VALIDATION REPORT

Wind power project in Jamnagar District, Gujarat, India

Torrent Power Limited

SGS Climate Change Programme
SGS United Kingdom Ltd
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Date of Issue:	**Project Number:**
29/10/2012	CDM.VAL3583
Project Title:	
Wind power project in Jamnagar District, Gujarat, India	
Organisation:	**Client:**
SGS United Kingdom Limited	Torrent Power Limited
Publication of PDD for Stakeholders Consultation	
Commenting Period:	28/04/2012 to 27/05/2012
First PDD Version and Date:	PDD, version 01 dated 21/04/2012
Final PDD Version and Date:	PDD, version 3 dated 15/10/2012

Summary:

Torrent Power Limited has commissioned SGS to perform the validation of the project: Wind power project in Jamnagar District, Gujarat, India.

Methodology Used: ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable sources.

Version and Date: Version 12.3.0 (EB66, Annex 35, Valid from 17 Sep 10 to 10 May 12, Requests for registration can be submitted until 11 Jan 2013 23:59:59 GMT)

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Manual (version 1.2), Kyoto Protocol requirements and UNFCCC rules.

The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.

The report and the annexed validation describes a total of 11 findings which include:

- 09 Corrective Action Requests (CARs);
- 02 Clarification Requests (CLs);
- 00 Forward Action Requests (FARs); and

All findings have been closed satisfactorily therefore the project will be recommended to the CDM Executive Board for registration.

Subject:			**Document Distribution**
CDM Validation			
Validation Team:			
Harsh Raval – Team Leader/Lead Assessor, Local Assessor and Expert Anshul Sharma- Financial Expert			☒ No Distribution (without permission from the Client or responsible organisational unit)
Technical Review:			
Date: 02/11/2012 Name: Nayan Jyoti Deka			☐ Limited Distribution
Authorised Signatory:			
Name: Siddharth Yadav Date: 21/11/2012			☐ Unrestricted Distribution
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Abbreviations

BSE	Bombay Stock Exchange
BM	Build Margin
CO2	Carbon Di-Oxide
CO	Carbon Monoxide
CEA	Central Electricity Authority
CER	Certified emission reduction
CL	Clarification request
CDM	Clean development mechanism
CM	Combined Margin
COP/MOP	Conference of Parties/Meeting of Parties
CAR	Corrective action request
DNA	Designated national authority
DOE	Designated operational entity
DR	Document Review
EF	Emission Factor
ER	Emission Reduction
EPC	Engineering, Procurement and Construction
EIA	Environmental Impact Assessment
EB	Executive Board
FAR	Forward action request
GBI	Generation Based Incentive
GEDA	Gujarat Energy Development Agency. GEDA is responsible for taking the JMR and preparing the 'Certificate for Share of Electricity in association with SLDC. (http://geda.gujarat.gov.in/)
GEF	Grid Emission Factor
GETCO	Gujarat Energy Transmission Company Limited. GETCO is state energy transmission company and responsible for grid connectivity and meter Installation/calibration. (http://www.getcogujarat.com/getco/default.aspx)
GERC	Gujarat Electricity Regulatory commission. GERC is state nodal agency, which regulates the electricity generation, transmission, distribution etc in the state of Gujarat (http://www.gercin.org/index.php)
GHG	Greenhouse Gas(es)
GUVNL	Gujarat Urja Vikas Nigam Limited. GUVNL is distribution head company for the state of Gujarat, which buys power from the project investors. All the Power Purchase agreements are signed with the GUVNL. (http://www.gseb.com/guvnl/index.aspx)
HCA	Host Country Approval
I	Interview
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
ISHC	International Stakeholder Consultation
kWh	Kilo Watt-hour
LoA	Letter of Approval
MW	Mega Watt
MWh	Mega Watt-hour
MAT	Minimum Alternate Tax
MoEF	Ministry of Environment and Forest
MNES	Ministry of Non-Conventional Energy Sources
MP	Monitoring Plan
NEWNE	North East West Northern East grid of India. western region grid is part of the NEWNE grid
ODA	Official Development Assistance
O&M	Operation and Maintenance

PLF	Plant Load Factor
PPA	Power Purchase Agreement
PDD	Project Design Document
PP	Project Participant
PO	Purchase Order
QA/QC	Quality Assurance/Quality Control
RRR	Required Rate of Return
RBI	Reserve Bank of India
ROE	Return On Equity
SLDC	State Load Dispatch Centre. SLDC is part of GETCO, which issues the net electricity export from each project investors in the state in form of 'Certificate for Share of electricity'. SLDC also publishes all the data online and is available at: http://www.sldcguj.com/
SPM	Suspended Particulate Matter
TPL	Torrent Power Limited
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual
WACC	Weighted Average Cost of Capital
WTG/WEC	Wind Turbine Generator/ Wind Energy Converter

Table of Content

Annexes:

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Torrent Power Limited to perform a validation of the project: Wind power project in Jamnagar District, Gujarat, India in India.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism Validation and Verification Manual (Version 1.2) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project activity involves in total of 62 WTGs (800 KW each) by Torrent Power Limited, in Jamnagar district of Gujarat, India with a total installed capacity of 49.6 MW. The project activity exports the electricity to the NEWNE electricity grid of India, which is mainly contains the fossil fuel based generation.

Thus, by generation of the clean renewable energy through wind turbine generators, the project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all the relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology ACM0002 version 12.3.0. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 596,967 t of CO2e over a 7 years crediting period, averaging 85,281 t of CO2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory

Signature: 

Name: Siddharth Yadav

Date: 21/11/2012

2. Introduction

2.1 Objective

Torrent Power has commissioned SGS to perform the validation of the project: *"Wind power project in Jamnagar District, Gujarat, India"* with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. 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 relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the Project Design Document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against the Kyoto Protocol requirements, the UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

2.3 GHG Project Description

The project activity involves the installation of Wind Turbine Generators enabling generation of electricity with total installed capacity of 49.6 MW. The project activity involves the installation of 62 WTGs of Enercon make model number E-53 with the capacity of 800 KW each. The project activity is located in Jamnagar district of Gujarat, India with exporting the electricity to the NEWNE regional electricity grid of India through Gujarat State Electricity grid. The Validation team has validated the accuracy of the project description through a combination of steps consisting of review commissioning certificates for the WTGs[/9/], site visit[/8/], and interview of the Project Participant and their representatives (as provided in section 6). By exporting the generated electricity from Wind Energy, which is a clean and renewable source for energy, the project activity replaces the possible generation in NEWNE grid, which is mainly based on the high carbon intensive fossil fuels. All the WTGs involved in the project activity have commissioned and are successfully in operation.

2.4 The Names and Roles of the Validation Team Members

Assessment Team	Role
Harsh Raval	Team Leader/Lead Assessor, Local Assessor and Sectoral Expert (TA 1.2 – Wind)
Anshul Sharma	Financial Expert

Technical Review	Role
Nayan Jyoti Deka	Technical Reviewer & Sectoral Expert (TA 1.2 – Wind)

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available Project Design Document version 01 dated 21/04/2012 and the subsequent version 02 dated 26/07/2012 and version 03 dated 15/10/2012 (final version). The assessment is performed by trained assessors using a validation protocol attached as Annex 2, table 2.

The site visit was performed on 22/06/2012 by the Team Leader/Lead Assessor/ Local Assessor/ Sectoral Expert (TA 1.2 – Wind). The results of the same are summarized in separate checklist as Annex 1. The validation team has confirmed the statements of the PDD through review of documents.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual; Version 01.2 dated 30/07/2010. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- It documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

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

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A CAR

is issued, where:

I. The Project Participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
II. The CDM requirements have not been met;
III. There is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

The PP submitted the letter of approval issued by the Indian DNA, 'The Ministry of Environment & Forests' bearing Letter No.4/12/2012-CCC dated 16/08/2012/3.1/. The name of the project activity and the Project Participant in the HCA was verified against that in section A.1 and section A.3 of the PDD, being submitted for the request for registration and was found to be consistent and hence accepted.

The letter of approval confirms that:

(a) The Government of India has ratified the Kyoto Protocol in August 2002 and hence is a Party to the Kyoto Protocol

(b) The HCA is an approval of voluntary participation in the proposed CDM project activity

(c) The project contributes to Sustainable Development in India

(d) The HCA refers to the precise proposed CDM project activity – 'Wind power project in Jamnagar District, Gujarat, India' – mentioned in the PDD being submitted for registration

The LoA letter is unconditional with respect to (a) to (d) mentioned above. It is confirmed that HCA complies with the requirement stipulated in the paragraph 44-50 VVM version 01.2.

The authenticity of the submitted approval letter has been checked with the Indian DNA. The DNA has through mail dated 18/09/2012/3.2/ confirmed the approval to the Project Participant for the particular project activity under validation.

Discussion of CARs/CLs:

The letter of approval from the host Party DNA was not submitted by the Project Participant with version 01 of PDD and hence **CAR#01** was raised. In response to CAR#01, the PP has submitted a copy of the same and therefore CAR#01 was **closed**.

Opinion

The validation team confirms that the HCA submitted by the PP complies with the requirements of paragraphs 44-50 of the VVM version 01.2 (EB 55 Annex 1).

4.2 Participation Requirements

The host country for this project is India who has ratified the Kyoto Protocol on 26th August 2002. This was checked from the UNFCCC website http://maindb.unfccc.int/public/country.pl?country=IN. The Project Participant listed in section A.3 of the PDD is Torrent Power Limited. The HCA letter from the Indian DNA approves the participation of Torrent Power Limited; therefore the Project Participant is approved by the Party to the Kyoto Protocol. This is found in accordance with para 52 and 53 of VVM (version 01.2).

No Annex I Party has been identified in the PDD version 01 or the final PDD, being submitted along with the request for registration and therefore no further Letter of Approval was available. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it should be noted that before CERs can be transferred to an Annex 1 Party, a Letter of Approval from Annex 1 Party will need to be submitted.

The PP has provided the MOC letter/4/ dated 20/08/2012; the same is duly verified against the project title and information mentioned in Annex 1 and found to be consistent and hence accepted.

The proposed CDM project has been web hosted in the UNFCCC website http://cdm.unfccc.int/Projects/Validation/DB/1D587QYFH4GVYZAB3YCXDIZG18KIOM/view.html for global stakeholder's process to invite comment as per the CDM requirements. As per the CDM EB guidelines the proposed CDM project has been web hosted from 28/04/2012 to 27/05/2012. From the above discussion, it has been concluded that the proposed CDM project activity meets the relevant CDM requirements.

Opinion

In accordance with the requirements of paragraphs 51 to 54 of the VVM version 01.2 (EB 55 Annex 1), the validation team is of the opinion that, the proposed CDM project activity meets all the relevant participation requirements.

4.3 Project Design Document including Project Description

The project activity is entitled as "Wind power project in Jamnagar District, Gujarat, India". The project activity title is transparent and unique. The uniqueness of the same has been checked with the registered project database/5.3/ and the under validation project database/5.4/ available/accessible through the UNFCCC website. During the search only one project activity have been found with the same title, which is the current project activity webhosted at http://cdm.unfccc.int/Projects/Validation/DB/1D587QYFH4GVYZAB3YCXDIZG18KIOM/view.html from 28/04/2012 to 27/05/2011. Further, the project title has been consistently mentioned in the webhosted PDD version 01/1.1/, the final PDD/1.3/ - being submitted for requesting registration, the Host country approval/3.1/ and the MoC letter/4/.

The project design and its objectives have been transparently explained in the final PDD, being submitted for requesting registration and are consistent with the timeline of the project history.

The proposed project activity is a large scale project activity with installation of new equipments. It does not contain the replacement, modification or addition to any existing project. This fact has been confirmed by the WTG project purchase order/13/, Board approval from Torrent Power Limited/20/ and the onsite Inspections/8/. Since, this is a large scale project, the PDD has been prepared in the Project Design Document, version 03 (CDM-PDD), which is the latest applicable format to be used in VVM track. The final PDD, has been prepared in accordance with the Guidelines for completing the Project Design Document, version 07, EB41, annex 12/5.2/ and thus accepted by the assessment team. The Project activity has applied the approved baseline and monitoring methodology ACM0002, version 12.3.0/5.10/, which is valid until 11 Jan 2013 23:59:59 GMT for requesting registration. The methodology applicability and applications are discussed at later sections of this report.

The project activity includes the installation of grid connected 49.6 MW Wind power generation project in Gujarat State of India. There are in total 62 WTGs (Enercon model E-53, 0.8 MW each) located in Jamnagar district of Gujarat state in India. The project will achieve emission reductions by supplying zero emission electricity to the NEWNE Regional Electricity Grid of India, which is mainly dominated by fossil fuel based thermal power plants. Therefore, the net generation of the project will displace same amount of electricity of the grid and greenhouse gas (GHG) emissions will be consequently reduced as well.

The technical specification for the WTGs have been submitted by the PP/6/ and also provided in the section A.4 of the PDD. The technical specifications are issued by the supplier Enercon and confirms with the details provided by the PP in the final PDD, being submitted for the request for registration.

The WTGs of the project activity are divided in to clusters and the each cluster has its own metering system. The project clusters are finally connected to the substation metering along with clusters from other non-project WTGs also. The PP has provided the information regarding the WTGs connection to the substation, cluster metering and the apportioning procedures for the net electricity generation calculation in the PDD and the same is found consistent the actual situation on site.

A physical site visit had been carried out by the assessment team to the project activity locations on 22/06/2012/8/. The onsite inspection and assessment confirms that the project details as provided in the final PDD. The geographical co-ordinates for each WTG were checked on site as well as information from the respective suppliers/7/, Which has been further checked with the website: http://itouchmap.com/latlong.html. The geographical co-ordinates and allocation details as provided in the appendix 3 have been checked with the supplier's information and are found to be correct.

The project activity is about the grid connected electricity generation and falls in Scope Number 1; Sectoral Scope – Energy Industries (renewable - / non-renewable sources) as per "List of Sectoral Scopes (http://cdm.unfccc.int/DOE/scopelst.pdf).

All the WTGS in the project activity have been commissioned and is successfully installed. The commission dates have been checked with the commissioning certificates[/9/] issued by the Gujarat Energy Development Agency to the Project Participant.

The ownership of the project is for Torrent Power Limited, which is also a Project Participant in the project. The ownership has been confirmed by means of purchase orders[/13/] and commissioning certificates[/9/]. The assessment team recognizes that the proposed project of Torrent Power Limited is helping host country to fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because;

- it is approved for voluntary participation by DNA of India
- provides direct and indirect employment to the local people
- provides electricity to the deficient electricity grid of NEWNE
- leads to better quality of life for local people due to above reasons
- leads to reduced fossil fuel consumption
- Does not release pollutants like SPM, CO_2, CO, etc.

The project activity does not source any ODA funding and is a debt-equity investment from the Torrent Power Limited. This fact has been checked from undertaking issued by the Torrent Power Limited, confirming the source of the funding and the ODA declaration[/11/]. This declaration has been checked by the assessment team and it is found to be appropriate. Further, the board approval for the project activity is also checked and it does not mentioned about any ODA or annex-I country funding. The information regarding the source of funding and no ODA involvement has been consistently mentioned in the section A.4.5 and Annex 2 of the PDD and thus, accepted by the assessment team.

The PP has provided the Modalities of Communication letter dated 20/08/2012[/4/]. The MoC has been checked for latest available guidance for completeness check and is found complete. The project name and the Project Participant details as mentioned in the MoC are found consistent with the other documents i.e. the PDD & the Host Country Approval.

The validation team is of the opinion that the description of the proposed CDM project activity mentioned in the PDD provides a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. Thus, as per the requirements of paragraphs 58 to 64 of the VVM version 01.2 (EB 55, Annex 1), the validation team confirms that the project description in the PDD is accurate and complete.

Discussion of Findings:

CAR#02 was raised for following non-compliance in the PDD.

- **Issue 1** was raised as the PP has mentioned the 'Government of India' as a Party under section A.3 of the PDD version 01, in place of the India. The issue was **closed** as the PP rectified the same in the revised PDD with correctly mentioning the 'India' as a Party.
- **Issue 2** was raised as location details as provided under section A.4 of the PDD, version 01 exceeded one page, which was not in accordance with the PDD completion guidelines as provided in EB42, Annex 12. The issue was **closed** as the PP provided the revised PDD with compliance of the guidelines.
- **Issue 3** was raised for substantiation of no ODA funding in the project activity as no evidence were provided by the PP. the issue was **closed** as the PP provided a declaration of the no ODA funding involvement in the project activity. The same was also further cross checked with the Board approval and HCA for the project activity, which does not mention the involvement of any ODA funding.
- **An issue** was raised as project scenario under section A.2 of the PDD does not transparently represent information about if any other WTGs that will be connected to the substation in which the project activity is also connected. Further the project description does not include any information regarding the apportioning procedures involved in the project activity. The issue was **closed** and the PP included the same in the revised PDD with transparent representation.

Thus all issued raised in the CAR#02 were closed satisfactory and hence the CAR was closed out.

Opinion

The PDD satisfies the requirements of paragraphs 55-64 of VVM version 01.2[/5.1/] (EB 55 Annex 1). The PDD used as a basis for validation has been prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website. The PDD contains a clear description of the project activity that provides a clear understanding of the precise nature of the project activity. This description was found to be accurate and complete. It is consistent and in compliance with the actual situation. All details have been consistently mentioned throughout the PDD.

4.4 Applicability of selected methodology to the project activity

The project activity applies the approved consolidated baseline and monitoring methodology ACM0002," Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 12.3.0[/5.10/]. The applicability of the methodology is justified through the following paragraphs of the methodology;

As per the ACM0002, version 12.3.0,

- *This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).*

- The current project activity is a grid-connected renewable power generation. The Grid connectivity of the project activity is substantiated and confirmed by means of the Commissioning certificates[/9/].

- The project activity is a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. The Purchase order[/13/] for the wind turbines indicates that the wind turbines are new and does not involve retrofit and/or modifications to the existing equipment.

- *The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;*

- The project activity is about installation of new wind power plant. This is confirmed through the purchase order[/13/] and commissioning certificates[/9/].

- *In the case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;*

- The project activity is not about the capacity addition i.e. the purchase orders for the project activity have been checked and all the WTG installed in the project activity by Torrent Power Limited are new. No components of any existing facility are involved in the project activity. .

The project activity is about the installation of the Wind based Power Generation Turbine; It is not a hydro project. Thus, conditions related to hydro plants are not applicable to the project activity.

As per the ACM0002, version 12.3.0, the methodology is not applicable to the following:

- *Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;*

- This is not applicable to the project activity, since it is a Greenfield project activity and does not involve fuel switch.

- *Biomass fired power plants;*

- The proposed project activity is not a biomass fired plant.

- *A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the reservoir is less than 4 W/m^2.*

- The proposed project activity is not a hydro power plant.

- *In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".*

- The proposed project activity does not involve retrofit, replacement or capacity addition.

Thus, it can be concluded that the applied methodology ACM0002, version 12.3.0 is applicable to the project activity.

Further, the applied methodology refers to latest available versions of the following tools;

1) Tool to calculate the emission factor for an electricity system[/5.6/]

- The same has been followed by the PP. The final PDD refers and correctly applies the tool to calculate the emission factor for an electricity system, version 02.2.1, which is the latest available version to use. The locations of windmills are in Gujarat state in India. As per CEA data[/14/], Gujarat state comes under NEWNE regional electricity grid in India, the geographic and system boundaries of which are clearly identified and information on the characteristics of the identified baseline grid is available. Thus, the tool is applicable for the application.

2) Tool for the demonstration and assessment of additionality[/5.5/]

- The latest version 6.0.0 of the tool for the demonstration and assessment of additionality has been used by the PP. This is the latest applicable and available version of the tool.

3) Combined tool to identify the baseline scenario and demonstrate additionality

- The PP has used the tool for the demonstration and assessment of additionality in the demonstration of additionality and the baseline has been developed in accordance with the applied baseline methodology. This is not used by the Project Participant.

4) Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion

- Since there is no fossil fuel combustion involved in the project site or in the project boundary, this tool is not applicable to the proposed project activity and not used/applied by the Project Participant.

A physical site visit had been undertaken by the assessment team and the technical description of the project activity was further assessed with the actual situation on site. No other greenhouse gas emissions sources within the proposed CDM project activity boundary are found, which can contribute more than 1% of the overall expected average emission reductions and not addressed in the applied methodology or the PDD.

Discussion on findings:

An issue in **CAR#02** was raised as the PDD; version 01 had not transparently discussed the main applicability criteria in line to the applied methodology ACM0002, version 12.3.0. The issue was **closed** as the PP included the discussion in the revised PDD, in line with the applied methodology.

Opinion:

The validation team therefore confirms that the project activity meets all the applicability conditions and all other stipulations of the selected approved methodology ACM0002 version 12.3.0 in line with para 75 and 76 of VVM (version 01.2).

4.5 Project Boundary

The spatial extent of the project boundary is assessed through the description in the PDD and the grid structure in India as known from the official data available from the central electricity authority, CEA[/14/].

The project activity boundary includes the project power plant (Project WTGs) and all power plants connected physically to the NEWNE regional electricity grid in India. The project activity is located in the state of Gujarat and the state grid of the Gujarat is connected and integral part of the national grid NEWNE. Thus, the PP has correctly identified the NEWNE as the baseline grid for the project activity.

The PP has considered only CO_2 as applicable Green House Gas for the baseline emissions and its conservative approach in line with the methodology. The exclusion of CH_4 & N_2O in the baseline scenario is appropriate, as there are no associated emissions of the same in a wind power project. The project activity involves the generation of electricity using wind energy. Hence, there are no project emissions associated with this project activity. Hence, the exclusion of CO_2, CH_4 & N_2O in the project scenario are appropriate. The electricity imported by the project activity will be accounted for in the net electricity exported to the grid by the project activity. There are no other sources of project emissions. Hence, the Project Participant has considered project emissions as zero for project activity; this is in line with the methodology and with para 78-80 of VVM (version 01.2).

Further, it is confirmed that the project activity does not involve any transfer of equipment from or to the project activity and thus there is no leakage accountable to the project activity. The project design is sound and the geographical boundaries (NEWNE Regional Electricity Grid in India) of the project are clearly defined. The validation team confirms that the only greenhouse gas relevant to the project activity is CO_2. This gas is addressed by the applied methodology. Further, it was observed during the site visit and also checked by means of the project design assessment that there are no other sources, involved in the project boundary, which may contribute more than 1% of the total GHG reductions and not included in the project boundary.

Discussion on findings:

An issue in CAR#02 was raised project boundary diagram in the PDD, version 01 did not represent or show any other WTG connected to the substation to transparent representation of the apportioning. The issue was **closed** as the PP corrected the project boundary diagram appropriately.

Opinion

The validation team is of the opinion that the project boundary has been correctly identified in the PDD in line with paragraph 79 of VVM version 01.2[/5.1/] (EB 55 Annex 1).

4.6 Baseline Selection and Additionality

As the Project is the installation of a newly built and grid-connected renewable power plant that exports the generated electricity to the NEWNE regional electricity grid in India, hence, according to methodology ACM0002 version12.3.0, the baseline scenario is determined properly as:

"The electricity delivered to the grid by the Project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

The latest available version for tool to calculate the emission factor for an electricity system is version 02.2.1[/5.6/] and the PP has referred to the same in the section B.4 of the final PDD, being submitted for registration and is found to be correct.
The calculation for the operating margin and combine margin for the Indian Grid is readily available and published by the Central Electricity Authority, Government of India[/14/]. The CEA data is referred by all CDM projects in India in the CER calculation and is yearly updated with recent data. The PP has used version 07 dated January 2012 in the project activity. The project activity validation contract was signed on 25/01/2012[/15/] and the PDD, version 01 was webhosted from 28/04/2012 to 27/05/2012[/1.1/]. Thus, at the time of submission to the validation, the latest available applicable version of the CEA database is version 07 dated January 2012 and the same is appropriately used by the PP.

Operating Margin:
The PP has used the simple operating margin calculation and the operating margin has been calculated as a weighted average of the past three years i.e. 2008-09, 2009-10 and 2010-11. The value for the operating

margin is calculated as a weighted average along with the Net generation in Operating margin for the NEWNE grid and is validated and used by the PP as 0.9842 tCO_2/MWh.

Build Margin:
The Build margin for the NEWNE grid is considered as 0.8588 tCO_2/MWh for the year of 2010-11. This is latest available data for the build margin of NEWNE grid at the time of submission to the validation.

Combined Margin:
The weighted average combined margin has been calculated by the PP, considering the 75% weighted for operating margin and 25% for build margin, this is in accordance with the tool/**5.6**/ for the wind power projects. The weighted average combine margin for the project activity comes to 0.9528 tCO_2/MWh. The PP has provided the calculation for the same in the CER calculation sheet/**2.3**/, validated by the assessment team and is found appropriate.

