Refer to this report

				<p>account and confirm the accounting of the cash inflows as a result of the negative tax liability in the initial years. DOE should not be misguided by the financial presented by the PP or consultant which are custom made for CDM purposes and not the actual financial considered at the investment decision. Note that considering cash inflows results in an increase in the IRR making wind projects a profitable venture.</p> <p>2. Please also check the offer from WTG supplier and Purchase Order while validating the PLF. It may be so that the third party report which is made after investment decision making - indicates a lower PLF. The PLF seems to be very low. Also check the tariff order.</p> <p>3. Benchmark: No details are provided on the beta estimation. Is the beta levered or unlevered and what is the reason?? How is the beta appropriate for irr chosen?</p>	<p>shall not be applicable. It should be noted that the PP provided all requested information to confirm the assumptions in the financial analysis. Respective assessments are provided in this validation report.</p> <p>2. The PLF has been well substantiated with the wind yield assessment which has been provided before the CDM decision and bank loan application, before management decision as well. Assessment is provided in this report.</p> <p>3. The benchmark is assessed in the Annex 3 to this report. It is a WACC approach which is fully in line with the CDM regulations.</p> <p>4. The PDD provides information on this matter which could be verified.</p> <p>5. The additionality justification is fully in line with the CDM requirements. Respective assessments have been provided in this report.</p> <p>6. The beta calculation considers all Indian companies which are</p>	
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				<p>4. Stakeholder consultation: No details provided on which all stakeholders attended the meeting.</p> <p>5. Benchmark: The benchmark is too high. Even after considering CDM benefits the IRR will not cross the benchmark. Then WHY did the PP go ahead with this non-profitable venture?? This clearly indicates the benchmark is made high just to prove additionality and is not the real benchmark expected by the PP.</p> <p>6. Why has the PP considered Reliance Infrastructure Ltd for beta determination when Reliance Infrastructure Ltd. has many other businesses other than pure power generation? How come the risk profile of Reliance Infrastructure Ltd match with the project activity which involves wind electricity generation?</p> <p>7. What is the vintage considered for beta determination? Is considering only one year appropriate?</p>	<p>involved in power generation business. Even though the companies are also involved in other business, the validation team assessed the identified companies as reasonable. In addition, even though reliance would be excluded from this calculation this has almost no impact on the derived beta and the benchmark.</p> <p>7. All information is transparently enclosed to the benchmark analysis<sup>BEN/</sup> available at Annex to the PDD. The calculation is based on multiyear figures.</p> <p>8. The beta has been calculated in accordance to international practice. An assessment of the beta is provided in the report in accordance the EB guidance on Investment Analysis.</p> <p>9. The benchmark calculation is fully in line with the CDM requirements. Assessments have been provided in this report.</p> <p>10. All cost figures have been well substantiated with</p>	
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				<p>8. Why tax computations for beta are only considered for one year?? What is the basis for considering a particular vintage for the market returns, beta estimation and risk free returns?</p> <p>9. Why the particular index is considered for calculating the market returns? DOE to evaluate whether the PP has made any other investments considering the same index. Only because a particular index results in a higher benchmark??</p> <p>10. Project cost seems to be very high. Are the quotations real or fabricated?</p> <p>11. Are REC benefits being claimed? How will the DOE ensure that the PP does not claim REC benefits during project operation?</p> <p>12. DOE to submit a negative opinion in case the IRR does not cross the benchmark even after considering CDM benefits as it clearly indicates the projects unviability in any case. Why would any one</p>	<p>documented evidence. The main costs are derived from contracts signed between the service provider and the project operator.</p> <p>11. No REC is involved in the project activity. This has been orally confirmed by the PP.</p> <p>12. All information is provided in this report template. The project complies with the CDM regulations.</p> <p>13. The issue has been checked and it could be confirmed that the relevant tax regulation expired and only plants operated before March 2011 received tax holidays. However, the proposed project started operation after this date. It has been confirmed by means of interview and relevant documents. However, the government of India extended the rule of tax holidays for 1 additional year. However, this extension was decided after the CDM management decision and could not be taken into account.</p>	
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				<p>invest in a loss making venture? And if the PP can still go ahead with the project - it indicates that the benchmark is fabricated and is not considered by the PP while making the investment decision!! DOE to validate this critically!! How are the investment decisions really made???</p> <p>13. DOE to check if the financials correctly apply the 10 year tax holiday - i.e. not liable for taxes for 10 years from the initial 15 years.</p>	<p>TÜV NORD could confirm that even considering the tax holidays the IRR would not touch the benchmark. This check did not consider the impact on the tax holidays on the benchmark, which would lead to an increase. Hence, it is considered to be conservative. In conclusion, the tax holidays do not have impact on the additionality of the proposed project activity.</p>	
2	<p>Mahesh Pandya Environmental Engineer Paryavaran mitra 502, Raj Avenue, Bhaikakanagar road Thaltej, Ahmedabad – 380059 India Telefax - 079-26851321/1801 paryavaranmitra, paryavaranmitra@yahoo.com</p>	2011-05-17		<ol style="list-style-type: none"> <li>1. Please explain DNA's eligibility criteria in detail.</li> <li>2. Explain the technical details of WTG.</li> <li>3. What would be impact of negative environmental conditions of area upon project? What would be alternatives in that case?</li> <li>4. Does project owner had any kind of wind based energy business experience?</li> <li>5. Why Malaysian company is interested in wind energy production in Western India?</li> <li>6. How many skilled/unskilled people from surrounding area will be employed at this</li> </ol>	<ol style="list-style-type: none"> <li>1. The information provided in the PDD are assessed as sufficient as per the CDM requirements defined in the guidelines for completing PDD. Hence, no further action from PP was requested. The criteria from the DNA of India are publicly available under the following link: <a href="http://www.cdmindia.in/">http://www.cdmindia.in/</a>.</li> <li>2. The type of the turbine to be installed is Vestas V100 – 1.8 MW. Publicly available data on the turbines type is provided under the following link: <a href="http://www.vestas.com/en/wi">http://www.vestas.com/en/wi</a></li> </ol>	