Thus, the validation team confirms that the selected baseline scenario reasonably represents what would happen in the absence of the project activity and the selection of the baseline is in accordance with the applied methodology ACM0002, version 12.3.0. The Project Participant has included all sources and references used for baseline determination for the project activity in the final PDD and the project identified baseline is justified appropriately by the Project Participant in line with para 86 of VVM (version 01.2).

The additionality for the project activity has been demonstrated in accordance with the tool for demonstration as assessment of additionality, version 06.0.0/5.5/. The same has been discussed at later section 4.6 of this report.

Opinion:

Based on the requirements of paragraphs 81-88 of the VVM version 01.2/**5.1**/ (EB 55 Annex 1), the validation team confirms that:

(a) All the assumptions and data used by the PP are listed in the PDD, including their references and sources.

(b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the final PDD, being submitted for requesting registration.

(c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable.

(d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD.

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

4.6.1 Additionality

The additionality of the project has been presented in the PDD using the steps of the tool for the demonstration and assessment of additionality version 06.0.0/**5.5**/.

It has been learnt that a revised version 06.1.0 of Tool for the demonstration and assessment of additionality has been published in EB69 annex 20. However, as per the para 84 of the EB69 meeting report, the PP is still eligible to use the version 06.0.0 of the tool and the same is accepted by the assessment team.

The PP has used the investment analysis in order to demonstrate the additionality for the project and same is discussed in section 4.6.4 of the report. The approach used in the PDD has been assessed based on a document review, whilst the following relevant documents have been reviewed:

- Proposal from Enercon to the PP concerning the investment in the Wind Power Project/17/
- Torrent Power Limited Board decision for the investment/20/
- Benchmark analysis excel sheet/**2.2**/
- IRR calculation excel sheet/**2.1**/

- GERC Draft tariff order dated 17/08/2009/19.1/
- O & M proposal /17/
- PLF assessment calculation as considered by the Project Participant/22.1/

The additionality of the project activity has been discussed with Torrent Power Limited and finally the data, rationales, assumptions; justifications and documentation provided have been checked using local knowledge and sectoral and financial expertise. The information and assumptions is further cross checked with:

- Purchase order for WTGs/13/
- Operation and Maintenance (O & M) Contract/23/
- Commissioning Certificates for all WTGs/9/
- Third Party PLF/CUF assessment report/22.2/
- Publically available data used in Benchmark calculation and referred in this report
- Other relevant registered CDM Projects as referred in the validation assessment report

Opinion

Based on the responses to the various approaches mentioned above and the requirements of paragraphs 94-97of the VVM version 01.2/5.1/ (EB 55 Annex 1), the validation team confirms that the documents provided for the project activity are appropriate. Hence, the data, rationales, assumptions and justifications provided in the final PDD and financial calculation excel sheet are reliable and credible.

4.6.2 Prior Consideration of the Clean Development Mechanism

Start Date:

The start date for the project activity is validated as 30/03/2011. This is the date when the purchase order for the first set of 55 WTG was issued by the Torrent Power Limited to Enercon (India) Limited/13/. The project activity consistent total 62 WTG and the purchase orders for remaining 7 WTG were issue on 30/08/2011. The decision for the investment into the project activity was taken in the Board meeting of the PP on 28/01/2010/20/. The issued purchase order covers the complete work for the establishment of the project activity covering from land acquisition to the commissioning of the project activity. The project activity is a wind power project and there is no further cost associated with project activity in terms of the major financial commitments. The chronology and the investment steps were discussed with the PP during the site visit and it was confirmed that issuance of the purchase order of 55 WTG was the first major financial commitment made by the PP towards the implementation of the project activity and thus, which has been accepted as the start date for the project.

Prior Consideration:

The PP has submitted the extract of the Board meeting held on 28/01/2010/20/. The Board of Torrent Power Limited has approved the project activity with consideration of the CDM revenue. Thus it has been confirmed that the PP was aware about the possible CDM revenue from the project and has considered the same while approving the investment into the project activity. The extract of the board meeting has been checked by the assessment team and further Mr. T. P. Vijayasarathy, Director, Torrent Power Limited was interviewed regarding the details of the same, who has confirmed the board approval process and the CDM consideration for the project activity.

Since, the start date of the project activity is 30/03/2011, which is after the 02/08/2008, the project activity is a new project and the prior consideration for the same has been assessed in line with para 2- 4 of EB 62, Annex 13/5.7/.

The PP has sent a notification to the UNFCCC secretariat regarding the CDM prior consideration in the project activity/16/. The same has been received and made publically available by the Secretariat in line with para 4 of EB62, annex 13. The prior consideration is acknowledged by the UNFCCC Secretariat on 17/09/2011 and is publically available at the link of http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html.

The acknowledgement by the UNFCCC refers to the exact project title as mentioned in the PDD and the HCA for the project activity and further refers to the same Project Participant 'Torrent Power Limited'.

In addition to the UNFCCC Secretariat, the PP has also notified the host country DNA (MOEF in case of India) by mail dated 17/09/2011[/18/]. The same has been acknowledged by the Host country DNA by mail dated 19/09/2011.

Thus, it has been confirmed that the PP has notified the UNFCCC (17/09/2011) and the Host country DNA (17/09/2011) within 6 months of the project start dated (30/03/2011). The prior consideration for the project activity is confirmed in accordance with para 2-4 of EB62, Annex 13.

Discussion of findings:

CL#03 was raised to the PP to substantiate the start date and investment decision date for the project activity. The same was **closed** as the PP justified the investment decision date for the project with board approval and the start date of the project activity with Enercon purchase order, which is in line with EB62, Annex 13.

Opinion

The validation team is of the opinion that the CDM was seriously considered in the decision to implement the project activity as per the requirements of EB 62 annex 13.

4.6.3 Identification of alternatives

Additionality of the project activity is determined based on "Tool for the demonstration and assessment of additionality" (version 06.0.0). To demonstrate and assess additionality of the project activity, all plausible and credible alternative scenarios have been identified in the PDD in line with the ACM0002 version12.3.0.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1 a. Defines alternatives to the project activities

The PP has demonstrated two alternatives to the project activity that provide outputs or services similar to that of the project activity (i.e. electricity generation)

***Alternative 1*:**
Implementation of the project activity not undertaken as a CDM project activity
This alternative may be a part of the baseline. However, this alternative is considered and demonstrated by the PP as not financially attractive.

Alternative 2:
Continuation of current situation (No project activity)
In this alternative, project activity is not implemented resulting in the continued current generation mix of NEWNE regional grid in India.

***Sub-step 1b:* Consistency with mandatory laws and regulations:**
All the above alternatives are consistent with current laws and regulations and there are no legal and/or regulatory requirements that prevent the above alternatives from occurring. This has been validated by having discussion with the Project Participant and also the validation team has knowledge of local laws and regulation.

Opinion:
Validation team confirms that the Project Participant has stated the assumptions and data including the references and sources to identify baseline scenario in accordance with the applied methodology ACM0002, version 12.3.0 and the applicable tools. The validation team has verified the references and finds them to be correctly quoted and relevant.

4.6.4 Investment analysis

The PP uses the investment analysis in order to demonstrate the additionality. It is demonstrated that the financial returns of the proposed project are insufficient to justify the investment.

As per the **Tool for the demonstration and assessment of additionality** (version 06.0.0) to demonstrate and assess additionality of the project activity investment analysis requires to determine whether the

proposed project activity is the economically or financially less attractive without the revenue from the sale of certified emission reductions (CERs). The PP has used benchmark analysis (Option III, of the tool) in which the post-tax equity internal rate of return (Equity IRR) for the project cash flows serves as the parameter for deciding the financial attractiveness of the project. Since the alternatives of the project activity is the supply of electricity from a grid and this is not to be considered as an investment; benchmark is considered to be appropriate in line with paragraph 19 of Annex 05 of EB 62 i.e. Guidelines on the Assessment of Investment Analysis, version 05. Further the Equity IRR for the project is compared against the Return on Equity as a Benchmark, which is appropriate comparison. The Project Participant has demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required investment return in line with paragraph 109 of VVM (version 1.2) and the DOE has found the argument valid. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative which is accordance with para 108 of VVM (version 01.2).

The validation team has noted that the decision to proceed with the project was seriously considering CDM, the same has been discussed in section 4.3 of this report. The decision for the investment was taken on 28/01/2010 by the Board of Torrent Power Limited[20] and the same has been validated as an investment decision date for the project activity.

The PP had obtained quotations from Enercon for the supply of WTGs. To ascertain financial viability of the project, the PP has carried out financial analysis based on above quotation and then compared against the Benchmark. The PP has selected equity IRR as the financial indicator and return on equity as benchmark for the project activity. In the investment analysis excel sheets, the equity IRR has been appropriately calculated by correct method. The data, rationales, assumptions and justifications mentioned in the PDD, investment analysis excel sheets were crosschecked against the local knowledge of the validation team, regulatory and applicable legal requirements in the host country India. The documents were also verified by a sectoral and financial expert. The appropriateness of the input values, used for financial calculation, has been checked in line to paragraph 6 of Guidance of Investment Analysis (EB 62 Annex 05).

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Benchmark Calculation- 16.51%:

The PP has selected and calculated the benchmark as return on the equity investment. The parameters which are standard in the market and applicable at the time of investment decision making have been used in the analysis in line with paragraph 13 of EB 62, Annex 5. The above referred paragraph states that the benchmark shall be based on the parameters that are standard in the market if the project activity could be developed by an entity other than the Project Participant. The Project Participant has used the Capital Asset Pricing Model (CAPM) for the determination of benchmark (return on equity) based on publicly available data and the same is found appropriate. The Project Participant has calculated the expected return on equity from the CAPM considering the beta values of power generating companies in India that were listed at the time of investment decision. The market return has been arrived from the BSE 200 Index which were checked and found to be correct. The value of risk free return factor has been adopted from the figures given by Reserve Bank of India (RBI). RBI is India's Central Bank fully owned by the Government of India. The assumptions used for the calculation of the benchmark are as follows.

Sr.No	Parameter	Value	Source	Means of Validation/Justification
1	Risk free rate of return (Rf)	8.2187 %	Interest rate on Central Government of India dated securities for month of October 2009. Available at: http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/26CT_CSB1209.pdf Published on: December 2009	The value assumed is based on Month-end Yield to Maturity of SGL Transactions in Central Government Dated Securities for the maturity period of over 20 years. The PP has considered the rate for the month end of October 2009, which was published on

				December 2009 and latest available at time of investment decision.
2	Market Return (Rm)	15.94%	The market return has been calculated based on the index value of BSE200 available at: http://beta.bseindia.com/indices/IndexArchiveData.aspx?expandable=3	As there is no specific index for the renewable sector, the BSE 200 index has been considered for calculating the market return. The BSE 200 has relatively large share of companies as compared to BSE 100 and BSE Sensex. The PP has calculated the market return over the period of 19 years, which is the maximum range of the publically available data for BSE200 and comparable to the project activity assessment period.
3	Market risk premium	7.7210 %	Calculated based on the risk free rate of return and expected market return	The same is calculated based on the determined market return and risk free rate of return as considered by the PP
4	Beta (β)	1.07	Average Beta value for the power companies registered with BSE 200.	The PP has considered the average beta value of the power companies registered with BSE 200 and having 5 years data vintage for the calculation
5	Cost of Equity	16.51%	*Re = Rf + Beta x (Market Return – Risk Free Return)*	The cost of equity has been estimated based on Capital Asset Pricing Model (CAPM). As per the model, the required return on equity investment is the return of risk free security plus beta times the difference between market return and risk free return.

Market Return (15.94%):

In the initial PDD, version 01[/1.1/], and the benchmark calculation[/24.1/] as submitted by the PP along with the initial PDD, the PP had considered the BSE 500 index as a means to calculate the expected market return. However, the BSE 500 was launched on 09/08/1999 with the as base year as 01/02/1999 (Source -

http://www.bseindia.com/indices/DispIndex.aspx?iname=BSE500&sensid=500&type=SENS&graphpath=/sensexview/charts/graf_appBSE500.gif&page=1533E211-BF12-4DDA-963E-B89DFB22C010).
The project activity investment decision is on 28/01/2011. Thus only 10.92 years data was available and used by the PP in the calculation (Feb 1999 – Dec 2009). The project activity lifetime is 20 years and the assessment period considered in the financial return calculation is 20 years. Since, the considered time horizon in the calculation of the market return was not consistent or comparable to the project activity assessment period, **issue 1 in CAR#05** was raised. In response the PP revised the calculation and selected BSE 200 as the index for the calculation of market return. The choice of the revised index has been justified by the PP in the benchmark calculation sheet and is found appropriate. The PP wanted to chose the Index with the broader market indices, which represent larger number of companies and the market. There are four major indexes available with the BSE, as given below

Index	No of Companies representing the Index	Date of launch and base value and date publically available from	Year of data **Publically** available prior to investment decision (28/01/2010)
BSE 500	500	Date of Launch: 09/08/1999 with base year of 01/02/1999 Base Index Value: 1000 Data Publically available from: 01/02/1999	Approximate 10.92 years
BSE 200	200	Date of Launch: 27/05/1994 with base year of 1989-90 Base Index Value: 100 Data Publically available from: 01/01/1991	Approximate 19 years
BSE 100	100	Date of Launch: 03/01/1989 with base year of 1983-84 Base Index Value: 58 Data Publically available from: 01/01/1991	Approximate 19 years
BSE Sensex	30	Date of Launch: 01/01/1986 with base year of 1978-79 Base Index Value: 100 Data Publically available from: 01/01/1991	Approximate 19 years

Thus, all the other three indexes have comparable period of data available except the BSE 500 as considered by the PP in the webhosted PDD, version 01. Based on the context of covering broader companies and thus share of the market, the PP has considered the BSE 200 as revised index in the benchmark calculation. This is found appropriate approach as the larger share of companies represent the larger market scenario and thus issue 1 raised in CAR#05 was **closed.**

The PP has calculated the market return based on monthly BSE 200 data up to the time of investment decision (up to Dec-2009). The data used in the calculation are in accordance with para 6 of EB62, Annex 5 and calculation is carried out correctly by the PP. The validated value of market return comes to 15.94%. The earlier market return as calculated on the base of BSE 500 (as calculated in the PDD, version 01) came to 19.26%[/24.1/] and thus the revised index and calculation as provided by the PP is conservative.

Risk Free Return – 8.2187%:

Risk free return has been taken from the Month-end yield to Maturity of SGL transactions in Central Government Dated Securities for 20 years maturity period, the rate has been considered as published by the

Reserve Bank of India (RBI) and is available at the link: http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/26CT_CSB1209.pdf. The PP has used the month-end rate of October 2009, which was published in December 2009 and latest available at the time of investment decision. The investments in the government dated securities are ideal example for the risk free and secure investments and thus the latest rate as considered by the PP is found appropriate. The rate as considered by the PP comes to 8.2187%.

Issue 3 in **CAR#05** was raised as the PP had considered the weighted average yield of Yield to Maturity (YTM) of Government Securities during 2008-09 as risk free rate in the webhosted analysis. The considered rate was weighted average rate of maturities period between 4 years to 30 years and was not exactly comparable to the project activity assessment horizon (20 Years). The issue was **closed** as the PP revised the considered rate to the 20 years maturity period as mention about, which is comparable to the project activity assessment horizon.

Market Risk Premium - 7.7210%:

The market premium is considered based on the market return and the risk free rate of return (Rm – Rf). This value comes for the project as (15.94% - 8.2187%) = 7.7210%.

Beta – 1.07:

The beta value or the indicator for the market stability/scenario is considered based on the listed companies in the power sector with BSE 200. The PP has considered the BSE 200 index for the market return calculation and in accordance with the same the listed companies with BSE 200 are considered in the Beta calculation. The following assumptions by the PP are validated and found appropriate in Beta calculation.

Selection of Companies:

The PP has considered the listed companies with investment in power sector in the calculation. The same is found appropriate approach. Further, the current project activity is about power generation through renewable wind energy, Since the relative investment and the market share of companies having significant investment in renewable or wind sector is very small in the host country, that would not represent the real picture of the market. Further, the investments in the conventional (Thermal) power generation are relatively low risk investment and thus the PP has included all the companies involved in the Thermal power generation also in the beta calculation. Thus, all the companies having investment in power sector and listed with BSE are analyzed by the PP.

Date Availability:

Out of the listed companies the companies having a minimum of approximate 5 years data are considered for the further calculation. The reason being, it would more appropriate to consider the beta for more than 5 years as it would provide the stable value. This fact has been checked by a research paper as published by Mr. Jonathan Lewellen and Mr. Stefan Nagel, available at the link: http://web.mit.edu/lewellen/www/Documents/ConditionalCapm.pdf[24.2]. This is further cross checked by the assessment team with a research paper titled "Estimating Risk Parameters" by the renowned scholar Aswath Damodaran (http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/beta.pdf)[24.3], who is a Professor of Finance at the Stern School of Business at New York University and an authority on the subject (page 9) states, “Risk and return models are silent on how long a time period one needs to use to estimate betas. Services use periods ranging from two years to five years for beta estimates, with varying results". Based on the same, the beta value of 5 years vintage period (i.e. maximum of vintage period) is found more appropriate to consider. The consideration of the 5 year beta vintage is also in accordance with the prevalent financial practices in the host country[24.4]. The 5 years data vintage is further also cross checked with the validation report of the registered project activity UN 6220.

The steps for the selection and choice of the companies is provided in the Benchmark calculation sheet by the PP and checked. There are total of 15 companies in power sector are registered with BSE 200 at the

time of investment decision of the project activity. Out of them 6 companies have approximate 5 years vintage data available. One company of 6 – Reliance Infrastructure Limited is not purely into the power generation business and thus excluded by the PP. The same has been checked with the company website http://www.rinfra.com/ and is found appropriate.

Based on the above the following 5 companies are considered by the PP and the beta for vintage year of 5 years is calculated in the ROE consideration.

Company Name	Beta
Tata Power	1.00
Neyveli Lignite	1.30
National Thermal Power Corporation (NTPC)	0.82
JP power Venture	1.28
Calcutta Electricity Supply Company (CESC)	0.97

The average beta for these Companies come to 1.07 and considered by the PP for the further analysis. Since, the average value represents the actual scenario for the power sector, than considering a single company, the average value is found more appropriate to the assessment team than the consideration of lowest/conservative value. To see the robustness of additionality, benchmark with minimum beta (0.82 – NTPC) is also calculated by the assessment team and checked. The project activity is still additional in that scenario.
Further, it is also found that the some of the registered projects in the same technology (wind) in the host country considers the 3 years data vintage for the calculation of the beta. As a cross check measure, a beta with 3 years vintage data of selected companies had been calculated by the assessment team and it is found that 5 years vintage provides more conservative (lower) value of beta as compared to 3 years vintage.
Thus, the calculation and consideration by the PP is found correct and appropriate and thus accepted.

Issue 2 in **CAR#05** was raised for the justification of the selection of companies and the data vintage for the calculation of the beta. The issue was **closed** as the PP clarified the choice of companies and considered data vintage method as validated about. The detailed discussion on the findings raised is provided at Annex 3 (section A.3) of this report.

Return of Equity:

The return on equity is calculated as;
Re = Rf + Beta x (Market Return – Risk Free Return)
= 8.2187% + 1.07 x (15.94% - 8.2187%)
= 16.51%

Thus, ROE on equity is calculated on the basis of beta, Risk free return (Government bond rate) and market risk premium. All the parameters used in the calculation are standard in the market and based on the same; the required return on equity becomes **16.51%.** The PP has not considered the additional risk premium for wind project. Thus the benchmark considered is conservative in accordance with the Para 112 of the VVM version 1.2. The benchmark has been determined by means of publically available hence this is in accordance with the guidance stipulated as per paragraph 12 & 13 of EB 62 Annex 05.

IRR calculation – 4.71%:

In order to compare the returns from the investment with the benchmark, the PP has calculated the post-tax Equity IRR, for the project activity.

The IRR calculation is being provided along with the spread sheet. The validation of the input parameters in the analysis is discussed as below.

(A) Project cost - 47.04 million INR per WTG:

The total project is considered in the financial analysis is 47.04 million INR per WTG. The considered cost per WTG is primarily based on the supplier Enercon's proposal dated 22/08/2009[/17/] submitted to the Torrent power Management. The WTG mentioned in the proposal are 0.8 MW Enercon E-53 type machines and the same are installed/used in the project activity. The proposal date is prior to the project investment date (28/01/2010) and the same has been considered in accordance with the paragraph 6 of "Guidelines on assessment of investment analysis" version 05 (EB 62 Annex 05).

The proposal dated 22/08/2009 has been submitted by the PP and checked. The project cost break up has not been provided in the proposal, however, the mentioned per WTG costs covers all the aspects of the project since procurement to the commissioning of WTG.

The Per WTG cost as provided in the Enercon offer is 45 million INR per WTG. In addition to the WTG cost the PP has considered 0.45 million INR per WTG for pre-operative expenses and contingency each and 1.14 million INR as IDC. The pre-operative expenses have been considered by the PP based on the management estimate (1% of WTG cost) and includes cost of travel, consultancy and man power cost etc for the project execution. The break up for the same is provided in the financial sheet[/2.1/]. Further, the PP has considered the contingency as 1% of the WTG cost, which is a standard practice. These values are based on the Torrent Power Limited management estimates and thus available at time of investment decision. The PP has further considered the IDC in the project cost and calculation of the same is provided in the financial sheet and is found appropriate. The PP has calculated the equity IRR as financial indicator and thus consideration of IDC is in line with para 9 of EB62, Annex 5.

The PP has also considered the 10% sensitivity check for the variation on the project cost. The results for the sensitivity suggest the project being still additional and even after 10% reduction in project cost the equity IRR does not cross the benchmark. The sensitivity analysis is also being submitted along with the IRR calculation spreadsheet.

Cross Check:

The considered total project cost per WTG is cross-checked with the other documents available and same is found appropriate.

The Purchase orders[/13/] for the WTGs, issues to Enercon (India) Limited have been submitted by the PP and checked. It was found that PP has issued two purchase orders for total of 62 WTGs in phases by purchase orders dated 30/03/2011 (55 WTG) and 30/08/2011 (7 WTG). Both the purchase orders were issued at the same price which is lower than the proposal price as considered by the PP in calculation of equity IRR (difference being less than 5%). The total actual cost of EPC as per the purchase orders comes to less than 5% (lower side) variation in terms of million INR per WTG. Thus, difference in actual project cost has been found than the considered price from proposal. However, the difference observed is accepted by the assessment team considering it a minor change (less than - 5% of EPC price) as it is already being covered in the $\pm$10% range of sensitivity analysis for the project cost. Thus, it can be concluded that there is no significant change between the considered project cost at the time of investment decision making and the actual project cost.

The latest tariff order in the state at the time of investment decision was tariff order dated No.1 of 2010 by GERC. The Gujarat Electricity Regulatory Commission (GERC) is nodal agency for the tariff regulation in the state of Gujarat and controls the tariff for the power generation plants and distribution licensees. The GERC has published a tariff order dated 30/01/2010[/19.2/], which is after two days of the investment decision (28/01/2010). This tariff order considers the project cost for wind power projects in the state as 5.0 crores per MW (50 million INR/MW – Page 25). The project cost for the propose project activity comes to 58.08 million INR per MW. This is about 15% higher than as considered in the tariff order. This has been checked with the sectoral expert and it is learnt that the price of the WTG per MW varies differently based on the suppliers, model of WTG, tower height, blade size, capacity of WTG, region etc. The tariff order does not specify the capacity of WTGs or the suppliers and thus such variation may have been observed. The cost of project activity was also validated through Centre for Wind Energy technology (an autonomous R&D institute under

Ministry of New and Renewable Energy Sources (MNRE), India, which states "For a wind farm, the capital cost ranges between 45 million INR per MW to 68.5 million INR per MW depending on the type of turbine, technology, size and location" /21/. Further, the price considered by the Torrent Power Limited has been further cross checked with the purchase orders and no significant variation is found.

Further, the price as considered by the PP is crosschecked with the other recently registered projects of the region having same technology and the supplier.

- The registered project activity **UN 6031** considers the validated project cost of 58.05 million INR per MW (46.44 million INR per WTG) for the total capacity of 5.6 MW having investment decision date on 30/09/2010.
- The registered project activity **UN 5777** considers the validated project cost of 63.00 million INR per MW (50.40 million INR per WTG) for the total capacity of 39.2 MW having investment decision date on 14/07/2010.
- The registered project activity **UN 4700** considers the validated project cost of 59.34 million INR per MW (47.47 million INR per WTG) for the total capacity of 51.2 MW having investment decision date on 28/11/2009.

These project activities are located in the same state of Gujarat like proposed project activity, having the same capacity of the WTG (0.8 MW) and supplier (Enercon) and further the investment decisions for the projects are also taken in the relatively comparable time frame of the proposal project activity. Thus, it can be concluded that the project cost as considered by the PP, is as per the existing market rate in the region is appropriate. The project cost as mentioned in the proposal as well as the purchase order is inclusive of all applicable taxes and thus additional taxes are not considered by the PP in calculation of the project cost.

Further, the PP has considered the pre-operative expenses (1% of WTG EPC cost), contingency (1% of WTG EPC cost) and IDC in the total project cost. Since these are subjective expenses, the same are not validated by the team with other publically available information. It is checked and confirmed by the assessment team that while excluding these expenses also, the project activity does not cross the benchmark and is additional.

Thus, the project cost as considered by the PP is found appropriate and correct.

(B) Operation and Maintenance:

1. COST - 0.6066 million INR per WTG:

The operation and maintenance cost for the Enercon machines E-53 is considered as 0.6066 million INR per WTG per year from the 2nd year (comes to 1.29% of the per WTG cost). The cost is considered based on the proposal from the Enercon dated 22/08/2009 /17/, which also mentions the O&M offer. This was available at the time of investment decision with the PP and deemed appropriate as per Para 6 of the EB62, annex 5.

The offer has been submitted by the PP and checked. As per the offer, the O&M for the first year is free and from second year the same is considered as 0.55 million INR per WTG. The cost does not include the applicable taxes and at the rate of applicable service tax of 10.3% at the time of investment decision, O&M cost per WTG comes to 0.6066 million INR per WTG. Thus, the consideration by the PP is appropriate.

Cross check:

The O&M price considered from the proposal is further cross checked with the actual O&M contract for the project activity. The PP has signed the contract for the O&M of with Enercon (India) Limited /23/ and the same has been submitted to the assessment team. It is found that the actual O&M cost for 20 years period is lower than the proposal cost as considered by the PP in calculation of equity IRR (difference being less than 5%). This difference observed is accepted by the assessment team as it is already being covered in the ±10% range of sensitivity analysis for the O&M cost. Further, it has been checked by the assessment team that the project activity does not cross the benchmark and is additional with the consideration of actual O&M contract cost also.

It is validated from the proposal[/17/] and also from the O&M contact[/23/] that the mentioned prices do not include damages due to the Force Majeure conditions and the insurance cost.

The tariff order dated 30/01/2010[/19.2/] has been referred by the assessment team for the cross checking purpose of the suitability of the values considered. The tariff order considers the normative O&M expenses as Rs.0.65 million INR per MW for the first year with escalation of 5% per annum on it from the 2nd year onwards for determination of levelised tariff of wind projects. The O&M cost considered by the order includes all statutory charges, administrative charges, spares, and maintenance and insurance charges also. Thus, the O&M cost as considered by the PP is comparable to the cost as considered by the tariff order.

Further, the price as considered by the PP is crosschecked with the other recently registered projects of the region having same technology and the supplied.

- The registered project activity **UN 6031** considers the validated O&M cost of 0.65 million INR per WTG (1.4% of total project cost) from the second year onwards, considering the O&M for the first year as free.
- The registered project activity **UN 5777** considers the validated O&M cost of 0.665 million INR per WTG (1.32% of total project cost) from the 3rd years onwards, considering the O&M for the first two years as free.
- The registered project activity **UN 4700** considers the validated O&M cost of 0.617 million INR per WTG (1.30% of project cost) for the total capacity of 51.2 MW having investment decision date on 28/11/2009.

Thus, it is concluded by the assessment team that O&M cost as considered by the PP is in accordance with the prevailing market rate and is appropriately considered.

2. ESCALATION - 5% per year from 3rd year:

The escalation in the O&M cost is considered as rate of 5% from the 3rd year onwards in the O&M cost of 2nd year. The escalation is then further applied to the 20 year assessment period. The same is considered from the supplier Enercon's offer[/17/], which was available and applicable at the time of investment decision.

The escalation in the cost is further cross checked with the actual O&M contract and it was noted that the same escalation is considered in the contract. The registered project activities UN 6031, UN 5777 and UN 4700 have also considered the O&M escalation 6%, 5% and 6% respectively, which is in line with the rate as considered by the PP.

(C) Capacity (0.8 MW) & Lifetime (20 Years) of the WTGs:

The capacity of the WTGs has been considered by the PP based on the supplier's offer, which was available at the time of investment decision. This is further validated by means of purchase orders[/13/] and on-site inspections[/8/]. The number of the WTGs and the capacity of the WTG are considered correctly by the PP in financial analysis are as per the actual project design.

The investment analysis is carried out for the 20 years period. This is validated through the supplier's technical specifications[/6/], which states the lifetime of wind machines as 20 years.
It was noted by the assessment team that GERC tariff order dated 30/01/2010[/19.1/], applicable to the project activity considers the lifetime and period of assessment for the WTG projects as 25 years. However, since the technology supplier has confirmed its lifetime as 20 years in the proposal[/17/] and the purchase order[/13/], the same is accepted by the assessment team in line with EB50, Annex 15. Further, it was also cross checked that most of the registered wind power projects and the government tariff regulations consider the lifetime of 20 years of operation for WTG and same is the prevailing analysis scenario at the time of investment and thus accepted by the assessment team.
The assessment team has also calculated and checked the IRR for the 25 years of operation for cross checking purpose and the project activity is found to be additional in that case also.

(D) Plant Load Factor (PLF/CUF)- 21.22%:

The plant load factor used for financial analysis is 21.22%. This is found appropriate to the assessment team as the most conservative value to be used. The validation of the PLF is discussed as below.

- The plant load factor available to the PP and used at the time of investment decision is 21.22%. The considered PLF by the PP is based on the actual available WTG generation data for the project activity region/22.1/. The Project activity is located in the Jamnagar district and is connected to the Tebhada substation in the region. The PP was aware about the location of the project activity, since the Jamnagar district site was proposed by the Enercon in its proposal dated 22/08/2009/17/. While analyzing the PLF for the project activity location, the PP has used the real generation data for the Enercon Samana site in Jamnagar district connected to Sadodar substation. The Enercon India limited has provided the monthly generation reports for the installed capacity as issued by the GEDA for the Samana site. The monthly generation records for the period of Jan 2008 to Dec 2009 has been analyzed and used by the PP in order to estimate the PLF for the project location. The Sadodar substation and the connected Enercon WTG site is in the same location/district of the project activity and is expected to follow the same wind pattern. This has been checked by the assessment team during the site visit. Further, the site referred also contains the same Enercon make 0.8 MW WTGs. The total connected installed capacity of the substation in the month of December 2009 is 296.6 MW. The PP has calculated the PLF for the Sadodar substation for the period of two years (Jan 2008 – Dec 2009) and the same comes to 21.22%/22.1/. This has been used by the PP at the time of investment decision and is based on the data available at the time of investment decision. The generation reports as issued by the GEDA (government agency for monitoring) and as submitted by the PP have been checked and the calculation by the PP is found to be correct.
- The approach as considered by the PP is found appropriate and more acceptable to the assessment team as the PLF of any WTG project is dependable on many factors including Project site location, WTG supplier and model, tower height etc. It has been observed that in the same state also the PLF varies drastically based on the WTG location and make. The same has been confirmed with the sectoral expert involved in the team. Thus, the PP has considered the PLF of the site in the nearby project region and having same supplier WTGs provide more accurate estimation of the proposed project activity generation. Further, it is observed in the host country that the wind pattern also varies during the year and as per the season. i.e. the wind is strong and PLF is high in the months of May-Sep and it covers about 50% of the annual generation. The PP has considered and calculated the average PLF based on the generated data vintage of 2 years, which is adequate to cover the any variation in the wind pattern over the period of the year.

- Further, in accordance with EB48, Annex 11 guidelines, the PP has also estimated the PLF for the project activity site through as consulting third party engineering services. A report by M/s Sgurr Energy (http://www.sgurrenergy.com/) dated March 2011/22.2/ has been submitted by the PP, which has estimated wind regime and energy yield for the project activity site locations for Torrent Power Limited. As per the report the estimated PLF for the project activity site is 20.6%. The PP had considered the same in the webhosted PDD, version 01. However, this was not as per the EB62, Annex 5, and Para 6 guidelines and thus, has revised the same in final analysis being submitted as 21.22% based on investment decision consideration. Further, the revised PLF as considered by the PP is more conservative as compared to the third party PLF report and thus accepted by the assessment team.

- The assessment team has further cross checked the PLF as mentioned in the tariff order dated 30/01/2010/19.2/. The tariff order considers the annual PLF at 23% (Page 26). The tariff order has considered the 7.73% higher PLF as compared to the PP. However, as discussed above, the PLF depends on many parameters including the project activity location and the technology supplier and the tariff order considers the general PLF for the whole state of Gujarat irrespective of the technology and the supplier. Further, the difference as observed is within the range of 10% sensitivity and the project activity is additional with the tariff order PLF also.

- The generation/export of all the grid connected substations are being monitored by the authority SLDC since 01/04/2010 and is published on monthly basis since then. The State Load Dispatch

Centre (SLDC) is the apex body to ensure integrated operation of the power system in the state Gujarat. It is the strategic functional unit of Gujarat Energy Transmission Corporation Limited. (GETCO), for discharging various functions specified under Section 32 of Indian Electricity Act 2003. The SLDC also publishes the monthly generation reports for all the substations connected to the grid in state of Gujarat. The PP has also provided the calculated actual PLF in Gujarat State during the FY 2010-11 and FY 2011-12 based on the generation/export data available on SLDC website http://www.sldcguj.com/. The calculation has been checked by the assessment team and it is found that the actual PLF based on all Installed WTGs in Gujarat is 16.98% in FY 2010-11 and 18.94% in FY 2011-12/22.3/. Thus the PLF as considered by the PP is conservative.

Thus, the validation team is of the opinion that the PP has considered an appropriate PLF in the investment analysis for the project activity site locations.

Issue 4 in **CAR#04** was raised for the validation of the PLF as the PP had reported the PLF in the PDD, version 01 as 20.6%, which was based on the third party PLF study assessment. However, the same is based on the report dated March 2011 and thus was not available at the time of investment decision. The issue finally **closed,** when the PP revised the PDD and considered the PLF in accordance with the investment decision making on conservative basis.

(E) **Statutory Expense per WTG – 0.044 million INR/WTG/Annum:**

The PP has also considered the statutory expenses as required for the approval and commissioning of the project activity. These expenses are calculated as 0.044 million INR per WTG as per the details provided in the supplier's proposal/17/. The Enercon Proposal dated 22/08/2009 mentions following expected statutory reoccurring expenses for the PP's information and those are not covered under the EPC cost of the project. The cost covers Land lease rentals (6000 INR/WTG/annum), GEDA certification charges (8000 INR/WTG/annum, GETCO transmission line maintenance charges (30,000 INR/WTG/Annum). This comes to a total of 0.044 million INR per WTG and the same is considered by the PP in the analysis at the time of investment decision.
The statutory expenses as considered by the PP is further cross checked with the actual cost/25/ occurred as the project activity is already commissioned and mentioned costs have been paid for the first year by the PP. The actual validated expenses by the PP comes to about 0.055 million INR per WTG (Annual land lease 5000 INR/WTG/annum), Local Gram Panchayat charges (19,000 INR/WTG/annum), GEDA certification charges (10,000 INR/MW/annum), CETG Inspection charges (6,750 INR/WTG/annum), GETCO transmission line charges (15,000 INR/WTG/annum) and meter calibration charges (1,24,000 INR/annum). Thus, the price as considered by the PP is conservative than actual scenario and thus accepted by the assessment team.
All the statutory expenses considered by the PP are reoccurring charges and considered by the PP for the life time of the project activity without escalation. This is conservative approach and thus accepted.

In the financial calculation as provided along with the webhosted PDD version 01, The PP had also considered the escalation on statutory expenses. Thus an **issue 3** in **CAR#04** was raised for validation of the same. In response the PP clarified that the escalation on statutory expenses was based on management estimate and later removed the same in the revised submitted analysis. This was conservative approach thus accepted by the assessment team and issue was **closed**.

(F) Insurance Cost - 0.22% of project cost:

The PP has considered the insurance cost of 0.22% of the WTG price. The same is based on the estimation made by the PP on its earlier experience. The PP has calculated the total insurance cost on its other assets for the financial year 2008-09 and it comes to the 0.22% of the assess value. The insurance cost is validated and available in the annual report of Torrent Power Limited (http://www.torrentpower.com/investors/pdfs/annual_report_08_09.pdf) for the year of 2008-09/26/. The considered value was available at the time of decision making and is in compliance of the EB62, Annex 5 para 6.
This is the first WTG project investment by the PP and thus the PP has considered the insurance cost based on its other assets. Since, the insurance is a subjective cost, it would be more appropriate to consider the

value based on WTG or related experience. Thus, the assessment team has cross checked the insurance cost of the other registered WTG projects in the region and found that UN 6031 and UN 4700 have considered validated cost of 0.12% of project cost while UN 5777 has considered 0.13% of the project cost. Further, the details of the actual insurance expenses occurred to the PP for the project activity has also been cross checked and it is found that it comes to about 0.11% of the project cost[/27/]. Thus, a range of 0.11-0.13% of project cost would be more appropriate for insurance charges and the assessment team has validated the additionality of the project activity with this range also. It is found that it does not have significant impact of the IRR and project activity is still addition without insurance cost also.

Thus, the charges as considered by the PP at time of investment decision were accepted in the analysis.

The validation of insurance cost was also covered under **issue 3** of **CAR#04**. In response the PP justified the considered insurance cost based on the annual insurance expense of the company on its assets. The assessment team has checked the suitability of considered rate with variation as it is found that it does not have significant impact of the additionality. Thus, the value as considered by the PP on investment decision was accepted and issue was **closed**.

(G) Tax rates: Corporate Tax (33.66%), MAT rate (16.995%) and Service tax (10.3%):

Tax rate (33.66%) and MAT rate (16.995%) is taken as per the Income Tax Act, 1961, para E of First Schedule & Section (45)(a)(ii), page 17 & page 32, http://www.saraltaxoffice.com/resources/finance-act-2-2009.pdf. These were applicable rates at the time of decision making. The values for tax rate and MAT rate have been verified through source web site. Being an official data eliminates any ambiguity.

The service tax rate is considered by the PP as 10.3% on the applicable parameters in line with the applicable rules. The same has been considered and checked with the Finance Act, 1994, (http://www.saraltaxoffice.com/resources/finance-act-2-2009.pdf) and its notification no. 8 of 2009 dated 24/02/2009, http://www.servicetax.gov.in/st-notfns-home.htm. The value as considered was applicable and available at the time of investment decision and appropriately considered by the PP.

(H) Debt-Equity ratio – 70-30:

The project activity is equity and debt investment by the Torrent Power Limited and the financial analysis for the project activity has been carried out by the PP considering the debt/equity investment ratio as 70:30%.
The Considered debt-equity ratio is considered by the PP from relevant tariff regulations available in the public domain (CERC Renewable Energy tariff regulation dated 16/09/2009[/19.4/] and GERC draft tariff order for wind projects[/19.1/]). This information was available with the PP at the time of investment decision and thus, consideration of the same is appropriate.

Further, it is opinion of the assessment team based on its sectoral expertise and relevant experience in the host country that 70/30 Debt-Equity ratio is the standard practice followed in the power sector investments in the india and the same is evident from the government tariff determination regulations (i.e GERC tariff order for wind projects dated 30/01/2010[/19.2/], CERC Terms & Conditions of Tariff Regulations, 2009 dated 19/01/2009[/19.5/] and other registered power projects from the host country India.

Thus, the ratio as considered by the PP is found appropriately.

(I) Interest on term loan (11.25%), Moratorium (12 months) and numbers of loan repayment installments (40 - Quarterly):

The interest on term loan as considered by the PP is 11.25% based on the BPLR of State Bank of India minus 100 basis points. The BPLR of the State Bank of India as on October 2009 was 12.75% and is checked through the link: http://in.reuters.com/article/2011/02/28/india-plr-idINSGE71R06L20110228. The PP has considered the minus 100 basis approach to the SBI rate as per standard procedure and thus, the final rate as considered by the PP comes to 11.75%. The consideration of minus 100 basis points has been cross checked with the GERC final tariff order dated 30/01/2010 and is found appropriate.

The rate as considered by the PP is further cross checked with the

- Reserve Bank of India published PLR for the month of January 2010 (investment decision month) available at: http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=11035. The RBI has mentioned the PLF for the Banks in the range of 11.00%-12.00%. An average of the same comes to 11.50% and is in line with the rate as considered by the PP.
- The GERC final tariff order dated 30/01/2010[/19.2/], which is published after the investment decision date allows considering the interest rate of 10.75% on term loan.
- The assessment team has checked the project activity IRR with consideration of these both rates and the project activity is found to be additional.

The PP has considered the moratorium period of 12 months and repayment period of 10 years (40 quarterly instalments). This was considered based on available information in the GERC draft tariff order dated 17/06/2009[/19.1/] (Page 12).
This is further cross checked with the final GERC tariff order dated 30/01/2010[/19.2/], which has considered the annual equal instalments for 10 years (Page 16). Thus, the consideration by the PP is found appropriate.

(J) Working Capital and interest on working capital – 11.75%:

The PP has calculated and considered the working capital for the project activity. The terms considered the calculation are O&M expenses for 1 month and receivables for 1 month. The same are considered based on information available from CERC Terms and Conditions for Tariff determination from Renewable Energy Sources Regulations 2009 dated 17/09/2009[/19.4/] (Page 15). This information has been checked by the assessment team and is found appropriate and available at the time of investment decision.
The considered working capital norms are further cross checked with the GERC tariff order dated 30/01/2010[/19.2/], published after the investment decision. The mentioned tariff order also allows the same 1 month O&M expenses and 1 month receivables to the project developers.

In line with interest on term loan the PP has consider the SBI PLR on minus 50 basis points as interest rate on working capital. This comes to 11.75% and cross checked with the GERC tariff order[/19.2/], which allows the same rate for working capital calculation.

(K) Depreciation rates and Salvage value (10%):

Tax depreciation: The depreciation rate for income tax calculation is considered by the PP as 7.69% on a straight line method. The same has been considered and checked with the Rule 5 (1A), Income Tax Rules read with Section 32 (i) of Income Tax Act, 1961, www.incometaxindia.gov.in and is found appropriately considered by the PP.

Book depreciation: The PP has considered the book depreciation at the rate of 5.28% on straight line method. This is considered and checked in line with the companies act, 1956 (http://www.aadisol.in/aca/images/bullentins/bt_23.pdf) and is found appropriately considered. The PP has depreciated assets up to 95% of the project cost. This is in accordance with as guided in the companies act, 1956.

The rate of depreciation has been also cross checked with the GERC tariff order dated 30/01/2010[/19.2/], which considers the same as 6% in initial 10 years period and 2% from then onwards (Page 26).

Salvage value: The PP has considered the 10% of the total project cost as salvage value. The same is in line with the Para 4 of EB 62, annex 5 as it considers the book value as well as reasonable profit expectations at the end of the lifetime of the project activity and this found appropriate. The Salvage value is also added back in the last year of cash-flow calculation in computation of IRR, which is appropriate approach.

Issue 5 in **CAR#04** was raised as only 5% of the remaining book value was considered as salvage value by the PP in analysis as submitted along with the PDD, version 01. The issue was **closed** as the PP revised the same as per para 4 of EB62, annex 5 and considered the conservatively 10% of the project cost as salvage value.

(L) Generation Based Incentive (GBI):

The electricity generation from the renewable energy is promoted in the host country and for the same Generation Based Incentive policy is available in parallel to the accelerated depreciation. The wind power project developers at the time of investment decision making of the project activity were eligible for either of the GBI scheme or the accelerated depreciation. In accelerated depreciation benefit, the project developers were allowed to depreciate the total assets up to 80% in the initial years, which can indirectly benefit in terms of tax savings. The losses arise due to such accelerated depreciation cost can also be carried forward of adjusted in the income from the other businesses in computation of the taxes.
In the proposed project activity, the PP has not opted for the accelerated depreciation benefit but had chosen to have the Generation Base Incentive for the project. A policy letter by the Ministry of New and Renewable Energy, Government of India dated 17/12/2009 for implementation of the GBI scheme has been submitted by the PP and is available at the link: http://www.mnre.gov.in/file-manager/grid-wind/gbi-scheme.pdf. Thus, it is confirmed that the PP was aware about the possible GBI incentive at the time of investment decision of the project activity.

In the GBI scheme the wind power project developers are eligible for an incentive of 0.5 INR per unit of electricity supplied to the grid for a period of minimum 4 years and maximum 10 years. However, the same is available with a cap of total 6.2 INR million per MW only and the limit of total disbursement during a particular year as 1.55 million INR per MW/28/.

The GBI scheme is implemented through Indian Renewable Energy Development Agency (IREDA)/28/ and the proposed project activity has been registered under the GBI mechanism with IREDA. This fact has been checked with the link of http://110.234.218.202/iredawindmill/form/ReportgbiScheme.aspx, where the IREDA has listed all the registered projects. While registration with IREDA, the project developers have to provide a self declaration that they will not claim the accelerated depreciation benefits available to the wind power project. A declaration/29/ regarding same as submitted to the IREDA has been submitted by the PP and is checked. Thus, the consideration and intention to seek the GBI incentive in place of accelerated depreciation by the PP is confirmed and validated.

Further, the financial analysis sheet/2.1/ is also checked and it is confirmed that the PP has considered the GBI incentive in the IRR calculation appropriately in line with the policy details available at http://www.mnre.gov.in/file-manager/grid-wind/gbi-scheme.pdf.

Issue 7 in **CAR#04** was raised as the financial analysis as submitted along with the PDD, version 01 had not considered the accelerated depreciation but the GBI incentive. Thus, issues were raised related to the validation of availability of GBI at the time of investment decision and further registration of the project activity with GBI scheme. The issues **closed** as the PP justified the consideration GBI with related supporting evidences as discussed above.

(M) Tariff rate – 3.55 INR/KWh:

The tariff rate as considered by the PP is levelised tariff proposed by the GERC, which is tariff regulating agency for power project in the state of Gujarat. At the time of investment decision of the project activity the applicable tariff order for wind power projects in the state was GERC order dated 11/08/2006/19.3/. The same was not the recent one and the tariff order was being revised. The PP was aware about this revision as the draft tariff order dated 17/08/2009/19.1/ was made available by the GERC in the public domain and was being further considered. Thus, the PP had considered the tariff rate for the project activity based on the draft tariff order which is 3.55 INR per KWh fixed for the entire lifetime of the project activity (25 years as per tariff order). Since, the project activity lifetime and assessment period considered is 20 years as per the manufactures specification (and also EB 50, annex 15) the PP has applied the same fixed tariff rate of 3.55 INR per KWh in the investment analysis for the project activity. The considered value of tariff was available at time of investment decision and has been appropriately considered by the PP.

The assessment team has also checked that mentioned draft tariff order dated 17/08/2009/19.1/ was later finalised and published by the GERC on 30/01/2010/19.2/. The same is applicable to the proposed project

activity and has considered the tariff of 3.56 INR per KWh (Page 26). The project activity investment analysis has been checked and is found to be additional with the revised tariff also. Further, the earlier tariff order dated 11/08/2006[19.1] considers the tariff at the fixed rate of 3.37 INR/KWh (page 21) and thus, the rate as considered by the PP is conservative.

Thus, it is concluded that the PP has appropriately considered the tariff rate in the analysis.

Calculation and comparison of IRR:

Considering the above validated input values, the PP has calculated the post-tax equity IRR. The equity IRR for the project activity comes to 4.71%.

Sensitivity Analysis

The PP has appropriately selected the following variables to conduct the sensitivity analysis:

1. Project cost
2. Plant Load Factor (PLF)
3. Tariff rate
4. O&M cost

Project Cost:

Since the project cost for WTG machines has considered from proposal as provided by the supplier, hence anticipating the variation that may take place sensitivity analysis has been conducted to an extent of ± 10% in line with the "Guidelines on the assessment of investment analysis" version 05. The outcome of sensitivity analysis for project cost summarized below:

	+10%	Base IRR	-10%	Benchmark
Project Cost	3.20%	4.71%	7.07%	16.51%

As per the above table, it is confirmed that even after 10% reduction in project cost the project IRR does not crosses the benchmark. The project activity crosses the benchmark at reduction of approximate 34.7% (16.33 million INR per WTG) in the project. This is unlikely to happen as the WTG price considered for the project activity has been cross checked with the purchase orders and the price reduction (difference being less than 5%) is within -10% range of sensitivity analysis.

Plant Load Factor:

In the below table, it is observed that the IRR is below the selected benchmark even after a 10% increase in PLF. The Project activity IRR crosses the benchmark only at the increase of 48.9%. This comes to the annual PLF of 31.60% for a period of 20 year. Such high PLF is not observed in the project activity region as thus it is unlikely to happen. Further three different PLF as validated, third party assessment report (20.6%), PP's estimate based on site location existing generation (21.22%) and the tariff order date 30/01/2010 (23%) shows the achievable PLF range in the project activity region, which is not comparable to the 31.60% and thus it is deemed impossible to achieve during the lifetime of the project activity.