				<p>project during commissioning and operation?</p> <p>7. There is no mention of date of stakeholders meeting and company representatives names.</p> <p>8. List of stakeholders and minutes of stakeholder meeting is not attached with PDD.</p>	<p>nd-power-plants/procurement/turbine-overview/v100-1.8-mw.aspx#/vestas-univers</p> <p>3. A Social and Environmental Impact Assessment has been conducted voluntarily by the PP. The Indian law is not requiring such evaluation. The document has been checked and it could be confirmed that no adverse impacts are expected. Alternatives have not been considered.</p> <p>4. As per oral confirmation provided by project owner the company does not have experience in wind but in has already made experiences in Indian power sector.</p> <p>5. This is confidential.</p> <p>6. As per information provided by the constructing company, most of the people from local village will be employed.</p> <p>7. A meeting was held on 2010-10-13 by TATA Consulting Engineers Limited, who was authorized by the project owner. The</p>	
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					attendance list has been checked by the validation team. <sup>/SCHP/</sup>	
					8. The attendance list of the meeting has been checked by the validation team. A summary of the consultation is provided in the EIA report, which has also been checked by the validation team.	
3	zhong zhou li, zhongzhouli8@gmail.com	2011-05-23		It is evident from the PDD that the values are consistent and it is definitely forged and cooked up values to show a non CDM project as a CDM project. What is this? 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. After careful study of PDD it is found that DPR/FR is in different versions made and submitted with different purposes to different agencies which is totally unacceptable, illegal and unethical. PP/Consultant may 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. While	The DOE tried to get in touch with the commenter to further explain and specify the comments. However, additional information could not be provided. Therefore this comment was not taken into account.	N/A

				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. In this particular project there is clear cut evidence that DPR/FR values are changed/ fabricated mischievously and intentionally. This must be probed fully. DOE must take a written undertaking from the PP/Consultant 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. 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. This project is a fabricated and fake CDM project		
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				and must be rejected by the DOE right away. DOE should not support this kind of projects otherwise CDM EB should suspend this DOE for at least one year.		
5	lawrance, lawrance_38@yahoo.com			<p>1) Purpose of the project and how the proposed project activity reduces greenhouse gas emissions are not briefed in the PDD. Refer section A.2.</p> <p>2) How environmentally safe and sound technology is used for the project and details of technology transfer is not demonstrated adequately. Refer A.4.2</p> <p>3) Non- debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5.</p> <p>4) Please check the project boundary of the project activity is not based on the guidance of the applicable project category.</p> <p>5) Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6</p> <p>6) The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax</p>	The comments have been checked and the DOE came to the conclusion that the questions raised are not project specific. All issues are covered in the validation assessment.	N/A