	+10%	Base IRR	-10%	Benchmark
PLF (Generation)	7.08%	4.71%	2.81%	16.51%

O&M expenses:

Anticipating the expected variation in O&M cost the PP has also conducted sensitivity analysis for O&M cost to an extent of ± 10%. It is noticeable from the analysis that equity IRR does not cross the benchmark if O&M cost decreases by 10%. Further, it is also checked by the team that the project activity is additional even without consideration of O&M cost also. Thus, further analysis on likely scenario is not deemed necessary.

	+10%	Base IRR	-10%	Benchmark
O&M cost	4.38%	4.71%	5.09%	16.51%

Tariff rate:

However, the tariff order considers the fixed rate for the lifetime of the project activity; the PP has also performed the sensitivity analysis on the tariff rate. The IRR of the project activity does not cross the benchmark with consideration of the ± 10% variation. The IRR only cross the benchmark on an increase of 49.9%, which makes the tariff of the project activity 5.32 INR/KWh (+ GBI incentive to add). The final tariff order has already fixed the tariff at the rate of 3.56 INR per KWh and such high increase is deemed unlikely to happen in current scenario.

	+10%	Base IRR	-10%	Benchmark
Tariff rate	7.06%	4.71%	2.82%	16.51%

Based on the above discussions, it can be established that the project activity is financially not viable without the benefits of CDM.

Case of REC Mechanism:

During the validation of the project activity, it was found that the project activity is also eligible to participate in the market namely Renewable Energy Certificates (REC). The details for the same can be checked at the weblink of https://www.recregistryindia.in/.

In the REC mechanism, in place of the levelised tariff as regulated by the controlling authority, the renewable energy project developers have option of to sell the electricity generation along with its environmental attributes associated with the RE generation. In the REC, the price of the electricity component would be equivalent to the weighted Average Power Purchase Cost (WPPC) of the distribution company in the state including short-term power purchase cost but excluding cost of renewable power purchase. Further, the project developers can trade the environment attributes for the generated electricity in form of REC at a market determined price in the market to be purchased from the DISCOMs with certain obligations. Considering the REC benefits the applicable tariff for the project activity can be calculated to weighted Average Power Purchase Cost (WPPC) of DISCOM – GUVNL in state of Gujarat (2.61 INR/KWh) plus floor price of REC i.e 1.5 INR/KWh. This leads to the applicable tariff or 4.11 INR/KWh.

However, the REC scheme was not available and applicable to the PP at the time of the investment decision making. The REC mechanism has come into effect on 31/03/2011, which is almost one year after the project activity investment decision was taken by board of Torrent Power Limited (28/01/2010) and also the start date (30/03/2011). Hence the discussed REC opportunity or benefits have not played any part in the project activity approval or the decision to invest by the Board of Torrent Power Limited. However, considering the fact that these benefits are available to the PP in real teams (after decision making) and to address this concern, the PP has also submitted a revised investment analysis with consideration of the actual project cost as per the purchase order and the available and applicable tariff under REC. The submitted analysis has been checked by the financial expert for the correctness and hence accepted.

	Base IRR with tariff order rate	Under REC	With 10% increase in both REC & WPPC price	Benchmark
Equity IRR	4.71%	8.44%	11.21%	16.51%

It is noted that considering the REC price with even increase of 10% in sensitivity, the project activity equity IRR does not cross the Benchmark. Hence it is confirmed that the participation in the REC mechanism does by the PP does not make the project non-additional.

However, the assessment team has validated and accepted the financial analysis for the project activity only on the basis of the levelised tariff as provided by the GERC tariff order dated 17/08/2009[19.1]. This is in accordance with a response provided by the CDM EB to a DOE for another project activity having same project/REC context. The EB response is available with the registered project activity UN 6201 (http://cdm.unfccc.int/Projects/DB/BVQI1336676184.92/view) as appendix 1 of the PDD appendices.

Discussion of findings:

Issue 1 in **CAR#04** was raised as the PDD; version 01 did not mention the date and complete reference of the basis of parameters used in the investment analysis. The issue was **closed** as the PP added the same in revised PDD, version 02.

Issue 2 in **CAR#04** was raised as the consistency in reporting of currency units was not maintained as they were reported in lakhs, million and billion. The issue was **closed** and the PP submitted the revised analysis and the PDD along with consistent reporting in international unit of million.

Issue 6 in **CAR#04** was raised tax benefits available for the wind power projects (section 80IA of income tax act) in India due to negative income during initial years had not been considered while calculating IRR by the PP. In response the PP provided the revised financial analysis with consideration of tax shield (80IA) on negative income during initial period. However the issue could not be closed as in the calculation of the tax savings the PP had considered the MAT rate in place of corporate tax rate. In response to the issues raised, the PP finally justified that Torrent Power Limited is a MAT paying company only and all of its businesses are applicable under MAT rate. The same has been checked with the justification and details as provided by the PP and thus issue was **closed**.

Opinion:

The PP has conducted the investment analysis in accordance with the relevant guidelines and the project activity is opinioned to be financial unattractive without CDM revenue as compared to at least of it the alternative. The compliance with the relevant guidelines is depicted as below.

Guidelines on the Assessment of Investment analysis, version 05 EB62, Annex 5		
Para	**Guidance**	**DOE Assessment and Opinion**
3	The period of assessment should not be limited to the proposed crediting period of the CDM project activity. Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period. In general a minimum period of 10 years and a maximum of 20 years will be appropriate. The IRR calculation may include the cost of major maintenance and/or rehabilitation if these are	The Project activity financial analysis has been performed over the period of 20 years, which is the lifetime as provided by the technology & equipments supplier and thus is justified. The requirement of the para has been met.

	expected to be incurred during the period of assessment. Project Participants are requested to justify and DOEs are requested to validate the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period.	
4	The fair value of any project activity assets at the end of the assessment period should be included as a cash inflow in the final year. The fair value should be calculated in accordance with local accounting regulations where available, or international best practice. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets.	The fair value of the asset is considered by the PP in accordance with the para. The book value of the asset in accordance with the Indian Income tax laws comes to 5% at the end of lifetime of the project. The PP has considered the 10% of the project cost as fair value considering the book value as well as expectation profit or loss on the realization of the assets. The same is added back to the last year cash flow in the IRR calculation and thus is conservative approach. The requirement of the para has been met.
5	Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, should be added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV). Taxation should only be included as an expense in the IRR/NPV calculation in cases where the benchmark or other financial indicator is intended for post-tax comparisons.	The PP has added back the depreciation while calculating the net profit in the analysis and further the tax is considered only as an expense while calculating the IRR. The requirement of the para has been met.
6	Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the Project Participant. The DOE is therefore expected to validate the timing of the investment decision and the consistency and appropriateness of the input values with this timing. The DOE should also validate that the listed input values have been consistently applied in all calculations.	As discussed in the section 4.6.4 above, all the input parameters as considered by the PP were available and applicable at the time of investment decision and are validated with regards to the same. The requirement of the para has been met.
7	In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.	This para is not applicable to the proposed project activity.
8	Project Participants should supply spreadsheet versions of all investment analysis. All formulas used in this analysis must be readable and all relevant cells be viewable and unprotected. The spreadsheet will be made available to the Executive Board, UNFCCC secretariat and others contracted to assess the request for registration on behalf of the Board including assigned members of the Registration and Issuance Team. In cases where	The financial analysis sheets for IRR and Benchmark calculation as submitted by the PP and being submitted to the UNFCCC are readable, viewable and in un protected format. There is no confidential content kept in the financial sheets and user can use and reproduce the results in the provided sheets to check the accuracy of the calculations.

	the Project Participant does not wish to make such a spreadsheet available to the public an exact read-only or PDF copy shall be provided for general publication. In case the PP wishes to black-out certain elements of the publicly available version, a clear justification for this shall be provided to the UNFCCC secretariat by the DOE when requesting registration.	The requirement of the para has been met.
9	The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.	The PP has chosen the equity IRR for the project activity financial indicator and thus the para is not applicable.
10	In the calculation of equity IRR only the portion of investment costs which is financed by equity should be considered as the net cash outflow, the portion of the investment costs which is financed by debt should not be considered a cash outflow.	The PP has considered only the portion of investment cost as financed by the equity in the net cash outflow for the equity IRR calculation. The requirement of the para has been met.
11	Due to the impact of loan interest on income tax calculations it is recommended that when a project IRR is calculated to demonstrate additionality a pre-tax benchmark be applied. In cases where a post-tax benchmark is applied the DOE shall ensure that actual interest payable is taken into account in the calculation of income tax.	The PP has chosen the equity IRR for the project activity financial indicator and thus Para is not applicable.
12	In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for equity IRR. Benchmarks supplied by relevant national authorities are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented.	As demonstrated the PP has chosen the required/expected returns on equity as a benchmark and compared with the equity IRR, which is appropriate approach. The requirement of the para has been met.
13	In the cases of projects which could be developed by an entity other than the Project Participant the benchmark should be based on parameters that are standard in the market. The DOE's validation of the benchmark shall also include its opinion on whether a company-specific benchmark or a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity.	The proposed project activity can be developed by the other developers also and thus, the PP has calculated the benchmark as return on equity based on the parameters those are standard in market and publically available to all. The requirement of the para has been met.
14	Internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC), should only be applied in cases where there is only one possible project developer and should be demonstrated to have been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region. This shall require as a minimum clear evidence of the resolution by the company's Board and/or shareholders and will	The PP has not used the internal company benchmark and thus the para is not applicable to the project activity.

	require the validating DOE to undertake a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.	
15	If the benchmark is based on parameters that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors. The values in the table in Appendix A may also be used, as a simple default option, if a company internal benchmark is used.	The benchmark as calculated by the PP is based on the parameters which are standard in the market and validated by the PP. The PP has selected the option (b) calculating the cost of equity using best financial practices in the analysis as the guidelines under option (a) was not available at the time of investment decision. Further, the assessment team has cross checked the cost of equity as considered by the PP with values provided under Appendix A for the host country and it is opinioned that PP has considered the comparably conservative value. The requirement of the -para has been met.
16	If a company's internal benchmark is used for the expected return on equity, the cost of debt should be based on the weighted average cost of debt financing of the legal entity owning the CDM project activity. For loans, use the weighted average cost of outstanding long-term debt. For bonds, use the weighted average yield of the bonds during the last three months prior to the submission of the CDM-PDD for validation or prior to the investment decision, whichever is earlier. The use of bonds to determine the cost of debt is only appropriate for corporate bonds issued in the host country of the CDM project. In cases where the debt finance structure of the project is not yet available (e.g. a letter of intent for debt funding is not available), the cost of debt can be assumed as the commercial lending rate in the country or the yield of a 10 year bond issued by the government of the host country or, if this is not available, the bond with the maturity which is closest to 10 years. The following should be documented in the CDM-PDD: (a) for bonds: the key parameters of the bond including the time of maturity, yield, registration issuance in the financial system and set-up in the market; (b) for loans from a financial institution: the contract of lending between the financial institution and the legal entity owning the assets of the project activity, or, in absence of the contract, a letter from the bank stating its intention to award the loan and the key terms for the loan; (c) for debt financing from a parent company: the transfer of capital to the legal entity, documented with the contract of lending between the parent company and the legal entity owning the assets of the project activity and/or the	The PP has not used the internal company benchmark and thus the para is not applicable to the project activity.

	parameters of the corporate bonds as mentioned above. This latter option is only valid for corporate bonds issued in the host country of the CDM project activity. If the benchmark is based on parameters that are standard in the market, the cost of debt should be calculated as the cost of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to the cost of debt financing of comparable projects. In cases where this data is not available, use the commercial lending rate in the host country to calculate the cost of debt.	
17	If a company's internal benchmark is used for the expected return on equity, then the percentage of debt financing and equity financing should reflect the long-term debt/equity finance structure of the legal entity owning the assets of the project activity. The percentage should be determined based on the latest balance sheet provided under local fiscal/accounting standards and rules if: (a) the legal entity owning the assets of the project activity has balance sheets audited by a third party within two years prior to the submission of the CDM-PDD for validation; and (b) the accounting books of the legal entity reflect at least the total value of all the assets needed for the project activity. If the debt/equity finance structure is not yet available, 50% debt and 50% equity financing may be assumed as a default.	The Para is not applicable to the project activity as no internal benchmark is used by the PP.
18	If the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default.	The PP has used the typical Debt/Equity ratio observed in the power sector in the host country. However, the benchmark is considered as return on equity and thus D/E ratio in benchmark calculation is not applicable.
19	If the proposed baseline scenario leaves the Project Participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.	The proposed project activity is not a must investment and proposed baseline scenario does not leave the no other choice than to make an investment. Thus, the PP has correctly chosen the benchmark analysis for the project activity. The requirement of the para is met.
20	Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets. Where a DOE considers that a variable which constitute less than 20% has a material impact on the analysis they shall raise a	The PP has correctly considered all the parameters which can have significant impact on IRR calculation and parameters those constitute more than 20% of the project in the sensitivity analysis. The PP has provided the results for the analysis for $\pm$ 10% and the same are found appropriate. The requirement of the para is met.

	corrective action request to include this variable in the sensitivity analysis.	
21	The DOE should assess in detail whether the range of variations is reasonable in the project context. Past trends may be a guide to determine the reasonable range. As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of the specific project circumstances. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative the DOE shall provide an assessment of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity.	The PP has provided the analysis with ± 10%. However, the DOE has analyzed the possible scenario for each parameter that makes the IRR cross the benchmark. None of these scenarios seemed realistic to happen and same is described in upper section of this report. The requirement of the para is met.

Validation and verification Manual, version 01.2	
Requirements to be validated for Investment analysis in additionality demonstration	**Means of validation conducted by the DOE and reporting of the same.**
Para 108: If investment analysis has been used to demonstrate the additionality of the proposed CDM project activity, the PDD shall provide evidence that the proposed CDM project activity would not be: (a) The most economically or financially attractive alternative; or (b) Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs). **Para 109:** Project Participants can show this through one of the following approaches, by demonstrating that: (a) The proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity; (b) The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative; (c) The financial returns of the proposed CDM project activity would be insufficient to justify the required investment. **Para 110:** The DOE shall comply with the latest version of the. "Guidance on the Assessment of Investment Analysis" As provided by the CDM Executive Board and with other relevant guidance including the latest guidelines on plant load factors "guidelines for the reporting and validation of plant load factors".	The assessment team has conducted a thorough assessment of all input parameters and assumptions used in calculation of the Equity IRR calculation and the same are opinioned to be accurate and suitable based on availability at the time of investment decision. Further all the input parameters are cross checked using the available evidence like third-party or publicly available sources, such as government regulations (tariff orders), other registered projects of the region and other information available in the public domain wherever applicable. The assessment team including the financial expert involved in the team has checked the correctness of computations of the equity IRR as well as benchmark by the PP. The sensitivity analysis as presented by the PP is checked and found to be covering all the major input parameters, further the thresholds for these parameters have been checked when the IRR can cross the benchmark and the likelihood of occurrence of such scenarios are also validated. The PP has chosen the return of equity as benchmark and the same is suitable for the type of financial indicator presented; The risk premiums applied in determining the benchmark reflects the risks associated with the project type or activity and widely

	observed as same practice for other registered projects. Thus, the input parameters in financial calculation are clearly validated and described in details in the above section of the report, the benchmark has considered by the PP is valid and suitable for the project activity, underlying assumptions are appropriate and the financial calculations are correct for the project activity. The investment analysis assessment is carried out in line with the latest version of the. "Guidance on the Assessment of Investment Analysis", version 05, EB62, Annex 5 and complies the requirement of using other relevant guidance including the latest version of the "Guidelines for the reporting and validation of plant load factors" version 01, EB 48, Annex 11.
Para 112: To confirm the suitability of any benchmark applied in the investment analysis, the DOE shall: (a). Determine whether the type of benchmark applied is suitable for the type of financial indicator presented; (b). Ensure that any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity; (c). Determine whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants involved and determining whether the same benchmark has been applied or if there are verifiable circumstances that have led to a change in the benchmark.	The PP has selected the equity IRR and compared against the return on equity as benchmark the same is appropriate comparison. The calculation of the benchmark and applied parameters including risk premiums are suitable to project type based on availability of data and considered conservativeness. The management approval has been checked and it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark.

4.6.5 Barrier analysis

The Project Participant has opted for the investment analysis and the barrier analysis to not be performed.

4.6.6 Common practice analysis

The PP has demonstrated the common practice analysis in accordance with the additionality tool, version 06.0.0, EB65, annex 21 and Guidance on common practice (Version 2.0., EB 69, Annex 8)[5.11]. The same has been assessed by the validation team. The acceptance of the common practice analysis is justified as below,

Para 5: Geographical Area: the PP has selected the geographical area as the entire host country of India. This is as per the applied tool and thus accepted. For any particular technology or project, approach to technology, access to the technology and finance, technical expertise, local laws and legislation, government policies differs from country to country, therefore considering the entire country only for the geographical area is found acceptable to the assessment team.

Para 6: Measure: The Project activity is a Greenfield 100% wind power based renewable power generation. Thus the same is considered as power generation based on renewable energy and is applicable for the measures as described in para 6 of EB65, annex 21 in accordance with the EB69, Annex 8. Thus, the common practice analysis is validated in line with Para 47 of the tool.

Para 7: Output: In accordance with selected measure, the PP has selected the output from the project activity as grid connected generation of electricity. This is accepted as it is as per para 7 of the applied tool, which says, Output is goods or services with comparable quality, properties, and application area.

Para 8 of the tool is not applicable or used by the PP as the project activity is not proposed as 'First of Its kind'.

Para 9: Different technologies: the PP has considered any technology that has the same output (electricity generation) but have different energy/fuel source as a different technology. This is as per point (a) of Para 9 of the applied tool.

Accordingly, the analysis has been carried out as per para 47 of "Tool for the demonstration and assessment of additionality", version 06.0.0:

Step 1- Output Range:

The PP has considered output range as +/-50% of the design output or capacity of the proposed project activity in line with the tool. The capacity of the project activity being 49.6 MW, the +50% design output or capacity comes to 74.4 MW and -50% design output or capacity comes to 24.8 MW. Thus the range was calculated as 24.8 MW to 74.4 MW.

Step 2 – Identification of all the plants:

The PP has identified all power plants having similar output (electricity generation) in the range as determined in the step 1. The analysis has been conducted for the determined geographical region (India). The all the power plant includes thermal, wind, biomass, hydro, nuclear and solar power plant which are commonly observed in India. A separate excel sheet[/2.4/] has been submitted by the PP along with the analysis and is checked by the assessment team. The PP has identified the plant as below.

$N_{thermal}$: The CEA, Government of India regularly publish the baseline CO_2 database in India. This database provides/incorporates details of all the power plants operating in the host country along with their installed capacity, year of commissioning and the fuel. Database is publically available at: http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm and the latest version 07[/17/] of the same has been used by the PP. The PP has considered all the projects applicable in the considered output range in the analysis and having been commissioned prior to the 30/03/2011 (start date of the project activity).

It has been validated from the list of power plants as mentioned in the database that there are total of 10 numbers of power plants in the selected output range and available in operation at the time of start date of the project activity. The list of plants as provided by the PP[/2.4/] has been checked with the CEA database and is found consistent and appropriate.

N_{Hydro} & $N_{Nuclear}$: The hydro and nuclear plants are identified in the similar way to the thermal plant from the CEA data base. While there are 49 number of applicable commissioned hydro plants are identified in the selected output range, there is no applicable nuclear plant.

N_{solar}: There were no commissioned applicable solar power plants in the selected output range as considered by the PP. This fact has been checked with complied list of solar commissioned projects as of 24/11/2011, published by Ministry of New and Renewable Energy, Government of India. The same is available at the link of http://mnre.gov.in/file-manager/UserFiles/powerplants_241111.pdf and checked by the assessment team. The consideration of the PP is deemed to be correct.

$N_{biomass}$: The biomass based projects are considered from state wise list as provided in the various government resources. There are total of 18 biomass based grid connected projects in the selected output capacity and out of the same 10 are with CDM consideration. Thus, the PP has considered the 8 project in the N_{all} calculation. The selection of the plant along with respected appropriate references is provided by the PP in a separate excel sheet being submitted along with requesting registration. The approach and references used by the PP have been checked by the assessment team and is found appropriate.

N_{wind}: The PP has identified and selected wind power project based in applicable selected output range. The PP has used and provided the wind power directory for India for the year 2011. The directory has been published by www.windpowerindia.com and purchased by the PP.

The mentioned Wind Power directory provides the name of the investors, location of the wind turbines including district and state, number of wind turbines installed by the investor and their installed capacity

along with the year of commissioning. The assessment team has checked the section 5 & 6 of the Indian Wind Power Directory, where all the WTG projects commissioned are mentioned along with the name of the investor and the state of installation. Based on the same there are total of 60 project installation are identified which are applicable in the current analysis. Out of the 60 the 58 are either in the process of CDM validation or registered with CDM consideration. This has been checked with the identified project and the list of CDM project registered and under validation as per database provided by http://www.cdmpipeline.org. The list of identified and CDM projects has been provided by the PP in the separate excel sheet being submitted, the same has been checked and is found appropriate. Thus, a total of 2 numbers of projects are included in the common practice analysis N_{all} calculation.

There no other type of grid connected power plants available in the India and thus the total identified power plants in the range N_{all} is 69.

Step 3 – Plants having different technology:

In line with para 9 of the tool, the PP has defined the different technology as the plants having the different energy source or the fuel. The CEA database also provides the primary fuel for all the power plant and based on the same it has been found that out of 69 plants, 67 plants are either thermal, hydro or biomass based power plants. Thus, the plants having different technology N_{diff} is 67.

Step 4 – Calculation of F:

The factor F is defined as $F = 1 – N_{diff}/N_{all}$. Thus, F = 1 – 67/69. The factor F comes for the project activity as 0.0289.

As per para 47 of "Tool for the demonstration and assessment of additionality", version 06.0.0, proposed project activity is a common practice within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} – N_{diff}$ is greater than 3. Here, in the case of proposed project activity, the factor F, as calculated above, is not greater than 0.2. Thus, the proposed project activity is not a common practice within a sector in the applicable geographical area.

Check by Assessment team:

Considering the selected output of the project activity as Wind based power generation only; the project activity is also not deemed common practice to the assessment team. There are total of 60 number of wind power projects identified and out of them 58 are with CDM consideration either in validation or registered. The remaining two plants are[/2.4/]

- 65.985 MW by Aban Loyd Chiles O. Ltd. in state of Tamilnadu as commissioned in March 97 and
- 65.2 MW by Bajaj Auto Ltd in state of Maharashtra as commissioned in March 2002.

The development of the renewable energy sector is also the duty of the various states governments in India. Each state/provinces have their own policy for renewable sector and the applicable tariff orders are also different. The energy sector policies/development/tariff rates are regularized by the various nodal agencies applicable in the states. Thus, an investment in the Tamilnadu state or any other state of the India represents different scenarios and possibilities in terms of investment climate, policies and local regulation as compared to investment in Gujarat (project activity location). Further the market condition and the investment climate were different at the time of implementation of those project as the Indian Electricity Act was came in 2003, which reformed the Indian power market afterwards. Thus, no such project comparable to the project activity in line with para 9 of the additionality tool, version 06 has been found and the project is validated as not a 'common practice'.

Further, the common practice demonstration is also in line with the additionality tool, version 06.1.0, EB69, Annex 20. As per the footnote 13 in the same document the PP has used the publically available information like from government departments, industry associations, while identifying similar projects.

Discussion of findings:

CAR#06 was raised for the justification of selected the geographical region for the common practice analysis and approach was not provided by the PP. Further, some of the web-links as provided in the PDD, version 01 were not working in the webhosted PDD. The issue was also raised as the common practice analysis was not performed in line with revised new guidance published in EB69, Annex 8, which considers the renewable power generation under para 6 of the common practice analysis guidance/additionality tool. The CAR was

subsequently **closed** as the PP justified the selection of geographical region for common practice analysis in accordance with the EB65, Annex 21 and provided the revised PDD with justification as well as correction of web-links. The PP has demonstrated the common practice analysis in line with EB69, annex 8.

Opinion:

The requirements of para 119 of VVM, version 01.2 have been validated and in accordance to the same, the project activity is not deemed as a common practice.

4.7 Application of Baseline Methodology and Calculation of Emission Factors

The project has applied baseline methodology as mentioned in the approved consolidated methodology ACM0002, version 12.3.0. As per methodology, the baseline emission sources considered are CO_2 emissions from electricity generation in fossil fuel fired power plants that is displaced due to the project activity as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system" version 02.2.1.

Corresponding calculations were carried out based on excel spreadsheet[/2.3/]. The parameters and equations presented in section B.6.1 of the PDD and further documentation have been compared with the information and requirements presented in the methodology and respective tools. The equation comparison has been made explicitly following all the formulae presented in the calculation records submitted by the Project Participant.

The following equations and assumptions are used to calculate the Baseline emissions, Project emissions and Leakages in the project activity:

Baseline emissions (BE_y) – 85,281 tCO_{2e}/annum:

$BE_y = EG_{PJ,y} * EF_{grid, CM, y}$

Where,

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/year)

$EF_{grid, CM, y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system".

The weighted average Operating Margin (OM) & Build Margin (BM) values for the NEWNE grid in India are taken from the version 07 of data published by Central Electricity Authority (CEA)[/14/] for the combine margin calculation. The version 07 of the CEA database is published in January 2012 and is latest applicable data at the time of submission of the project to the validation (i.e. ISHC webhosting of the PDD on 28/04/2012). As discussed in the section 4.6 of this report, the PP has considered the generation based weighted average of simple operating margin for last three recent years (2008-09, 2009-10, 2010-11) for OM calculation and has considered BM of the year of 2010-11.

Emission factors for the respective grids of India are mentioned below:

Grid	OM, Operating Margin	BM, Build Margin	CM, Combined Margin
	Value (tCO_2/ MWh)		
NEWNE Grid	0.9842	0.8588	0.9528

Grid emission factor is determined using the ex-ante option for based on the most recent data available at the time of submission (2008-09, 2009-10 and 2010-11) and the OM/BM weight of 75/25 for the wind power projects. The CM as calculated remain fixed for the first crediting period.

To calculate the projected baseline emissions, the electricity supplied to the grid **(EG_y) (89506 MWh/annum)** is calculated based on the Plant Load Factor (**PLF** – based on third party report – conservative approach - **20.6%**), operational hours (**8760**) and the installed capacity of the project activity (**49.6 MW**). The calculation of the same is provided by the PP in the CER calculation sheet and is found appropriate.

Project Emissions (PE_y) – Nil:

The project activity is a Greenfield electricity generation project from renewable wind energy. Hence the project emissions are taken as zero, as per the approved methodology ACM 0002 version 12.3.0.

Leakage (LE_y) – Nil:

As per the guidance provided in the approved baseline methodology ACM0002 version 12.3.0, no leakage emission has been considered under this project activity.

Emission reduction (ER_y) - 85,281 tCO_{2e}/annum:

$ER_y = BE_y – PE_y – LE_y$

The equations and assumptions used to calculate the emission reduction are in compliance with the approved methodology ACM0002 version 12.3.0.

Discussion of Findings:

Issue 1 in **CL#07** was raised as the PP has opted for the renewable crediting period which comes to total 21 years after 2 renewals. However, the lifetime of the project activity WTGs were considered as 20 Years. The issue was **closed** as the PP clarified that it will not seek the emission reduction after the mentioned lifetime of the project activity. The same is found appropriate and can be taken care during the validation of renewal of crediting period.

The PP had considered the import from southern grid also in the calculation of the weighted average operating margin. **Issue 2** in **CL#07** was raised as to clarify the appropriateness of the same. In response, the PP justified the consideration of the same in accordance with the "Tool to calculate the emission factor for an electricity system", Version 02.2.1. Thus, the issue was **closed**.

An **issue in CL#07** was raised as the grid emission factor was not conservatively used by the PP. The value of 0.95285 tCO_2/MWh is rounded and reported as 0.9529 tCO_2/MWh in the PDD. The issue was **closed** as the PP corrected the same conservatively reported 0.9528 tCO_2/MWh as GEF in further calculation.

Opinion

Based on the above discussion and the requirements of paragraphs 89-93 of the VVM version 01.2[/5.1/] (EB 55 Annex 1), the validation team confirms that:

1. All assumptions and data used by the PP are listed in the PDD, including their references and sources.
2. All documentation used by the PP as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD.
3. All values used in the PDD are reasonable in the context of the proposed CDM project activity.
4. The baseline methodology ACM0002 Version 12.3.0 has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions.

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

4.8 Application of Monitoring Methodology and Monitoring Plan

The Project uses the approved consolidated monitoring methodology ACM0002 version 12.3.0. Applicability conditions of the methodology have been discussed at section 4.4 of this report .Validation team considers the monitoring plan to be complying with the requirements of the methodology. The reasons are as follows –

Metering Locations & meters:

- The project activity is located in Enercon wind farm area in the Jamnagar district. The Enercon sites also contain other WTGs of investors other than project activity. The 62 WTGs of the project activity is divided into number clusters with each cluster having dedicated meter. The nearby WTGs are connected to same cluster meter based on location. No other WTG from other project investor is included in the cluster metering system as each Investor has the separate cluster metering system. All the cluster meters including the project activity meters and the other meters are further connected

to the Tebhada sub-station. All the meters installed are of trivector type 0.2s accuracy class and will be able to record both electricity export and import. This information has been transparently represented by the PP in the PDD.

Measurement and apportioning procedure:

- The measurement of electricity is done at both substation and cluster metering points. The electricity export and import are being measured at both the points. While the cluster meter readings only includes the data for the project activity WTGs, the substation metering system includes the data from whole Enercon site including the outside project activity WTGs. The substation meter readings are apportioned by the cluster meter readings in order to consider the applicable transmission losses and finally used in the net electricity supplied calculation. The apportioning is done based on following method;
- Net electricity exported to the grid by the project activity

  $EG_{PJ,y} = EG_{PJ,export,y} - EG_{PJ,Import,y}$

  Where,

  $EG_{PJ,y}$ = Net Electricity exported by the project activity to the grid

  $EG_{PJ,export,y}$ = Electricity exported by the project activity to the grid

  $EG_{PJ,import,y}$ = Electricity imported from the project activity to the grid

- Electricity exported by the project activity to the grid

  $EG_{PJ,export,y} = EG_{GETCO,\ Export} \text{ X } EG_{Cluster,\ Export} / EG_{Cluster,\ WF,\ Export}$

  Where,

  $EG_{GETCO,\ Export}$ = Electricity exported, as recorded at the Main Meter at Tebhada substation

  $EG_{Cluster,\ Export}$ = Electricity exported by the project activity, as measured at Cluster Meter

  $EG_{Cluster,\ WF,\ Export}$ = Electricity exported by all the wind farms (WTGs of project activity and WTGs of non-project activity) connected to Tebhada substation, as measured at Cluster Meter

- Electricity imported from the Grid by the project activity

  $EG_{PJ,Import,y} = EG_{GETCO,\ Import} \text{ X } EG_{Cluster,\ Import} / EG_{Cluster,\ WF,\ Import}$

  Where,

  $EG_{GETCO,\ Import}$ = Electricity imported, as recorded at the Main Meter at Tebhada substation

  $EG_{Cluster,\ Import}$ = Electricity imported by the project activity, as measured at Cluster Meter

  $EG_{Cluster,\ WF,\ Import}$ = Electricity imported by all the wind farms (WTGs of project activity and WTGs of non-project activity) connected to Tebhada substation, as measured at Cluster Meter

- Thus, the export and import for the project activity are measured and the calculated in order to determine the net electricity generated.
- The export and import from the project are continuously monitored and reported on a monthly basis. The monthly readings at the cluster meters and the substation are taken by the GEDA/SLDC and representatives of O&M contractor. Based on the reading JMR (Joint Meter Reading) is prepared. The JMR is further used by the SLDC to issue the Certificate of Share of Electricity to each project investor for invoicing purpose. The certificate of share of electricity only contains the final value of the net electricity supplied to the grid.

- The project investors are not entitled to get the monthly readings of gross export/Import or the transmission losses and JMR is not provided to them on normal basis. Only certificate of share of electricity is issued to the project investors with net electricity supplied value.

Monitoring Parameters:

- The PP has defined the monitoring parameters as per the requirements of the methodology ACM0002, Version 12.3.0 and taking into consideration the actual procedure followed on the site. In line with this, the PP has defined the monitoring parameter, in section B.7.1 of the PDD. The PP has included Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{PJ, y}$) in section B.7.1 of PDD, which is directly calculated, based on the data measured and supplied by the responsible government authority. The net electricity supplied to the grid is calculated by means of the electricity export and import from the project activity after apportioning the transmission losses. The PP has also included the parameter electricity generation recorded at the controller (LCS) of the WTGs in order to cross check the reported values of net electricity supplied.
- In state of Gujarat, the PP directly gets the certificate of share of electricity with net electricity supplied value. The certificate does not include the gross export/import values, which are recorded in the JMR by GEDA/SLDC and O&M agency. A sample copy of such certificate for the project activity has been checked by the assessment team. The PP does not get the copy of the JMR and thus data for gross export and import are not available with them. This fact has been checked during site visit. The O&M agency personnel and GETCO representative were interviewed during the site visit and the same was confirmed by them. Further, the sectoral export and local assessor of the assessment team has also confirmed the same actual monitoring system being followed in the state of Gujarat. This fact is also cross checked with the monitoring procedures a mentioned in the PDD of registered UN project 4026 and the verification report for the first monitoring period of the same project activity.
- Thus, the PP has included the net electricity generation as the monitored parameter, however the gross import and export are not included as it is not provided to the PP. This information has been transparently represented in the PDD and is found acceptable. The PP has included the generation as recorded at the LCS as monitoring parameter. The LCS recorded data will not exactly match to the net electricity supplied, however, it can give idea in case of any usual reporting/recorded. The net electricity generation will also be cross checked with the sales records, i.e. invoices.

QA/QC, Calibration & recording:

- The Project Participant has revealed that all the monitored data would be archived electronically and on paper regularly throughout the crediting period. Also, data will be archived for a minimum of 2 years after the end of the crediting period. This is stated in section B.7.1 of the PDD.
- The monitoring plan includes requirements of calibration of all the measuring equipments used for monitoring of the parameters for project activity and the same is defined as **once in three years**. The electronic meters used for monthly recording are calibrated by GETCO. The net electricity generation supplied by the project to the grid can also be cross verified with records for sale of electricity.
- The monitoring frequency for parameter matches with that of the methodology, viz. continuous measurement and monthly recording.
- Under section B.7.1 of the PDD, the Project Participant has provided additional procedures to deal with data uncertainty, problems with meters, QA/QC measures etc. The monitored data for the project can also be cross checked with the WTG- LCS data recording.

The PP has also defined the monitoring procedures, authority, responsibility and management structure for the implementation of the monitoring plan and the same is provided under section B.7.2 and Annex 4 of the PDD. This has been checked and is found appropriate.

The type of metering equipment, procedure of meter reading, meter testing, and calibration has been described in section B.7.1 and section B.7.2 of the PDD and is consistent with the PPA[/12/] signed specifically for this project activity.

The validation team confirms that the description in the PDD correctly represents the metering system available at the project activity site and that the defined monitoring plan can be implemented in the context of the project activity.

Enercon (India) Limited, the O&M contractor for the WTGs has experience in monitoring and managing the O&M of numerous other wind farm projects. The validation team therefore is of the opinion that the Project Participant through the O&M contractor is capable of implementing the monitoring plan in the context of the project activity.

The validation team physically verified the metering system installed at the substation of the project activity. The Project Participant has described the metering system in detail in revised section B.7.1 and section B.7.2 of the PDD. Monitoring plan presented by the Project Participant has been assessed by applying two-step process as per Para 123 of VVM. Monitoring plan mentioned in section B.7.1 of the revised final PDD is fully in compliance with the applied methodology ACM0002 version 12.3.0. Also after discussion with consultant and the Project Participant and actual site inspection, it has been concluded that the Project Participant has got sufficient ability to implement monitoring plan described in section B.7.1 of the PDD.

Discussion of findings:

CAR#08 was raised for following points;

- It was not clear from the PDD, version 01 that if there will be check meter at the cluster point and the substation, further the procedures in case of faulty meter were not elaborated by the PP.
- The PP had not identified the recalibration frequency of cluster meters and further supporting/basis for appropriateness for considered re-calibration frequency of substation meter was not provided.
- The PP had included only one parameter of net electricity supplied under section B.7.1 of the PDD, which is a calculated parameter based on apportioning procedure. However, the parameters used in measurement i.e. export, import were not being monitored. Thus, an issue was raised.
- The apportioning procedure was not discussed transparently.

The issues were **closed** as the;

- The PP clarified that there will not be any check meter at cluster meter and also elaborated the procedures in case of faulty meter. This same has been checked with the revised PDD, version 02 and found appropriate.
- The PP defined the recalibration frequency of cluster meters also as once in three years and provided the PPA for the project activity which mentions the same under existing rules of the GETCO. The meters will be in the control of GETCO and sealed. The recalibration of the meters will also be under control/purview of the GETCO and thus, the consider frequency is found appropriate.
- The PP clarified that get only gets the final net electricity supplied value in the certificate and JMR with monthly gross export/import values is not being provided to them as per current procedure. The same is found corrected and thus direct inclusion of net value was accepted. Further, the PP also included LCS data recorded as monitored parameter in order to cross check the net electricity supplied.
- The PP added more information regarding the apportioning procedures along with diagram and example. The same is represented transparently in the section B.7.2 of the PDD.

Opinion

Based on the above discussion and the requirements of paragraphs 122-124 of the VVM version 01.2[/5.1/] (EB 55 Annex 1), the validation team confirms that:

1. The monitoring plan included in the PDD is based on the approved methodology ACM0002, version 12.3.0 which has been applied to the proposed CDM project activity
2. The monitoring plan is in compliance with the applied methodology ACM0002, version 12.3.0
3. The monitoring arrangements described in the monitoring plan are feasible within the project design

The PP has the ability to implement the monitoring plan as per the PDD

4.9 Environmental Impacts

As per the Ministry of Environment and Forests (MoEF), Government of India, Environment Impact Notification S.O. 1533 (E) dated 14/09/2006 (http://www.moef.nic.in/legis/env_clr.htm) and its latest amendment S.O 3067 (E) dated 01/12/2009 for EIA requirements (http://moef.nic.in/downloads/rules-and-regulations/3067.pdf) wind power projects are not covered under any schedule and thus Environmental Impact Assessment is not required for the project activity. Validation team is of the opinion that the project complies with environmental regulations in India. Thus the adequacy of analysis carried out by the Project Participant for impact of the implementation of the project activity on environment has been validated as per Para 131,132 and 133 of VVM (version 01.2).

Opinion:

The project activity meets the relevant host country environmental regulations.

4.10 Local Stakeholder Comments

The PP had conducted the local stakeholders meeting for the project activity. The project activity is located at Jamnagar district of the state of Gujarat. Thus, local stakeholder's consultation was conducted by the PP at Jamnagar. The details of the same are provided as below.

Location(village/district/state)	Meeting date
Jamnagar District, Gujarat	25/10/2011

Thus, it is confirmed that the PP has conducted the consultations prior to the webhosting (28/04/2012 – 27/05/2012) of the PDD.

The Project Participant identified the relevant stakeholder like local communities, NGOs, employees, contractors and consultants to the project activity. Based on the observations of the validation team during the site visit and as per the definition of 'stakeholder' in the Glossary of CDM terms version 6[/32/], the identification of stakeholders for consultation was found to be appropriate. Thus, the validation team is of the opinion that the relevant stakeholders have been consulted appropriately and adequately.

The relevant stakeholders were identified by the PP by means of the invitation letters[/30.2/] sent in both English and local languages to stakeholders and displaying the same at 4 village sarpanch's offices prior to the consultation of the each meeting. The PP has submitted the copies of notices, as sent to the relevant stakeholders to the assessment team and has been checked[/30.2/].

The PP has also provided the minutes of meeting for the meetings[//30.1/] and also the summary of comments received. Further, attendance lists[/30.4/] and the photographs[/30.3/] for the meetings have been submitted by the PP and is checked. The summary of comments is checked for any negative comments for the project activity. It is found that no negative comments were received for the project activity by local stakeholders. A few queries were raised by the stakeholders, which were answered by the PP during the meeting and this has been verified from the minutes of the meeting. Thus it is confirmed that local stakeholders were invited to comment on the proposed project activity prior to the publication of the PDD on the UNFCCC website. This is in line with para 128 of VVM (version 1.2) and is accepted.

This is further cross-validated from local stakeholder consultation carried out for the project activity during the validation site visit. During the site visit the validation team interviewed some of the stakeholders. Based on the confirmation by the local stakeholders, the validation team was convinced that the process of stakeholder consultation was carried out as described in the PDD. The villagers also confirmed that they were invited for the meeting through invitation by the PP. This was found to be consistent with the invitation process mentioned in the PDD. Thus, the appropriateness of Local stakeholders consultation has been validated in line with Para 128 and 129 of VVM version 1.2.

CAR#11 was raised as it was found from the summary as provided in the PDD that some of the stakeholders had predicted negative impacts from the project activity and actions taken by the PP was not clear. The issue was **closed** as the PP clarified the issue raised by stakeholder and also provided the supporting that issue was explained to the local stakeholders and resolved. The local stakeholders were interviewed by the

assessment team and the response of the PP was found appropriate. There were no further concerns from the local stakeholders. The detailed discussion of the same is provided under section A.3 of this report.

Opinion

The PP had consulted the local stakeholders to the project activity adequately.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of how and when the PDD was made publicly available

The Project Design Document for this project was made available on http://cdm.unfccc.int/Projects/Validation/DB/1D587QYFH4GVYZAB3YCXDIZG18KIOM/view.html and was open for comments from 28/04/2012 until 27/05/2012. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all comments received

Comment Number	Date Received	Submitter	Comment
1	03/05/2012	Mahesh Pandya Environmental Engineer Paryavaran mitra 502, Raj Avenue, Bhaikakanagar road Thaltej, Ahmedabad – 380059 India Telefax - 079-26851321/1801 Submitted by: paryavaranmitra, paryavaranmitra@yahoo.com	- Please explain location selection criteria - How many skilled/unskilled people from surrounding area were employed at this project during commissioning and operation as mentioned in social well being section? - List of stakeholders in stakeholder meeting is not attached with PDD. - What would be impact of negative environmental conditions of area upon project? What would be alternatives in that case? - What is Complain redress policy of company?
2	26/05/2012	Benjamin franklin, benjaminfranklin308@gmail.com	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. 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 3. Non- debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5. 4. Please check the project boundary of the project activity is not based on the guidance of the applicable project category. 5. Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6 6. The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned

Comment Number	Date Received	Submitter	Comment
			in the PDD. 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. 8. Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD 9. All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5. 10. Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not demonstrated with justification. Refer B.5. 11. Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5 12. Proof for PLF is not justified. 13. Date of offer is not provided 14. Project cost is not as per state norms. Refer B.5. 15. O&M charges and its escalation is not as per norms 16. IT rate assumed is not as per standard practice. 17. The application of MAT which is based on tax holiday while calculating WACC is not appropriate. 18. The PP has not explained and justified the key assumptions and rationale. 19. The PP and consultant has not Illustrate in a transparent manner all data used to determine the baseline emissions. 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. 21. National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify. 22. Explain and justify all relevant methodological choices for the proposed project activity 23. Data that is calculated with equations provided in the approved category or default values specified in the category should not be included in

Comment Number	Date Received	Submitter	Comment
			the compilation. 24. CER revenue assumed is not consistently applied 25. Project cost is not as per norms, DOE has to check and clarify. 26. The project cost of the project should be based on offer and not on purchase order or tariff order. 27. O&M charges considered are on higher side. Pls. clarify. 28. Benchmark calculation is not as per WACC tool (EB53 Annex 8) 29. Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD. 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. 31. Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD. 32. Date of PPA is not mentioned in the prior consideration of CDM The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1 34. PP has not provided for each parameter the chosen value or, where relevant, the qualitative information. 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. 36. Explain and justify the choice for the source of data. 37. Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1 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 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

Comment Number	Date Received	Submitter	Comment
			each power unit and the fuel types used in each power unit. Step 4 of B.6.1 40. The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1 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. 42. The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54). 43. The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3 44. Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1 45. Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2. 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. 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. 48. The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.). 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. 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?

Comment Number	Date Received	Submitter	Comment
			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. 52. Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving. 53. The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information. 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 facilities comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. 55. Project Participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity.

5.3 Explanation of how comments have been taken into account

The comments received were issued as findings **CAR#09** & **CAR#10** to the PP for their feedback. All the comments received were accounted and assessed appropriately with the responses from the clients and supporting documents as described below and the CAR#09 and CAR#10 were **closed** appropriately.

No	Comments	DOE Assessment & Conclusion
1	Please explain location selection criteria	Generally the locations offered by supplier while submitted the proposals. The PP has clarified that the WTG supplier offered locations considering technical feasibility and wind potential available at site And based on the same the location was selected by the PP. This is found appropriate and the proposal was checked and it has mentioned as same site as the project activity location
2	How many skilled/unskilled people from surrounding area were employed at this project during commissioning and operation as mentioned in social well being section?	The PP has provided the information regarding the local personnel employed/benefited by the project activity. Around 80 to 316 contracted people mostly local were employed by WTG supplier during commissioning of the project providing employment of approximately 287,101 man hours between April 2011 to March 2012. Further, during the operation stage around 5-10 semiskilled/unskilled contractor people mostly from local are employed by O&M contractor due to the implementation of the project activity. This has been checked and discussed along with EPC contractor and the local stakeholders as consulted during the

		site visit[8] and found appropriate.
3	List of stakeholders in stakeholder meeting is not attached with PDD.	The PP has already provided the identified stakeholders and type of attendees for the meeting the PDD. The attendance list for the meeting has been provided by the PP[30.4] and is checked. The information provided in the PDD is consistent with the same.
4	What would be impact of negative environmental conditions of area upon project? What would be alternatives in that case?	It is opinion of the assessment team that there are no negative impacts envisaged from the project activity on environment or any grounds found as it is a renewable wind power project.
5	What is Complain redress policy of company?	The PP has clarified that at project site at any time the representatives of O&M contractor and at least one employee of the PP would be always available who would supervise day to day operation and maintenance of the project. The local stakeholders can express their concern/complaints locally either to employee of Torrent Power Limited or to representative of O&M contractor at Tebhada Substation. The O&M contractor/employee of Torrent Power Limited would do needful to resolve the complaint. The other complaint redressal policies are available for different types of stakeholders by the Torrent power Limited. For shareholders' grievances committee reviews shareholder grievances; whistle blower policy seeks to provide a mechanism for the employees to disclose any unethical behaviour, improper practices and wrongful conduct taking place in the company for appropriate action. The details regarding the same are provided at the PP's company website http://www.torrentpower.com/ and in the annual report of the company available on http://www.torrentpower.com/investors/pdfs/2012/tpl-annual-report-11-12.pdf.
6	Purpose of the project and how the proposed project activity reduces greenhouse gas emissions are not briefed in the PDD. Refer section A.2.	The details are provided in section A.2 of the PDD. The same has been checked and is found appropriate.
7	How environmentally safe and sound technology is used for the project and details of technology transfer is not demonstrated adequately. Refer A.4.2	The details are provided in section A.2 of the PDD. The same has been checked and is found appropriate.
8	Non- debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5.	This is a large scale project activity and hence EB54 Annex 13 (Debundling tool) is not applicable to the project activity.
9	Please check the project boundary of the project activity is not based on the guidance of the applicable project category.	The project boundary diagram is there in the PDD appropriately as per guidance of the methodology ACM0002 Version 12.3.0, in the final PDD.
10	Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6	The justification for choice of option A (combined margin) in calculation of emission factor is provided in the PDD and the same is found appropriate thus accepted.
11	The justification of choosing IRR as financial indicator is not adequately	Identification of the post tax equity IRR as most suitable financial indicator as per Para 28 of additionality tool, version

	justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned in the PDD.	06, is justified by the PP and the same is also mentioned in the final PDD.
12	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.	Only grid connected plants are included and not included the off-grid power plants by the PP while computing the emission factor for the project activity. The same is mentioned in step 2, section B.6.1 of the PDD and is in line with the applied version of the tool.
13	Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD	The PP has not chosen the PLR as the benchmark for the project activity. Comment is not applicable.
14	All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5.	All the issues of investment analysis as per relevant guidelines are discussed in the final PDD and the same are validated.
15	Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not demonstrated with justification. Refer B.5.	Justifications for all parameters have been adequately demonstrated in section B.5 of the final PDD. Further, the PP has provided evidences for these parameters to the team and checked by the assessment team as discussed in above section of the report.
16	Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5	The proof for the proposed debt to equity ratio at the time of decision is submitted by the PP and checked. The same is based on GERC draft tariff order[/19.1/].
17	Proof for PLF is not justified.	Consideration of PLF in the final PDD is justified
18	Date of offer is not provided	Date of offer in final PDD is mentioned now
19	Project cost is not as per state norms. Refer B.5.	The PP has considered the project cost on the basis of offer received from WTG supplier which is in line with para 6 of EB 62, annex 5. The same has been cross checked with actual project cost and other information available in public domain and is found appropriate.
20	O&M charges and its escalation is not as per norms	The PP has considered the O&M cost on the basis of offer received from WTG supplier which is in line with para 6 of EB 62, annex 5. The same has been cross checked with actual O&M cost and other information available in public domain and is found appropriate.
21	IT rate assumed is not as per standard practice.	The Income Tax Rates are considered by the PP as per the Income Tax Act, 1961 in India.
22	The application of MAT which is based on tax holiday while calculating WACC is not appropriate.	Return of equity is used as the benchmark. Hence, this question is not applicable
23	The PP has not explained and justified the key assumptions and rationale.	All the key assumptions have been clearly explained in final PDD. Further, the PP has provided appropriate justification for the same.
24	The PP and consultant has not Illustrate in a transparent manner all data used to determine the baseline emissions.	The steps and calculation of emission reduction are explained in section B.6, and annex 3 of the PDD.
25	Not demonstrated that the proposed	This is a large scale project activity. Hence, options provided