				<p>or post tax is not mentioned in the PDD.</p> <p>7) The emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants.</p> <p>8) Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD</p> <p>9) All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5.</p> <p>10) Justification of parameters including O&amp;M, insurance, loan, derating, escalation, and tariff are not demonstrated with justification. Refer B.5.</p> <p>11) Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5</p> <p>12) Proof for PLF is not justified.</p> <p>13) Date of offer is not provided</p> <p>14) Project cost is not as per state norms. Refer B.5.</p> <p>15) O&amp;M charges and its escalation is not as per norms</p> <p>16) IT rate assumed is not as per standard practice.</p> <p>17) The application of MAT</p>		
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				<p>which is based on tax holiday while calculating WACC is not appropriate.</p> <p>18) The PP has not explained and justified the key assumptions and rationale.</p> <p>19) The PP and consultant has not illustrate in a transparent manner all data used to determine the baseline emissions.</p> <p>20) Not demonstrated that the proposed project activity is additional as per options provided under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.</p> <p>21) National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify.</p> <p>22) Explain and justify all relevant methodological choices for the proposed project activity</p> <p>23) Data that is calculated with equations provided in the approved category or default values specified in the category should not be included in the compilation.</p> <p>24) CER revenue assumed is not consistently applied</p> <p>25) Project cost is not as per norms, DOE has to check and</p>		
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				<p>clarify.</p> <p>26) The project cost of the project should be based on offer and not on purchase order or tariff order.</p> <p>27) O&amp;M charges considered are on higher side. Pls. clarify.</p> <p>28) Benchmark calculation is not as per WACC tool (EB53 Annex 8)</p> <p>29) Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD.</p> <p>30) The basis of calculation of benchmark is not documented in the section B.5. PLR is not acceptable benchmark for the project. WACC based on Government bonds, risk premiums should be taken.</p> <p>31) Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD.</p> <p>32) Date of PPA is not mentioned in the prior consideration of CDM</p> <p>33) The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1</p> <p>34) PP has not provided for each parameter the chosen value</p>		
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				<p>or, where relevant, the qualitative information.</p> <p>35) Please Provide the actual value applied. Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information.</p> <p>36) Explain and justify the choice for the source of data.</p> <p>37) Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1</p> <p>38) Power plants registered as CDM project activities should be included in the sample group that is used to calculate the operating margin if the criteria for including the power source in the sample group apply. This argument is not demonstrated. B.6.1</p> <p>39) The selection of option (out of two) for calculating OM is not adequately documented with justification. CEA calculation is based on net electricity generation, the average efficiency of each power unit and the fuel types used in each power unit. Step 4 of B.6.1</p> <p>40) The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1</p>		
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				<p>41) Spread sheet is not provided. The data should be presented in a manner that enables reproducing of the calculation of OM, BM, and CM.</p> <p>42) The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54).</p> <p>43) The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3</p> <p>44) Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1</p> <p>45) Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2.</p> <p>46) Where the values have been measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance.</p> <p>47) Provide a detailed description of the monitoring plan, including an identification of the data to be monitored and the procedures that will be applied during monitoring.</p> <p>48) The PP should include sources of data that will be actually</p>		
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				<p>used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).</p> <p>49) Where the parameters are to be measured in accordance with the guidance of the approved project category or the general guidance to the indicative methodologies, specify the measurement methods and procedures including accepted industry standards or national or international standards which will be applied, which measurement equipment is used, how the measurement is undertaken.</p> <p>50) Which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval?</p> <p>51) Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions.</p> <p>52) Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving.</p>		
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				<p>53) The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information.</p> <p>54) Please describe the process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.</p>		
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<sup>9)</sup> In case clarifications have been requested by the validation team corresponding rows shall be added



**ANNEX 6: STATEMENTS OF COMPETENCE OF ALL INVOLVED PERSONNEL**

TUV NORD Certification		
Statement of Competence		
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program		
Mr. Martin Saalmann		
SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2013-03-31
Ji	Senior Assessor (Validation, Verification)	2013-03-31
VCS	Senior Assessor (Validation, Verification)	2013-03-31
Authorization status for technical areas within sectoral scopes:		
CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable energies	1.2.4 Solar
13.1	Waste management and disposal	13.1.1 Waste management 13.1.2 Waste water management
022 – Rev. 3, Date: 2011-10-08		
022_201-F003_2011-10-08_rev3		
201-F003 rev1 / 2011-08-02		

TUV NORD Certification		
Statement of Competence		
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program		
Mr. Dr. Jochen Schubert		
SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2014-05-11
VCS	Senior Assessor (Validation, Verification)	2014-05-11
Authorization status for technical areas within sectoral scopes:		
CODE	TECHNICAL AREA	TR INCLUDE SUB-AREAS
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Total
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management
056 – Rev. 2, Date: 2011-07-29		
056_201-F003_2011-07-29_rev2		
201-F003 rev0 / 2010-04-19		

TUV NORD Certification		
Statement of Competence		
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program		
Mr. Samir Beqqal		
SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2015-01-17
VCS	Lead Assessor	2015-01-17
110 – Rev. 2, Date: 2012-01-19		
110_201-F003_2012-01-19_rev2		
201-F003 rev0 / 2010-04-19		

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2014-12-15
VCS	Senior Assessor	2014-12-15

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies
2.1	Electricity Distribution
3.1	Energy Demand
13.1	Waste Handling and Disposal

128 – Rev. 2, Date: 2011-12-16

128\_301-F003\_2011-12-16\_rev2.doc

301-F003 rev3 / 2010-04-19

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Review	2015-01-19
VCS	Lead Assessor Technical Review	2015-01-19

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR INCLUDE SUB-AREAS
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Total
6.1	Construction	
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management

244 – Rev. 3, Date: 2012-01-20

224\_301-F003\_2012-01-20\_rev3.doc

301-F003 rev3 / 2010-04-19