	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.	under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities are not applicable for the project activity.
26	National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify.	PP has considered relevant national and/or sectoral policies and circumstances. The same is summarised in section B.4 and B.5 of the PDD
27	Explain and justify all relevant methodological choices for the proposed project activity	All relevant methodological choices for the proposed project activity are justified in the final PDD.
28	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.	The PP has not included in compilation data that is calculated with equations provided in the methodology or default values specified in the methodology or applied tools.
29	CER revenue assumed is not consistently applied	The PP has calculated post tax-equity IRR without considering CDM benefit to demonstrate additionality as per the requirement of "Tool for the demonstration and assessment of additionality", Version 6.0. Thus question is not applicable.
30	Project cost is not as per norms, DOE has to check and clarify.	The PP has considered the project cost on the basis of offer received from WTG supplier which is in line with para 6 of EB 62, annex 5. The same has been cross checked with actual project cost and other information available in public domain and is found appropriate.
31	The project cost of the project should be based on offer and not on purchase order or tariff order.	PP has stated project cost based on offer from Enercon only.
32	O&M charges considered are on higher side. Pls. clarify.	The PP has considered the O&M cost on the basis of offer received from WTG supplier which is in line with para 6 of EB 62, annex 5. The same has been cross checked with actual O&M cost and other information available in public domain and is found appropriate.
33	Benchmark calculation is not as per WACC tool (EB53 Annex 8)	The benchmark calculation is in line with EB62, annex 5. WACC tool is yet not compulsory to apply. Further, EB 53 Annex 8 is the Approved Consolidate Methodology ACM 0015 Version 03.
34	Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD.	The PP has selected post-tax equity IRR for demonstrating additionally. The same has already been mentioned in the webhosted PDD.
35	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.	The basis for calculation of benchmark is documented in section B.5. The PLR has not been selected as benchmark by the PP.
36	Prior consideration of CDM which is important for the determination of	The PP has documented the information for prior

	additionality is not documented in the section B.5 of the PDD.	consideration of CDM in section B.5 of the PDD.
37	Date of PPA is not mentioned in the prior consideration of CDM	The date of PPA is not required to be mentioned in the prior consideration of CDM.
38	The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1	The PP has appropriately justified simple OM based on low cost/must run resources in step 3 of section B.6.1 of the PDD.
39	PP has not provided for each parameter the chosen value or, where relevant, the qualitative information. 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. Explain and justify the choice for the source of data.	The PP has provided this information in section B.6 of the PDD.
40	Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1	The PP has demonstrated the choice of the ex-ante option for calculating OM in step 3 of section B.6.1 of the PDD.
41	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	The PP has sourced this data from the CEA Database Version 07, http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm. The build margin emission factor in the CEA database is calculated using the guidelines provided by the UNFCCC in the "Tool to calculate the emission factor for an electricity system" version 02.2.1.The same is demonstrated by PP in section B.6.1
42	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	PP has justified choice of option for calculating simple OM and the same is documented in step-4 of section B.6.1
43	The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1	This argument is discussed by PP in step 5 of section B.6.1 of the PDD.
44	Spread sheet is not provided. The data should be presented in a manner that enables reproducing of the calculation of OM, BM, and CM.	The calculation of OM, BM and CM has been duly detailed in Annex 3 of the PDD. Further, the PP has also provided spreadsheet for CER calculation which enables reproducing of the calculation of OM, BM, and CM.
45	The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54).	This is a large scale project activity and applicable methodology is ACM0002, Version 12.3.0 and not AMS 1 D Version 16.0 EB 54.
46	The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3	The project activity will supply electricity to the NEWNE Grid (project boundary) and hence, the PP has calculated emission factor value of NEWNE Grid.

47	Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1	The electricity is continuously measured through all the meters as prescribed in section B.7.1. and is recorded on monthly basis through the procedure specified in Section B.7.1. The same is verified during site visit and has been updated in the revised PDD. The same is in compliance with requirement of ACM0002, Version 12.3.0.
48	Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2.	The metering system has been detailed in section B.7.1 of the PDD. It has been verified during site visit that the Meters located at the sub – station and the cluster meters are sealed and calibrated by the Gujarat Electricity Transmission Corporation Limited (GETCO) authorities and the system followed is as per the metering regulations of the CEA
49	Where the values have been measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance.	The PP has provided description measurement methods and procedures for measured values in section B.7.1 of the PDD.
50	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.	The PP has provided this information in section B.7.2 and Annex 4 of the PDD.
51	The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).	The PP has mentioned sources for data used in proposed project activity in the relevant sections of the PDD.
52	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.	The PP has mentioned required details for measurement in section B.7.1 of the PDD.
53	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?	The PP has provided this information in section B.7.1, section B.7.2 and Annex 4 of the PDD. The same is verified during validation site visit.
54	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.	The PP has provided detailed description of the monitoring plan in section B.7.2 and Annex 4 of the PDD. The same is verified during validation site visit.
55	Clearly indicate the responsibilities for and institutional arrangements for data	The PP has detailed this information in section B.7.2 and Annex 4 of the PDD.

	collection and archiving.	
56	The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information.	Monitoring plan reflects good monitoring practice appropriate to the type of project activity. PP has detailed this information in section B.7.2 and Annex 4 of the PDD.
57	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 facilities comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.	The PP has described these details in section E of the PDD. The same has been verified during the validation site visit.
58	Project Participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity.	The same had been done by the PP and checked with minutes of the meetings and interaction with local stakeholder on site visit.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
12/06/2012	Mr. T P Vijayasarathy Mr. Varun Mehta Mr. Satyen Kanabar	Torrent Power Limited	Investment decision, CDM consideration, financing of the project & conceptualization
12/06/2012, 22/06/2012	Mr. Rikesh Tankariya Ms. Priya Jain Mr. Ravikant Vyas Mr. Dinesh Borgaonkar	Torrent Power Limited	PDD, Financial analysis and input parameters validation, CER calculation, Monitoring procedures, metering, apportioning, data recording, JMR & Certificate of share of electricity
18/10/2012	Mr. Rahul Mistry	Local stakeholder	Concerns & benefits regarding project activity, local stakeholder consultation
22/06/2012	Mr. Rajesh Solanki Mr. Bavin Jatania Mr. Laxman Palia	Local Villagers	local stakeholder consultation, benefits of the project activity, employment opportunity, any concerns, negative impact
22/06/2012	Mr. Kishor Vasara	Enercon O&M representative	Monitoring procedures, JMR, metering and apprortioning, QA/QC

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority);

/1.1/	PDD, version 01 dated 21/04/2012, webhosted for International Stakeholder's consultation at: http://cdm.unfccc.int/Projects/Validation/DB/1D587QYFH4GVYZAB3YCXDIZG18KIOM/view.html
/1.2/	PDD, version 02 dated 26/07/2012
/1.3/	PDD, version 03 dated 15/10/2012
/2.1/	Project activity financial analysis sheet (IRR calculation spreadsheet)
/2.2/	Project activity Benchmark calculation sheet
/2.3/	CER Calculation sheet for the project activity
/2.4/	Common Practice analysis demonstration sheet
/3.1/	Host Country DNA approval Letter for the project activity with letter number 4/12/2012-CCC dated 16/08/2012
/3.2/	Confirmation mail from the Host Country DNA for the authenticity of the approval for the project dated 18/09/2012
/4/	Modalities of communication for the project activity dated 20/08/2012

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

/5/ Methodology, Tools and Guidance from the CDM EB

/5.1/ Clean Development Mechanism Validation and Verification Manual Version 1.2

/5.2/ Guideline completing the Project Design Document, Version 07, EB41, Annex 12

/5.3/ Database for projects submitted with request for registration available at UNFCCC website

/5.4/ Database for under validation project at UNFCCC website

/5.5/ Tool for demonstration and assessment of additionality, version 06.0.0

/5.6/ Tool to calculate emission factor for an electricity system, version 02.2.1

/5.7/ Guidelines on the demonstration and assessment of prior consideration of the CDM, version 04, EB62, annex 13

/5.8/ Guidelines for the assessment of investment analysis, version 05, EB62, annex 5

/5.9/ Guidelines for determination and assessment of PLF, EB48, Annex 11

/5.10/ Approved Baseline and Monitoring Methodology ACM0002, version 12.3.0 available at: http://cdm.unfccc.int/UserManagement/FileStorage/4W1SCKX3EMPO6AYGRJUTD7BQ8IVN0H

/5.11/ Guidelines on common practice (version 02.0)

/6/ Technical Specifications

Technical specifications for Enercon E-53 as provided by the Enercon (India) Limited along with proposal

/7/ Location Details

WTG location and geo-graphical co-ordinates as for 62 WTG as provided by supplier Enercon (India) Limited

/8/ Site Visit

Physical site visit Inspections, Interviews and document review carried out by the assessment team on 22/06/2012 during on site visit

/9/ Commissioning Certificates

Commissioning certificate from Gujarat Energy Development Agency vide letter no GEDA/VTPL/PWF/LALPUR/2011-12/4134 dated 22/02/2012. The certificate confirms the commissioning of total of 28 WTGs (0.8 ME each) during the period of 04/02/2012 to 13/02/2012

Commissioning certificate from Gujarat Energy Development Agency vide letter no GEDA/ PWF/EIL-TPL/LALPUR/11-12/4283 dated 03/03/2012. The certificate confirms the commissioning of total of 7 WTGs (0.8 ME each) during the period of 07/02/2012 to 21/02/2012

Commissioning certificate from Gujarat Energy Development Agency vide letter no GEDA/ PWF/EIL-TPL/LALPUR/11-12/4530 dated 15/03/2012. The certificate confirms the commissioning of total of 17 WTGs (0.8 ME each) during the period of 03/03/2012 to 05/03/2012

Commissioning certificate from Gujarat Energy Development Agency vide letter no GEDA/ PWF/EIL-TPL/LALPUR/11-12/4629 dated 17/03/2012. The certificate confirms the commissioning of total of 10 WTGs (0.8 ME each) during the period of 12/03/2012 to 14/03/2012

/10/ PDD webhosting:

The UNFCCC webpage for the webhosting of the project activity: http://cdm.unfccc.int/Projects/Validation/DB/1D587QYFH4GVYZAB3YCXDIZG18KIOM/view.html. The PDD was open for comments from 28/04/2012 to 27/05/2012.

/11/ No ODA funding:

Declaration for the source of funding and no ODA involvement by Torrent Power Limited dated 25/07/2012.

/12/ PPA:

Power Purchase Agreement for the WTGs involved in the project activity

/13/ Purchase Orders:

Purchase orders to Enercon (India) Limited for supply, installation and commissioning of 55 number of Enercon E-53 (0.8 MW) WTGs dated 30/03/2011

Purchase orders to Enercon (India) Limited for supply, installation and commissioning of 07 number of Enercon E-53 (0.8 MW) WTGs dated 30/08/2011

/14/ Grid Emission factor:

CEA Database for baseline CO_2 data, Version 07 published by Central Electricity Authority dated January 2012, Government of India. Accessible at: http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm

/15/ Validation Contract:

Validation contract for the project activity with SGS dated 25/01/2012

/16/ Prior consideration Notification – UNFCCC

Email from the Torrent Power Limited to UNFCCC Secretariat for prior consideration notification form dated 17/09/2011

UNFCCC webpage for the acknowledged prior consideration notifications:

http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html

/17/ Proposal for WTGs

Proposal from Enercon (India) Limited to TPL dated 22/08/2009 having reference number EIL/Guj/PKL/09-10 for supply, erection and commissioning of E-53 type 0.8 MW WTG in state of Gujarat

The proposal also contains the offer for O&M

/18/ Prior consideration Notification – Host DNA

Email dated 17/09/2011 from the Torrent Power Limited to Indian DNA for the initiation of prior CDM consideration in the project activity.

Email from the India CDM DNA for acknowledgment of prior consideration notification dated 19/09/2011

/19/ Tariff orders referred:

/19.1/ Gujarat Electricity Regulatory Commission (GERC) published Draft tariff order dated 17/08/2009 for tariff determination of wind power projects in the state of Gujarat

/19.2/ Gujarat Electricity Regulatory Commission (GERC) published final tariff order dated 30/01/2010 for tariff determination of wind power projects in the state of Gujarat, available at the link of http://www.gercin.org/renewablepdf/en_1303211765.pdf

/19.3/ Gujarat Electricity Regulatory Commission (GERC) published final tariff order dated 11/08/2006 for tariff determination of wind power projects in the state of Gujarat, available at the link of http://www.gercin.org/renewablepdf/en_1303213122.pdf

/19.4/ Central Electricity Regulatory Commission (CERC) Renewable Energy tariff regulation dated 16/09/2009, available at the link of http://www.cercind.gov.in/Regulations/CERC_RE-Tariff-Regualtions_17_sept_09.pdf

/19.5/ Central Electricity Regulatory Commission (CERC) Terms & Conditions of Tariff Regulations, 2009 dated 19/01/2009 available at the link of http://cercind.gov.in/Regulations/Terms-and-Conditions-of-Tariff-Regulations_2009-2014.pdf

/20/ Board Approval:

Extract of the minutes of the meeting of the board of Directors of Torrent Power Limited held at 11.30 am on 28/01/2010 at Torrent House, Ahmedabad

/21/ Centre for Wind Energy technology (an autonomous R&D institute under Ministry of New and Renewable Energy Sources (MNRE), India

http://www.cwet.tn.nic.in/html/information_gi.html

/22/ PLF consideration

/22.1/ PLF calculation for the Enercon Samana Site connected to Sadodar substation based on actual generation data of the period Jan 2007- Dec 2009, as issued by the GEDA and provided to the PP by WTG supplier Enercon India Limited

/22.2/ Wind regime and Energy yield report for the project activity site location as carried out by third party agency M/s Sgurr Energy (http://www.sgurrenergy.com/) dated 21/03/2011

/22.3/ PLF calculation for the state of Gujarat for financial year of 2010-11 and 2011-12 based on the published generation/export data for WTG machines installed. The generation data are considered from as published by SLDC http://www.sldcguj.com/EnergyAccount/Energy_Block.asp for billing purpose.

/23/ O&M Contract for the project activity with Enercon (India) Limited

/24/ Benchmark calculation related references

/24.1/ Initial Benchmark calculation as submitted by the PP along with webhosted PDD, version 01

/24.2/ A research paper 'The Conditional CAPM Does Not Explain Asset- Pricing Anomalies' by Mr. Jonathan Lewellen, Dartmouth College and NBER and Mr. Stefan Nagel, Stanford University and

NBER dated January 2006.

The same is available at: http://web.mit.edu/lewellen/www/Documents/ConditionalCapm.pdf

/24.3/ A research paper "Estimating Risk Parameters" by the Aswath Damodaran; Professor of Finance at the Stern School of Business at New York University Available at the link of : http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/beta.pdf

/24.4/ "Investment Analysis and Portfolio Management" by Prasanna Chandra, 3rd edition, chapter 8, Capital Asset Pricing Model and Arbitrage Pricing Theory, page 257

"Financial Management", by I.M. Pandey, 9th edition, chapter 6, Beta Estimation and cost of equity, page no 108

/25/ List of actual statutory expenses as paid by the Torrent Power Limited in the first year of the project operation

/26/ Annual report of Torrent Power Limited, available at the link of http://www.torrentpower.com/investors/pdfs/annual_report_08_09.pdf

/27/ Insurance policy for the project activity

/28/ Scheme for Implementation of Generation Based Incentives (GBI) for Grid Interactive Wind Power Projects vide File no 53/1/2008-WE as issued by Ministry of New and Renewable Energy, Government of India by letter dated 17/12/2009. The same is available at the link of http://www.mnre.gov.in/file-manager/grid-wind/gbi-scheme.pdf

/29/ Self declaration about not availing the accelerated depreciation benefits for the project activity by Torrent Power Limited as submitted to the IREDA

/30/ Local Stakeholder's Consultation Documents

/30.1/ Minutes of meeting for the consultation held at Jamnagar on 25/10/2011

/30.2/ Copies of invitation letter and Notice as published in the Sarpanch's Office.

/30.3/ Photographs of the meeting and the published notice

/30.4/ List of attendees and the feedback forms as received for the meeting

/31/ Numbers of local personnel employed during the commissioning and the operating of the project activity WTG site as provided by the EPC contractor Enercon (India) Limited. This includes both temporary and permanent employments.

/32/ Glossary of CDM terms, version 06.0, EB66, Annex 63

http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Wind power project in Jamnagar District, Gujarat, India

It serves as a "**reality check**" on the project that is completed by a local assessor from SGS India

Issue	**Findings**	**Source/Means of Verification**	**Further Action / Clarification / Information Required?**
Host country approval needs to be checked	The same needs to be provided by the PP.	Document Review / Interview	CAR#01 OK. Closed
Check actual situation and description of the project activity as per the PDD	No issues, actual situation on site is as per the PDD	Document Review / Interview	OK
ODA requirement	The PP needs to justify the same	Document Review / Interview	CAR#02 OK. Closed
Is there any GHG emissions occurring within the project boundary as a result of the implementation of the proposed project which are expected to contribute more than 1% of the overall expected average annual ERs, which are not addressed by the applied methodology.	No such issues found	SV inspection	OK
PDD template and completion	PP needs to comply with the completion guidance.	Document Review / Interview	CAR#02 OK, Closed
Additionality demonstration and input values validation.	The supporting for most of the input values has been provided by the PP.	Document Review / Interview	CAR#04 OK, Closed

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
	However, please provide evidences for insurance and statutory expenses.		
Project start date & prior consideration	The PP needs to provide evidences for the same	Document Review / Interview	CL#03 OK, Closed
Technical specifications for all the equipments involved in the project activity along with Lifetime of the project activity	The same has been checked as provided by the PP.	Documents Review	OK
CER and financial calculation sheet	The same has been provided by the PP.	Documents Review	OK
Ownership of the project	The same has been provided by the PP.	Documents Review	OK
Commissioning certificates	The same has been provided by the PP.	Documents Review	OK
Evidence of PLF as per EB48, annex 11	The same has been provided by the PP.	Documents Review	OK
Project boundary assessment: Is all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner	Yes, the project boundary has been appropriately demonstrated.	Document Review / Interview / Site visit inspection	OK
Comments Received during the International stake Holder's Consultation Process	PP has to response and provided their opinion on the same.	Document Review / Interview / Site visit inspection	CAR#09 CAR#10 OK, Closed
The actual location of the project activity site.	Actual Location of the project activity has been checked and is confirms to be in accordance with the details provided in the PDD.	Document Review / Interview / Site visit inspection	OK

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Monitored Parameter discussion, requirements of applied methodology	All monitored parameters are not justified by the PP in accordance with the methodology	Document Review / Interview / Site visit inspection	OK
QA/QC procedures, monitoring approach, equipments, calibration frequency, data records & archiving, Management practice & structure, uncertainties etc	The same has been checked and discussed on site.	Document Review / Interview / Site visit inspection	OK
Local stake holder's consultation & supporting	The same has been provided by the PP.	Document Review / Interview / Site visit inspection	OK
Interview of Local stake holders	Done on site visit	Interview	OK. No issues

A.2 Annex 2: Validation Checklist

Table 1 - Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference Criteria	SGS Assessment	Conclusion/CARs/CLs
1. All Parties involved have approved the project activity 1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms a) The country is a Party to the Kyoto Protocol b) Participation is Voluntary c) The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration 1.2. Whether the LoA is unconditional with respect to (a)-(d) above? 1.3. Is the LoA from the Project Participant or directly from the DNA, indicate the means of validation employed to assess the authenticity with DNA if the team doubt the authentic of LoAs.	Clean Development Mechanism, Validation and Verification Manual, Version 01.2 (from this point forwarded referenced as VVM) - – Para 44-50 and 128-129 Paragraph 37 CDM Modalities and procedures	The same needs to be provided by the PP CAR #01 raised Host country approval letter number 4/12/2012-CCC dated 16/08/2012 from Indian DNA (MoEF) submitted by client. HCA confirms that the project activity is a voluntary participation and contributes to sustainable development of country. The country (India) has ratified Kyoto protocol 26/08/2002.	CAR#01 OK. Closed
2. Please state the Project Participants listed in the PDD and check with which of these Project Participants does SGS have a contract for the projects validation	Para 37 CDM M & P Para 7 EB 50 Annex 48	Torrent Power Limited is having contractual agreement with SGS and the same is mentioned as the Project Participant in the PDD.	OK

2.1. If the Project Participant(s) listed in the PDD published at international stakeholder[1] consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn Project Participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41. EB50 Annex 48 Para. 8	Will be checked on closer of validation opinion. Not applicable	~~Pending~~ OK
2.2. Confirm while submitting a request for registration – all of the Project Participants with a contractual relationship are still listed in the PDD.	EB50 Annex 48 Para.7-9	Torrent Power Limited is having contractual agreement with SGS and the same is mentioned as PP.	OK
2.3. Project Participants who are listed in the PDD (submitted for global stakeholder consultation) but who do not have a contractual relationship with SGS for the purposes of the validation activity may be removed from the PDD which is submitted for registration	EB50 Annex 48 Para.7-9	Will be checked on closer of validation opinion. Not applicable as only one PP is mentioned and the same is Torrent Power Limited in webhosted PDD and final PDD being submitted	OK
2.4. SGS may restart the validation activity through the new or revised contract with a different set of Project Participants by; a. Indicating that the first validation contract has been terminated and; b. Republishing the PDD or revised PDD for global stakeholder consultation.	EB50 Annex 48 Para.7-9 (If applicable)	Not applicable	OK
2.5. The letter/s of approval are unconditional with respect to 1.1.a) to 1.1.d) above	VVM Para. 49/54	Pending due to CAR#01 Host Country Approval is found to be unconditional.	~~Pending~~ Closed OK
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	VVM Para. 54 Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM	Pending due to CAR#01 HCA confirms that the project activity is a voluntary participation and contributes to sustainable development of country. The country (India) has ratified Kyoto protocol 26/08/2002.	~~Pending~~ Closed OK

[1] Stakeholders mean the public, including individuals, groups or communities affected, or likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity

	Modalities §40a		
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 40-42 Marrakech Accords, CDM Modalities, §40	The PDD is uploaded on UNFCCC website for global stakeholder consultation period from 28/04/2012 to 27/05/2012. This has been checked from http://cdm.unfccc.int/Projects/Validation/index.html Number of comments received: from 2 stakeholders Please refer to section E for further application.	~~The comments will be raised in findings to take PP's input and will be addressed in the report on closer of issues – Pending~~ OK. Closed
5. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 55 - 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions EB 25 Annex 15 EB 41 Annex 12	The PP needs to justify the following points for PDD, version 01 1) The PDD, version 01 in section A.3 mentions the 'Government of india' as a Party. Please clarify 2) The location detail as provided by the PP in section A.4 exceeds one page. This is not as per the PDD completion guidelines. PP may add the information as Annexure in case of providing more details. 3) Section A.2 does not include monitoring/apportioning details The revised PDD, version 02 uses CDM-PDD - Version 03 template and latest guidance for completing PDD version 5 available at the UN website.	CAR#02 Closed. OK

Table 2 - PDD

Checklist Question	Reference Criteria	MoV*	SGS Assessment	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	The title "Wind power project in Jamnagar District, Gujarat, India" is found unique when checked in UNFCCC website. There is no other project with this title as assessed from the UNFCCC website http://cdm.unfccc.int/Projects/Validation/index.html	OK
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD section A.1	DR	PDD section A.1 mentions the PDD version and date of revision.	OK
A.2. Description of the Project Activity				
A.2.1. Does the proposed CDM project activities in existing facilities or utilizing existing equipments? Does a site inspection carried out by the assessment team?	VVM Para 60 Guidelines for completing a CDM-PDD (PDD) section A.2	DR SV	Section A.2 of the PDD for project description covers all relevant elements such as purpose of the project activity, how the proposed project activity reduces green house gas emissions, contribution of the project activity to sustainable development of the host country.	OK
A.2.2. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately and provide the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM Para.58-59 VVM Para. 64(a) PDD section A.2 see also A.4, A.4.3 and B.3	DR	Information provided for the project activity related to implementation of the project activity is clear to understand & incompliance with actual situation of the project activity. All information provided are crosschecked and found to be consistent.	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

A.2.3. If the project activity involves the alternation of an existing installation or process, does the project de-scription clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM Para.63 PDD section A.2 see also A.4, A.4.3 and B.3	DR	This is a Greenfield project and does not involve any alteration of existing facility.	OK
A.2.4. Is all information provided consistent and in compliance with the actual situation or planning?	VVM Para.64 PDD section A.2 see also A.4, A.4.3 and B.3	DR SV	Information provided for the project activity related to implementation of the project activity is clear to understand & incompliance with actual situation of the project activity. All information provided are crosschecked and found to be consistent.	OK
A.2.5. Is all information with respect to project description deemed ac-curate and complete?	VVM Para.64(b) PDD section A.2	DR SV	Yes, all information provided in section A.2 of PDD is consistent with further chapters of the PDD.	OK
A.3. Project Participants				
A.3.1. Is the table required for the indication of Project Participants correctly applied?	VVM Para. 51-54 PDD section A.3	DR	The table under section A.3 of PDD is correctly applied.	OK
A.3.2. Whether the participation of each Project Participant has been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve?	VVM Para. 52	DR	Section A.3 mentions Torrent Power Limited as Project Participants to the project activity. The same is cross checked with Annex 1 of PDD and Host Country Approval and found acceptable.	OK
A.3.3. Is all information provided in consistency with details provided by further chapters of the	VVM Para. 51 PDD section A.3/Annex 1	DR	Yes, all information provided in consistency with details provided in Annex 1	OK

PDD (in particular Annex 1)?				
A.3.4. Has the MoC been completed as per the latest Procedures for MoC between the Project Participants and the Executive Board?	EB 48 Annex 60 EB 45 Annex 59	DR	The same will be sought on closer of all the issues. The completed modalities of communication form dated 20/08/2012 is submitted by the PP and is as per latest F-CDM-MoC which is available on UNFCCC website.	~~Pending~~ Closed. Ok
A.4. Technical Description of the Project Activity				
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? A.4.2. Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR SV	Yes, the information of location of project is clear and detailed. Latitudes & longitudes of the project activity are indicated properly.	OK
A.4.3. Does the proposed CDM project activity involve the alteration of existing installations or process?	VVM Para.64 PDD section A.4	DR	Project activity involves installation of windmills to generate electricity and provide it to NEWNE Regional Grid. Thus project activity does not involve any alteration of the existing installations or the process.	OK
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR	Yes; the category of the project activity is identified correctly. *Sectoral Scope: 1, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"*	OK
A.4.5. Is all information provided in compliance with actual situation or planning as available by the Project Participants?	VVM Para.64 PDD section A.4 Guidelines for completing a CDM-PDD (PDD)	DR	Information provided for the project activity is clear to understand & incompliance with actual situation of the project activity. All information provided are crosschecked and found to be consistent.	OK
A.4.6. Is the projected emission reductions in consistency with the ex-ante estimation in Section	VVM Para.64 PDD section A.4.4	DR	Yes, the projected emission reductions in consistency with the ex-ante estimation in Section B.6.4.	OK

B.6.4?				
A.5. Public Funding				
A.5.1. Does the information on public funding provided conform to the actual situation or planning as presented by the Project Participants?	PDD section A.4.5	DR	The PP needs to justify the same. Information on public funding is provided in PDD section A.4.5 and Annex 2. It is observed that no public funding is received for the project activity. The same has been checked and confirmed from letter of declaration dated 25/07/2012 from the PP.	Issue 3 in CAR#02 Closed ok
A.5.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.5	DR	Yes, all information provided is consistent with details provided by further chapters of the PDD.	OK
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.5	DR	Not applicable	OK
B. Baseline and Monitoring Methodology				
B.1. Title and reference of the approved baseline and monitoring methodology applied of the project activity				
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.65 VVM Para 68 PDD section B.1	DR	Yes, the PDD under the section B.1 refers to the approved consolidated methodology ACM0002 version 12.3.0 valid from 17th September 2010. This is found to be appropriate and it is accepted.	OK
B.1.2. Is there any specific guidance (including the Tools) provided by EB and has these guidance been applied?	VVM Para.68-69 PDD section B (B.1-B.2)	DR	The PDD has applied following tools. Tool to calculate the emission factor for an electricity system version 02.2.1 (latest version) and Tool for the demonstration and assessment of additionality version 06.0.0 (latest version) The applied tools are latest version available on the UNFCCC website. The request for registration through methodology ACM0002 version 12.3.0 can be submitted till	OK

			11th January 2013.	
B.2. Choice and Applicability of methodology				
B.2.1. Is the selected approved methodology applicable to the project activity in the PDD?	VVM Para. 66a/68/73/75 PDD section B (B.1-B.2)	DR	The PP has not discussed the one of the main applicability condition in the PDD The selected approved methodology is applicable to the project activity as mentioned in the PDD.	CAR#02 Closed OK
B.2.2. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.70-76 PDD section B (B.1-B.2)	DR	The justification provided in the PDD is in conformance with the applicability criteria of the applied methodology.	OK
B.2.3. Is there any GHG emissions occurring within the project boundary as a result of the implementation of the proposed project which are expected to contribute more than 1% of the overall expected average annual ERs, which are not addressed by the applied methodology.	VVM Para 77	DR	Yes, project boundary gives clear understanding of emission sources related to the baseline scenario. No project emissions involved as project activity involve electricity generation through windmills. Also no leakage emissions involved as equipment isn't transferred from another activity or to another activity. Section B.3 of PDD clearly indicates pictorial representation of the project boundary.	OK
B.2.4. Is the applicability of the selected methodology satisfied?	VVM Para.76	DR	All the applicability criteria are verified to be applied satisfactorily in the PDD.	OK
B.3. Project Boundary				
B.3.1. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para. 78-80 PDD section B.3 also see section A.4.3	DR	The project boundary includes the physical delineation of the proposed CDM project activity. However the same is not appropriately demonstrating the other WTGs used for apportioning.	CAR#02 Closed OK
B.3.2. Are all emission sources and gases related	VVM Para.79-80 PDD section B.3	DR	All emission sources and gases related to the baseline scenario, project scenario and leakage are clearly identified and described in a complete and transparent	OK

to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner?			manner. There is no GHG emissions in proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are expected to contribute more than 1% of the overall expected average annual emissions reductions which are not addressed by the applied methodology.	
B.3.3. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the latest version of tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?	VVM Para.79 PDD section B.3 EB 50 Annex 14	DR	Yes, project activity supplies power to NEWNE Regional Grid, India. PP has considered combined margin ex-ante grid emission factor from CEA database version 07 which is latest tool available at the time of draft PDD submission for validation. Also it is found to be in line with version 2.2.1 of the tool. However, the grid emission calculation is not reported conservatively.	CL#07 Closed OK
B.3.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para.76/79 PDD section B.3 also see section A.4.3	DR	Yes, all sources and GHGs required by the methodology have been included within the project boundary.	OK
B.4. Identification of the Baseline Scenario				
B.4.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology/tool and has the application of the tools as per methodology been	VVM Para. 82/86 PDD Section B.4/B.5	DR	Identification of the most likely baseline has been done properly and is in line with the methodology ACM0002 version 12.3.0 and as described in "Tool to calculate the emission factor for an electricity system, version 02.2.1".	OK

consulted, if the Tool(s) are required by the methodology?				
B.4.2. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario, including ”relevant national and/or sectoral policies and circumstances?	VVM Para.85/87(d) EB 22 Annex 3 EB 53 Annex 32	DR	The identified baseline scenario includes technologies and practices that include outputs or services comparable with the CDM project activity. Also the additionality confirms relevant financial national policies and circumstances are considered in the PDD.	OK
B.4.3. Are all potential realistic and credible alternative scenarios listed in the methodology are considered in identification of the most reasonable baseline scenario? Are all scenarios are reasonable in the con-text of the proposed CDM project and no reasonable alternative scenario has been excluded?	VVM Para. 81-84 PDD Section B.4/B.5	DR	All tools/procedures in the methodology are correctly applied to identify the most reasonable baseline scenario. This includes all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations.	OK
B.4.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD Section B.4/B.5	DR	Yes. Project Participant has considered all the parameters in a conservative manner and published data of Central Electricity Authority itself has considered conservativeness while identifying the baseline emission factor.	OK
B.4.5. Is there a verifiable description of the baseline scenario? Does this include a description of the technology that would be employed and/or the activities that would take place in the absence of	VVM Para.86 PDD Section B.4/B.5	DR	There is a verifiable description of the baseline scenario in the PDD. The baseline scenario has been determined following the methodology applied by the project activity.	OK

the proposed CDM project activity?				
B.4.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.92 a-e PDD Section B.4/B.5	DR	As per ACM0002, if the project activity is the installation of a new grid connected renewable power plant/unit, the baseline scenario is the following: Electricity delivered to the grid by the project activity would have otherwise been generated but the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculation described in the "Tool to calculate the emission factor for an electricity system, version 02.2.1".	OK
B.5. Additionality				
B.5.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para. 94-97 PDD Section B.1/B.4/B.5	DR	The addtionality of the project activity has been demonstrated and assessed using the "Tool for the demonstration and assessment of additionality, version 06.0.0".	OK
B.5.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD Section B.1/B.4/B.5	DR	The investment analysis has been carried out in line with the guidance provided by "Tool for the demonstration and assessment of additionality" version 06.0.0, which is the latest version of the tool.	OK
B.5.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete	VVM Para.93/91 PDD Section B	DR	Project Participant submitted references and sources for all input values used in the IRR and benchmark calculation for the project activity. This is found to be appropriate and it is accepted.	OK

transparency to all available data and documentation?				
B.5.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	VVM Para.98-99 VVM Para.103-104 PDD Section B.5	DR	The PP needs to justify the start date and investment decision date. The starting date of the project activity as per the PDD version 01 dated 21/04/2012 is 30/03/2011. The project activity would have not occurred due to the described project barriers and how the CDM revenue has been seriously considered by the PP to revive the project acceptability needs to be explained further along with the requirement of EB 41 Annex 46 guideline. Investment decision date 28/01/2010, date of board approval	CAR#03 Closed. OK
B.5.5. Is the project activity a new project activity or existing project activity? How is the early consideration demonstrated?	VVM Para.100-102 PDD Section B.5	DR	The project activity start date is 30/03/2011 which falls under new project activity. PP has informed in writing to UNFCCC and host DNA regarding their intention to seek CDM status using the F-CDM-Prior Consideration form dated 17/09/2011. This is checked on UNFCCC and DNA website and within six months and hence accepted.	~~Pending due to~~ CAR#03. OK. Closed
B.5.6. For an existing project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, is the real documented evidence for an assessment of real and continuing actions available for validation and is this evidence authentic?	EB 62, annex.13	DR	Not applicable as this is a new project activity.	OK
B.5.7. Are all credible and plausible alternatives correctly identified? Do the	VVM Para.105-107	DR	The discussion on additionality is consistent with the identification of all plausible and credible baseline scenarios as per “Tool for the demonstration and assessment of additionality, version 06.0.0”	OK

identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?				
B.5.8. If an investment analysis has been used, has it been demonstrated that the proposed project activity is not the most economically or financially attractive alternative, or is not economically or financially feasible, without the revenue from the sale of CERs.	VVM Para. 108-109 PDD Section B.5	DR	Here the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment; hence benchmark approach is considered to be appropriate and same has been demonstrated by the Project Participant.	OK
B.5.9. Is the investment analysis carried out in accordance with specific guidance from EB?	VVM Para. 110 EB 62 Annex 5 EB 48 Annex 11	DR	The latest specified guidance from the EB is EB62, Annex 5 and the PP needs to justify following points in line with the same. **1.** The date and complete reference of the basis are not mentioned for the assumptions. **2.** The PP needs report the amounts in international units i.e. Millions or billions, in case of other units used; PP needs to provide the conversion factor as a reference. **3.** The PP has provided the supporting for the most of the input values in the IRR calculation; however the PP needs to provide the basis for the Escalation on statutory expenses, Insurance. **4.** The PP has provided the third party certificate for the PLF considered. However the same is dated 21/03/2011. The PP needs to justify the same in accordance with the Para 6 of EB62, annex5. Further the PLF during the	CAR#04 Closed OK

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			investment decision or board approval needs to be provided **5.** PP needs to justify the considered residual value in investment analysis, in doing so please refer Para 4 of EB62 annex 5. PP has considered the 5% residual value, which only accounts the book value of the assets. **6.** PP needs to justify why tax benefit available due to negative income during initial years have not been considered while calculating IRR. Further please also clarify if the PP has considered the benefits available under section 80IA of income tax act. 7. PP needs to clarify if it has considered the benefits available due to accelerated depreciation for the project activity	
B.5.10. Is the investment analysis complete and accurate? (Important)	VVM Para. 111 PDD Section B.5 EB 62Annex 5 EB 54 Para 53 EB 53 Annex 32	DR	Pending due to CAR#04 The investment analysis has been carried out completely and transparently inline with the "Tool for the demonstration and assessment of additionality" version 06.0.0	~~Pending~~ Closed. OK
B.5.11. Does the investment analysis rely on the values from Feasibility Study Reports (FSR) that approved by national authorities for proposed CDM project activity?	VVM Para. 113 PDD Section B.5	DR	The PP has not referred FSR. Not applicable	OK
B.5.12. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 112 PDD Section B.5 EB 62 Annex 5 EB 51 Annex 59	DR	Yes, the Benchmark calculation is based on parameters standard in the market and does not include the subjective matters	OK

B.5.13. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	VVM Para. 115/118 PDD Section B.5	DR	Not applicable as PP has not opted for barrier analysis.	OK
B.5.14. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	Here the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment; hence benchmark approach is considered to be appropriate and same has been demonstrated by the Project Participant.	OK
B.5.15. Has the barriers correctly identified and they prevent the implementation of the project activity but not the implementation of at least one of the possible alternatives.	VVM Para. 116-117	DR	Not applicable as PP has not opted for barrier analysis.	OK
B.5.16. If a barrier analysis has been used have the 'guidelines for objective demonstration and assessment of barriers' been followed? Have all applicable steps been considered and substantiated with objective evidence?	VVM Para 116-117 EB 50 Annex 13		Not applicable as PP has not opted for barrier analysis.	OK
B.5.17. Do the identified baseline scenarios include	VVM Para. 105 PDD Section	DR	The baseline scenario is identified by the PP as per the applied methodology and the same is supply from the baseline grid.	OK

technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?	A.4.3/B.5			
B.5.18. Is the proposed project type be justified as first-of-its kind?	VVM Para. 119 EB69 Annex 7 PDD Section B.5	DR	Not applicable as the PP has not opted for the same.	OK
B.5.19. Is the project activity not common practice?	VVM Para. 120-121 PDD Section B.5 EB 69 Annex 08	DR	The PP needs to justify the considered geographical region as well as approach. Some of the links are not working. PP should follow EB69, Annex 8 Final PDD: The PP has demonstrated the common practice analysis in line with EB68, annex 8. Accepted	CAR#06 Closed OK
B.5.20. What are the key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 118, 119c/d PDD Section B.5 EB 69 Annex 8 EB69 Annex 7	DR	Pending due to CAR#06. No such projects found.	~~Pending due to~~ CAR#06.Closed. OK
B.5.21. Is the proposed project activity additional?	PDD Section B.5	DR	Yes, based on the above assessment and verified documents it is concluded that this project activity is additional and in line with “Tool for the demonstration and assessment of additionality, version 06.0.0”.	OK
B.6. Algorithms and/or formulae used to determine emission reductions				
B.6.1. Are the steps and equations applied to calculate baseline emissions in compliance	VVM Para. 67c VVM Para.	DR	All the steps and equations used to calculate baseline emissions in the PDD and ER sheet are as per the “Tool to calculate the emission factor for an electricity system, version 02.2.1”. This is in compliance with the applicable methodology.	OK

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with the requirements of selected baseline and monitoring methodology?	89-90 VVM Para. 93 PDD Section B.6.1			
B.6.2. Are the steps and equations applied to calculate project emissions in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1	DR	No project emissions are involved in the project activity as project being electricity generation through wind power project	OK
B.6.3. Are the steps and equations applied to calculate leakages in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1	DR	No leakage are involved in the project activity as project being electricity generation through wind power project	OK
B.6.4. Are the steps and equations applied to calculate emission reductions in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1	DR	All the steps and equations used to calculate emission reductions in the PDD and ER sheet are in compliance with the applicable methodology.	OK
B.6.5. Where there is an	VVM	DR	To calculate emission reduction as per the “Tool to calculate the emission factor for	OK

option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	Para.89/90/91 PDD Section B (B.6.2 -B.71)		an electricity system, version 02.2.1" PP has choose ex-ante emission factor (combined margin). Methodological choice is clearly explained in the PDD and is in compliance with the applicable methodology.	
B.6.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5-C	DR	The uncertainties in the GHG emissions estimates are properly addressed in the documentation in accordance with applicable methodology ACM0002 version 12.3.0.	OK
B.6.7. Are the ex-ante fixed data provided in compliance with the methodology and/or relevant tools (if applicable)?	VVM Para. 67c VVM Para. 91 VVM Para. 93 PDD Section B.6.3B.6.4	DR	The ex-ante fixed data provided to calculate emission reduction is in compliance of "Tool to calculate the emission factor for an electricity system, version 02.2.1". This is as per the applicable methodology.	OK
B.6.8. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 92a/b PDD Section B.6.3/B.6.4	DR	Emission factor from "CO_2 Baseline Database for the Indian Power Sector" , version 07 published by Central Electricity Authority (CEA), Ministry of Power, Government of India is used for emission reduction calculations which is official published data.	OK
B.6.9. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	The PP needs to justify the consideration of import in weighted average OM calculation.	CL#07 Closed OK
B.6.10. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 92c PDD Section B.6.3/B.6.4	DR	The baseline data is checked for accuracy & conservativeness. These are found to be conservatively applied to the CDM project activity.	OK
B.6.11. Are data and parameters that are not being monitored and	VVM Para. 91 PDD Section B.6.3/B.6.4	DR	Emission factor used in the calculation of emission reductions is Combined Margin Grid emission rate with ex-ante approach. This is fixed throughout crediting period hence need not to be monitored during the periodic verifications.	OK

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remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?				
B.6.12. Are the ex-post monitored data estimated appropriated for calculation of ex-ante emission reductions?	VVM Para. 67c VVM Para. 92 VVM Para. 93 PDD Section B.6.3B.6.4	DR	Yes, the same are considered appropriately	OK
B.6.13. Is sampling approach used for any parameters?	EB 50 Annex 30 Para. 30	DR	Not Applicable as no sampling is envisaged.	OK
B.6.14. Are all the steps taken and equations applied to calculate project emissions, baseline emissions and leakage and emission reductions correct and appropriate?	VVM Para. 67c VVM Para. 92	DR	All the parameters used to calculate baseline emissions, project emissions, leakage and emission reductions in the PDD and ER sheet are as per the "Tool to calculate the emission factor for an electricity system, version 02.2.1". This is in compliance with the applicable methodology and results can be replicated using the parameter values provided in the PDD.	OK
B.6.15. Where applicable, the plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options: (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project	EB 48 Annex 11	DR	Yes, the PP has provided the third party assessment report for PLF determination in line with EB48, Annex 11.	OK

activity for implementation approval; (b) The plant load factor determined by a third party contracted by the Project Participants (e.g. an engineering company)				
B.7. Monitoring methodology and Monitoring Plan				
B.7.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the approved methodology. Has this data been interpreted and applied correctly?	VVM Para. 67e PDD Section B.7-B.8 see also Annex 4 EB69 Annex 4 EB69 Annex 5	DR SV	Yes, monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD. Emission factor is used as an Ex-ante parameter used. All parameters and data those are available at validation consistent with the applicable methodology. These data have been interpreted and applied correctly.	OK
B.7.2. Is the monitoring plan compliant with the approved monitoring methodology and/or relevant tools (if applicable)?	VVM Para. 123(a) PDD Section B.7	DR SV	Yes, the monitoring plan completely describe all measures to be implemented for monitoring all parameters required, including measures to be implemented for ensuring data quality. This is in compliance with the applicable methodology.	OK
B.7.3. Is the implementation of monitoring plan feasible	VVM Para. 123(b)	DR/SV	Yes, implementation of monitoring plan is completely feasible and verifiable as WTG supplier is involved in the O & M of the project activity.	OK

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and verifiable.	PDD Section B.7			
B.7.4. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19	DR/SV	No potential conflicts of interests as emission reductions are based on net electricity supplied to the grid. Same will be crosschecked against invoices raised to state electricity board. Hence risk is nullified.	OK
B.7.5. Is the proposed monitoring plan compliance with the methodology/tools and feasible for implementation?	VVM Para. 124	DR/SV	Yes, proposed monitoring plan is in compliance with the applicable methodology. WTG supplier is ISO certified organization and having established data management system. WTG supplier is involved in the O & M, online monitoring and preparation of electricity generation report with state electricity board for this project activity. Hence, this is completely feasible and verifiable for implementation.	OK
B.7.6. Does the information contained in Annex 4 in consistency with the information in Section B.7 of PDD?	PDD Annex 4	DR/SV	All the information provided in Annex 4 of the PDD is consistent with the other section of the PDD.	OK
B.7.7. Does the monitoring plan in the PDD comply with the approved methodology provided for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	VVM Para. 92a/92d/123/79 PDD Section B.7-B.7.2	DR/SV	PP needs to justify why only one parameter for net export is included in the monitoring. Apportioning procedures are not appropriately defined in the PDD. Yes, the monitoring plan in the PDD is in compliance with the applicable methodology.	CAR#08 Closed OK
B.7.8. Are the choices of project GHG indicators reasonable and in	PDD Section B.7-B.7.2/B.6.2	DR/SV	Yes, the choices of the GHG indicators are in conformance with the applicable methodology.	OK

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	conformance with the requirements set by the approved methodology applied?				
B.7.9.	Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR/S V	The net electricity supplied and the amount of electricity imported from the grid can be measured accurately. The emission reductions are being calculated based on the same	OK
B.7.10.	Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1	DR/S V	1) It is not clear if there will be check meter at the cluster point and the substation? Please clarify, what will happen in case of faulty main meter. 2) The PP has mentioned the re-calibration frequency of the meter at substation as 3 years. It is requested to clarify the basis for such consideration. Further, the PP has not defined the recalibration frequency of cluster meters. Closer: Yes, the information given for each monitoring variable by the presented table is sufficient to ensure the verification of a proper implementation of the monitoring plan.	CAR#08 Closed. OK
B.7.11.	Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.5-B.7.2	DR/S V	Pending due to CAR#08 Closer: Yes, the monitoring approaches in line with current good practice. It will deliver data in a reliable and reasonably acceptable accuracy.	~~Pending due to~~ CAR#08 OK. Closed
B.7.12.	Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR/S V	No project emissions are involved in the project activity as project being electricity generation through wind power project.	OK
B.8. Operational and Management Structure					
B.8.1.	Is the authority and responsibility of project management clearly	PDD Section B.7	DR/S V	Roles and responsibility of personnel involved in project management has mentioned in the Annex 4 of the PDD.	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

	described?				
B.8.2.	Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8	DR/S V	Roles and responsibility of personnel involved for registration, monitoring, measurement and reporting has mentioned in the PDD	OK
B.8.3.	Are procedures identified for training of monitoring personnel?	PDD Section B.7	DR/S V	The O & M supplier has employed qualified personnel and they are imparted with routine trainings by the O & M supplier being ISO 9001:2000 certified. Training procedures are verified during site visit.	OK
B.9. Baseline Information					
B.9.1.	Is the information contained in Annex 3 consistent with the Section B.4, B.5 and B.6?	PDD Annex 3	DR/S V	Yes, all information provided in annex 3 is consistent with other sections of the PDD.	OK
B.9.2.	Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR/S V	Date (21/04/2012) for completion of baseline is mentioned in section B.8 of PDD.	OK
B.9.3.	Is this consistent with the time line of the PDD history?	PDD Section B.8	DR/S V	Baseline completion dated as mentioned in B.8 of the PDD is found consistent with the history of the PDD.	OK
B.9.4.	Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR/S V	Yes, all data required is provided in a complete manner under annex 3 of the PDD	OK
B.9.5.	What is the documented crediting period of the project? Is this inline with available data?		DR/S V	The crediting period chosen is 07 years renewable crediting period. This is in line with the available data.	OK
B.9.6.	In cases where the methodology specifies, has the '*Tool to*	EB 50 Annex 15	DR/S V	The documented lifetime of the project activity is 20 years. This is provided by the WTG supplier.	OK

	determine the remaining lifetime of equipment' been correctly applied?				
B.9.7.	In cases where the *'Tool to determine the remaining lifetime of equipment'* has been used the Project Participants may use one of the following options to determine the remaining lifetime of the equipment: i. Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning; ii. Obtain an expert evaluation; iii. Use default values.	EB 50 Annex 15	DR/SV	Not applicable as documented lifetime of the project activity is exceeding current crediting period.	OK
C. Duration of the Project / Crediting Period					
C.1.1.	Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 99 PDD Section C.1.1/C.1.2	DR/SV	Yes, PP has clearly mentioned start date and operational lifetime of the project activity in the PDD.	OK
C.1.2.	Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2	DR/SV	The crediting period chosen is 07 years renewable twice.	OK

	renewals or fixed crediting period of max. 10 years)?				
C.1.3.	Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section C.1.2/C.2.1.1/C.2.1.2	DR/SV	The documented lifetime of the project activity is 20 years. This is provided by the WTG supplier. PP has clearly mentioned start date and operational lifetime of the project activity in the PDD. This is exceeding current crediting period. Remaining lifetime of the project activity can be checked during renewal of the crediting period for appropriateness. issue 1 In CL#07.	CL#07Closed OK
C.1.4.	Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a/ 98 PDD Section C.1.1/C.2.1.1	DR/SV	The project activity start date is 30/03/2011. PP has started the validation after the start date of the project activity.	OK
D. Environmental Impacts					
D.1.1.	Does the project comply with environmental legislation in the host country?	VVM Para. 131-133 PDD section D	DR/SV	The project activity is in line with all the rules and regulations for the conservation of environment. The web link for the notification http://envfor.nic.in/legis/eia/so1533.pdf has been also cross verified which is inline with the information provided in the PDD.	OK
D.1.2.	Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 131-133 PDD section D	DR/SV	Environmental Impact Assessment is not significant as generation of electricity from wind energy is a clean technology (project emission zero).	OK
D.1.3.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 131-133 PDD section D	DR/SV	According to host country DNA, the EIA is not a mandatory requirement for the project activity.	OK
D.1.4.	Will the project create any adverse environmental effects?	VVM Para. 131-133 PDD section D	DR/SV	No, project activity involves generation of electricity from wind energy. Hence is a clean technology (project emission zero).	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

D.1.5. Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 131-133 PDD section D	DR/SV	No, project activity involves generation of electricity from wind energy. Hence is a clean technology (project emission zero).	OK
D.1.6. Have identified environmental impacts been addressed in the project design?	VVM Para. 131-133 PDD section D	DR/SV	No, project activity involves generation of electricity from wind energy. Hence is a clean technology (project emission zero).	OK
E. Stakeholder Comments				
E.1.1. Have local stakeholders been invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC web	VVM Para. 128-129 PDD Section E.1	DR/SV	Local Stakeholder consultation was carried out on the site dated 21/10/2011.	OK
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 128-129 PDD Section E.1	DR/SV	PP has submitted Copy of public notice given in Sarpanch offices of four adjacent villages and same notice was placed on site. Further invitation letters sent to the stake holders are also provided	OK
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 128-129 PDD Section E.1	DR/SV	Yes, undertaken stakeholder process described in a complete and transparent manner.	OK
E.1.4. Is a summary of the stakeholder comments received provided?	VVM Para. 128-129 PDD Section E.2	DR/SV	No adverse comments are received.	OK
E.1.5. Has due account been taken of any stakeholder comments received?	VVM Para. 128-129 PDD Section E.3	DR/SV	As per the PDD no adverse comments were received, few clarifications were asked by the stakeholders. Summary of the stakeholder clarification/queries and their responses are provided in section E.3 of PDD. PP needs to justify some of the	CAR#11 Closed OK

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			inputs and contradictions.	
E.1.6. How the team validate the adequacy of stakeholder consultation?	VVM Para. 130	DR/SV	Yes, all comments related to project are positive. Documented evidence is provided. And stakeholders are interviewed	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

A.3 Annex 3: Overview of Findings

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	09	02	00

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	01	Reference:	VVM Para 44
Lead Assessor Comment:					
PP is requested to provide the Host country approval for the project activity.					
Project Participant Response:			**Date:** 27/07/2012		
The Host country approval is yet to be received from NCDMA, Ministry of Environment & Forest, Govt. of India. PP has applied for Host country approval on 17th May, 2012. The same will be provided to the validation team of the DOE when it is received by the PP.					
Documentation Provided by Project Participant:					
Yet to be submitted by the PP.					
Information Verified by Lead Assessor:					
The HCA for the project activity is yet not received					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 30/07/2012		
The CAR Remains Open & Pending till PP provides the HCA. **28/08/2012:** The PP has submitted the Host Country Approval for the project activity by mail dated 28/08/2012. The Approval refers to the exact project activity title and Project Participant as mentioned in the PDD. Accepted					
Acceptance and Close out by Lead Assessor: Closed			**Date:** 28/08/2012		

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	02	Reference:	EB41, Annex12
Lead Assessor Comment:					
1) The PDD, version 01 in section A.3 mentions the 'Government of india' as a Party. Please clarify 2) The location detail as provided by the PP in section A.4 exceeds one page. This is not as per the PDD completion guidelines. PP may add the information as Annexure in case of providing more details. 3) The PP needs to provide the proof for no ODA involvement.					
Project Participant Response:			**Date:** 27/07/2012		
1) The name of Party is 'India' as mentioned on UNFCCC website http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php hence the 'Government of India' has been changed to 'India' in section A.3 of PDD, version 02. 2) The location details have been provided moved to Appendix 3 from section A.4 in PDD, Version 2. 3) The proof for no ODA involvement has been provided.					
Documentation Provided by Project Participant:					
Declaration dated 25/07/2012					
Information Verified by Lead Assessor:					
Revised PDD, version 02 for the correction made in the PDD Declaration from the PP for no ODA involvement					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 30/07/2012		

1) The PP has corrected the name of the Party in the revised PDD, version 02. Accepted
2) The PDD version has been modified by the PP in accordance with EB41, Annex13. Accepted
3) The PP has provided a declaration of the no ODA funding involvement in the project activity. Accepted

Reopened: 05/10/2012

1) The project scenario under section A.2 of the PDD does not transparently represent information about if any other WTGs that will be connected to the substation in which the project activity is also connected. Further the project description does not include any information regarding the apportioning procedures involved in the project activity. Please clarify.
2) The project boundary diagram does not represent or show any other WTG connected to the substation to transparent representation of the apportioning. Please clarify.
3) The PDD does not transparently discuss the main applicability criteria inline to the applied methodology ACM0002, version 12.3.0. Please clarify.

Project Participant Response	**Date:** 15/10/2012

1) Following para added in section A.2 of the PDD
"The WTGs of the project are divided into clusters and each cluster has dedicated metering system (Cluster Meter). Different clusters ultimately lead to the shared GETCO main meter at the Tebhada substation (Main Meter). Data monitoring takes place at the Cluster Meters and Main Meter. The other project owners WTGs are also connected to Tebhada substation. The net electricity supplied from the project activity to the NEWNE grid will be calculated by apportioning generation recorded at Main Meter in the ratio of generation recorded at Cluster Meters as described in section B.7.2."

2) The project boundary diagram in section B.3 is updated in the PDD to provide the required details.
3) The applicability criteria is provided in the section B.2 in the revised PDD.

Documents Provided by the Project Participant:

Revised PDD version 03

Information Verified by Lead Assessor:

Revised PDD version 03 dated 15/10/2012 for correction

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 18/10/2012

1) The PP has corrected the section A.2 of the PDD and added the information regarding WTG connection, and apportioning procedures accepted
2) The PP has corrected the project boundary diagram. Accepted
3) The PP has added the transparently discuss the main applicability criteria inline to the applied methodology ACM0002, version 12.3.0. Accepted

Acceptance and close out by Lead Assessor: Closed	**Date:** 18/10/2012

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CL	Number:	03	Reference:	EB62, Annex 5

Lead Assessor Comment:

The PP is requested to substantiate the start date and investment decision date for the project activity with documentary evidence.

Project Participant Response:	**Date:** 27/07/2012

The date of investment decision is 28/01/2010 being the date of approval of project by Board. The start date of the project activity is 30/03/2011 being the placement of purchase order for WTGs. The Board Resolution and purchase orders have been submitted.

Documentation Provided by Project Participant:

1. Board Resolution dated 28/01/2010
2. Purchase orders for 55 WTGs dated 30/03/2011 and for 7 WTGs dated 30/08/2011

Information Verified by Lead Assessor:

Extracts of the board meeting dated 28/01/2010
Purchase orders to the Enercon (India) Limited dated 30/03/2011 for 55 WTGs and dated 30/08/2011 for 7 WTGs
Project activity implementation chronology

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 30/07/2012
The PP has submitted the extracts of the board meeting held on 28/01/2010. The same has been checked and it is found that the Board of the Torrent Power Limited took the decision for investment in the project activity with the consideration of CDM on 28/01/2010. Thus, the same has been confirmed as the investment decision date for the project activity. The proposed project activity is a wind power project and the complete chronology for the project has been checked. It was confirmed that first major financial commitment of expenditure was made by the PP by issuance of the purchase, establishment and commissioning order for 55 WTG on 30/03/2011. Thus the same has been accepted and validated as the start date for the project activity.	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 30/07/2012

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	04	Reference:	EB62, annex 5

Lead Assessor Comment:

1. The date and complete reference of the basis are not mentioned for the assumptions. Please clarify
2. The PP needs report the amounts in international units i.e. Millions or billions, in case of other units used; PP needs to provide the conversion factor as a reference.
3. The PP has provided the supporting for the most of the input values in the IRR calculation; however the PP needs to provide the basis for the Escalation on statutory expenses, Insurance.
4. The PP has provided the third party certificate for the PLF considered. However the same is dated 21/03/2011. The PP is requested to justify the same in accordance with the Para 6 of EB62, annex5. Further please also clarify, what PLF it has considered during the investment decision or board approval?
5. PP needs to justify the considered residual value in investment analysis, in doing so please refer Para 4 of EB62 annex 5. PP has considered the 5% residual value, which only accounts the book value of the assets.
6. PP needs to justify why tax benefit available due to negative income during initial years have not been considered while calculating IRR. Further please also clarify if the PP has considered the benefits available under section 80IA of income tax act.
7. Please clarify if the PP has considered the benefits available due to accelerated depreciation for the project activity

Project Participant Response:	**Date:** 20/07/2012

1. The date and complete reference of the basis have been mentioned in detail for the assumptions in PDD, Version 2.
2. Amounts converted in international units and note has been provided for 1 mio = 1 million in PDD version 2.
3. PP had assumed escalation of 1% on statutory expenses on the basis of management estimate for which supporting is not available. Hence, the escalation has been removed in PDD, Version 2.
4. As per Para 6, EB 62, Annex 5 input values used in the investment analysis shall be at the time of investment decision taken by Project Participant. The Avg. PLF of Sadodar site (which is nearby the project location) for a period of 2 years (from January 2008 to Dec. 2009) which is 21.22% has been considered during the investment decision. However, as per Para 3 of EB 48, Annex 11 the PLF determined by a third party contracted by the PP shall be considered. The PLF as per third party consultant report dated 21/03/2011 is 20.60%. Hence, on conservative basis, the PP has revised the PLF to 21.22% (PLF available at investment decision) in calculating equity IRR.
5. As per companies act, 1956 book depreciation is to be provided up to 95% of the cost of asset over its useful life. Hence, the PP had considered residual value of 5% in PDD, Version 1. However, as per Para 4, EB 62, Annex 5 residual value of the project should include both the book value of the asset

and reasonable expectation of the potential profit or loss on the realization of the assets. Hence, to include the reasonable expectation of the potential profit PP has estimated residual value of 10% (as per GERC Order No 2 2009 dated 17/06/2009, http://gercin.org/discussionpdf/en_1301043186.pdf) on conservative basis in PDD Version 2.

6. The PP has revised calculation equity IRR considering tax shield (80IA) on negative income during initial period.

7. The PP has considered the GBI (Generation Based incentive) for the project activity and thus benefits due to accelerated depreciation are not available to the PP.

Documentation Provided by Project Participant:

1. Excel sheet showing calculation of PLF based on actual generation and GEDA certificates showing electricity generation in Samana wind farm has been provided.
2. Revised IRR sheet with consideration of tax benefits

Information Verified by Lead Assessor:

PLF determination calculation along with basis for Samana site for period of 01/04/2007 to 31/03/2009
Revised financial sheet
GERC tariff order

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 20/07/2012

1) The PP has mentioned the complete references to the basis considered. Accepted
2) The PP has converted he amounts to the international units. Accepted
3) The PP has removed the escalation on the statutory expense. Accepted. The PP is requested to justify the basis for insurance as well. **Open**
4) The PP has justified the consideration of the PLF at the time of investment decision and in line with the EB48 annex 11 as well. However, the PP has considered a PLF of 21.22% whereas Tariff order mentions 23% as PLF for the state of Gujarat. Please clarify the conservativeness in the same. **Open**
5) The PP has corrected the salvage value in line with Para 4 of EB62, annex 5. Accepted
6) Please clarify why it is not appropriate to consider the corporate tax rate to calculate tax benefit as the company where the PP can offset the losses, may be paying at corporate tax rate. **Open**
7) The PP is requested to produce documentary evidence in support of considered GBI and availability of the same at the time of decision making to support that PP will not avail accelerated depreciation benefit. **Open**

Project Participant Response:	**Date:** 27/07/2012

3. The basis of insurance updated in the PDD. The insurance expense % has been estimated from annual report of PP for FY 2008-09 http://www.torrentpower.com/investors/pdfs/annual_report_08_09.pdf as follows:

=Insurance expense in FY 2008-09 (page no 73)/ Average of net block of fixed assets (page no 68)

=Rs. 75.1 million/ (Rs. 36617.6 million +Rs. 31717.3 million)/2)

=0.22%

4. The actual PLF in Gujarat State during the FY 2010-11 and FY 2011-12 have been calculated from the data available on SLDC website http://www.sldcguj.com/. According to this the actual PLF in Gujarat is 16.98% in FY 2010-11 and 18.94% in FY 2011-12. Hence, 21.22% PLF considered in calculation of equity IRR is conservative.

6. The PP has revised calculation equity IRR considering tax shield (80IA) on negative income during initial period. The tax rate considered for such benefit is the MAT rate only instead of corporate tax as the other business units of the PP are availing tax benefit under Section 80 IA of the Income Tax Act, 1961 and the income of such units are taxed at Minimum Alternative Tax (MAT) rate as per the provision of Section 115 JB of the Income Tax Act, 1961. Refer below table showing effective tax rate (Current Tax/Profit before tax) from FY 2006-07 to FY 2011-12 wherein it can seen that the company is paying tax at MAT rate from FY 2008-09 due to 80IA benefit available to its generation and distribution units for a period of 10 years as per income tax act, 1961. Hence, the tax shield is calculated by applying MAT rate on negative profit before tax.

Rs in Crores

Particulars	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Source
Current Tax	16.72	79.77	55	207.5	285.22	338.94	Annual Report of Torrent Power Limited available on http://www.torrentpower.com/
PBT	129.69	376.57	484.81	1186.45	1428.82	1679.25	
Effective Tax Rate	12.89%	21.18%	11.34%	17.49%	19.96%	20.18%	
MAT Rate as per Income Tax Act, 1961	11.33%	11.33%	11.33%	17.00%	19.93%	20.01%	Income Tax Act, 1961

7. The project is already registered under GBI mechanism with IREDA. The documentary evidence in support of considered GBI is available at http://110.234.218.202/iredawindmill/form/ReportgbiScheme.aspx and availability of the same at the time of decision making is available at http://www.mnre.gov.in/file-manager/grid-wind/gbi-scheme.pdf. Declaration that PP is not availing accelerated depreciation is enclosed. It is not appropriate to consider the corporate tax rate to calculate tax benefit as the company (Torrent Power Limited) is an infrastructure company and hence income of the company is taxed at MAT rate and not corporate rate as per the provision of Income Tax Act, 1961.

Documentation Provided by Project Participant:

1. Excel sheet showing calculation of PLF based on actual generation and GEDA certificates in Gujarat state during FY 2010-11 and FY 2011-12 has been provided.
2. Declarations from PP not availing accelerated depreciation

Information Verified by Lead Assessor:

Annual report of Torrent Power Limited for year 2008-09
PLF calculation for state of Gujarat for FY 2010-11 and FY 2011-12 based on generation as certified by GEDA
Information regarding GBI registered projects on http://110.234.218.202/iredawindmill/form/ReportgbiScheme.aspx and the declaration as submitted to IREDA by the PP for not availing the GBI benefits.

Reasoning for Not Acceptance or Acceptance and close out:	**Date:** 30/07/2012

1) Closed as above
2) Closed as above
3) The PP has justified the considered basis for the insurance. Accepted. Closed
4) The PP has clarified the conservativeness of the PLF. Closed.
5) Closed as above
6) The PP has justified the consideration of MAT rate in calculation of the tax benefit. The same is appropriate as the Torrent Power Limited is a MAT paying company only.
7) The PP has justified its registration with the GBI. It has also clarified that this information was available at the time of investment decision and further also submitted the declaration that it will not avail the accelerated depreciation benefits. Accepted

Acceptance and close out by Lead Assessor: Closed	**Date:** 30/07/2012

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	05	Reference:	EB62, Annex 5

Lead Assessor Comment:

1. The PP is requested to justify the selection of index and time period considered for calculation of market return. Please also clarify that how the calculated benchmark can be considered suitable and comparable to Equity IRR calculated using an assessment period of 20years.
2. It is requested to justify the criteria for selection of companies and Time period considered for beta calculation.
3. It is requested to justify the considered risk free return and how the same is suitable to calculate benchmark comparable to Equity IRR calculated using an assessment period of 20years

Project Participant Response:	**Date:** 20/07/2012

1. Calculation of market return:

a) Selection of Index:

The market returns can be calculated from any of the four indices i.e. BSE-Sensex, BSE 100, BSE 200 and BSE 500 on BSE stock exchange. The broader market indices represent most of the market and thus are reflective of how the whole market is moving. The number of companies representing the index is as follows:

Sr No	INDEX	No of Companies representing the Index
1	BSE-30 (Sensex)	30
2	BSE-100	100
3	BSE-200	200
4	BSE-500	500

The market returns can be calculated from any of the four indices i.e. BSE-sensex, BSE 100, BSE 200 and BSE 500 on BSE stock exchange. The broader market indices represent most of the market and thus should be reflective of how the whole market is moving. BSE 500 is a well diversified equity index in India with representations from large cap as well as mid cap companies. Other equity indices like SENSEX (BSE 30) includes only 30 large cap companies which would not reflect the risks applicable to smaller companies. Accordingly, though BSE-Sensex, BSE 100 and BSE 200 are oldest indices, the BSE 500 has been selected for calculation of market return.

b) Time period used for calculation of market return

Market return has been calculated based on the data from February 1, 1999 (since introduction of the index) to December, 2009 (one month before the decision making period) i.e. approx 11 years data. Ideally one should use historical data pertaining to the longest possible time period to cover all phases of the economy. However, post 1991, the Indian economy is fundamentally different from the past. Similarly post 1995, due to the advent of NSE with electronic trading, the stock market structure has changed significantly. Accordingly, the period used in calculation of market return i.e. 11 years (since introduction of the index), is appropriate for calculation of benchmark.
Thus, the calculated benchmark can be considered suitable and comparable to calculated Equity IRR using an assessment period of 20 years.

2. Time period considered and criteria for selection of companies for beta calculation is justified as follows:

(a) Time period considered for beta calculation

Empirical tests often assume beta is stable for five or more years **(**(a) para 3, page 11, http://web.mit.edu/lewellen/www/Documents/ConditionalCapm.pdf , (b) "Investment Analysis and Portfolio Management" by Prasanna Chandra, 3rd edition, chapter 8, Capital Asset Pricing Model and Arbitrage Pricing Theory, page 257 (c) Financial Management, by I.M. Pandey, 9th edison, chapter 6, Beta Estimation and cost of equity, page no 108**)**.
Hence, five years daily closing share prices of the selected companies and daily closing value of BSE-500 index have been used in calculation of Beta.

(b) Criteria for selection of companies for beta calculation

Beta values of companies with relatively significant investment in power sector (non-renewable energy projects) have been considered for calculation of average beta.
Conventional (thermal) power projects are a more attractive investment option as compared to non-conventional (renewable energy power projects) projects, primarily because of the lower risks that such project activities face as compared to renewable energy projects and in particular wind power projects. Conventional power plants supply firm power, operate on higher Plant Load Factor (PLF) and are not subject to the vagaries of nature as wind power plants. Thus, from the perspective of a private investor, investments in thermal power plants are a safer option.
Accordingly, daily closing share prices of last five years of following companies listed on BSE-500 have been used for beta calculation with relatively significant investment in power sector.

3. Risk free rate:

As per Para 30a of "Tool for the demonstration and assessment of additionality" (Version 06.0.0) "Discount rates and benchmarks shall be derived from government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data". Accordingly, Yield to Maturity (YTM) of Government Securities during 2008-09 has been selected to represent the Government bond rate. YTM is nothing but the internal rate of return earned by an investor who buys the bond today (either in the auction or in the secondary market) assuming that the bond is held until maturity. The government securities are available with different ranges of maturities between 4 years to 30 years having YTM 6.53% to 10.30%. Accordingly weighted average yield of 7.69% has been taken as selected as risk free rate in calculation of RoE. The data has been sourced from table 7.2, page 281 of RBI Annual Report for FY 2008-09, http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/IRAR200809_Full.pdf. Thus, the risk free return selected is suitable to calculate benchmark comparable to calculated Equity IRR using an assessment period of 20 years.

Documentation Provided by Project Participant:

NA

Information Verified by Lead Assessor:

Response and information as provided by the PP

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 20/07/2012

1) Calculation of market return:

- The PP has justified its choice of the index. PP has chosen the BSE 500 based on the broader range it covers as 500 companies. The broader market index covers most of the market and is appropriate approach. However the time period used in the calculation of the market return covers assessment period of 10.92 years only and is not comparable to the project activity Assessment period (20 years). The PP is requested to justify the appropriateness of the same. **Open**

2) Beta calculation:

- The PP has justified the choice of companies and the vintage of the data used in the calculation of Beta. However, the same has not been exactly followed in the Benchmark calculation sheet as the companies having less than 5 years data as specified by the PP are also used in the calculation. **Open**

3) Risk free rate of return:

- It is not clear how the considered risk free return is suitable to calculate benchmark comparable to calculated IRR using an assessment period of 20years. **Open**

Project Participant Response:	**Date:** 27/07/2012

1) The PP had selected BSE-500 index being the broader market index in calculation of Benchmark. However, only approx 11 years data were available to calculate market return. Since, equity IRR is calculated using an assessment period of 20 years, the calculation of benchmark using index data for 20 years would be more appropriate. Hence, the benchmark calculation is revised using the 19 years publicly available data of BSE-200 Index (being next broader market index BSE 500) on BSE website http://www.bseindia.com/. The revised benchmark is calculated considering the market return of 19 years can be considered suitable and comparable to calculated Equity IRR using an assessment period of 20 years.
2) As discussed above, the PP has revised the choice of index in calculation of the market return and thus beta calculation is also revised in accordance with the index. All the power sector companies listed with BSE 200 have been considered and out of them companies having five years data vintage are considered in the average beta calculation. The calculation of average beta is more appropriate since, it is representative of risks faced by power sector as a whole. The justification and the list of power companies with BSE200 is added in the revised Benchmark calculation sheet.
3) The risk free rate is revised as interest rate on 20 years maturity period on government dated securities. The data used is of October 2009 (published in Dec 2009), which was latest available at the time of investment decision.

Documents Provided by Project Participant:

http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/26CT_CSB1209.pdf revised Benchmark calculation sheet	
Information Verified by Lead Assessor:	
Revised Benchmark calculation sheet with BSE 200 as index and beta calculation with companies listed with BSE 200. RBI rate for 20 years maturity period as on month end of Oct2009.	
Reasoning for Not Acceptance or Acceptance and close out	**Date:** 30/07/2012
1) The PP has revised the index to the BSE 200. The index was launch on 1994 with based year of 1989-90 and the data for the same is publically available since 1991. Thus PP has used 19 years data in the calculation of the market return, which is max closed to comparison of 20 years assessment period. Further, PP has chosen the broader index as compared to BSE-Sensex or BSE100. Accepted 2) The Revised Beta calculation has been checked. The PP has considered all the companies listed with BSE200 and consistently used the companies having relatively 5 years data in the calculation. Accepted 3) The PP has revised the risk free rate as 20 years maturity period interest rate as on October 2009. This is latest available and applicable rate at the time of investment decision. Accepted.	
Acceptance and close out by Lead Assessor: Closed	**Date:** 30/07/2012

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	06	Reference:	EB65, Annex 21
Lead Assessor Comment:					
The common practice analysis is not clear. It is not justify how the PP has selected the geographical region for the analysis. Further, some of the web links as provided in the analysis are not working.					
Project Participant Response:				**Date:** 27/07/2012	
1. Common practice analysis As per Para 43 of the "Tool for the demonstration and assessment of additionality", Version 06.0.0, for measures different from those listed in Para 6 of the tool, generic additionality tests shall be conducted as per Para 44 to 46 of the tool. The project activity is Greenfield wind power project and is not covered under measures listed in Para 6 of the tool, hence the common practice analysis is demonstrated as per Para 44 to 46 of the tool through sub-step 4a and 4b. 2. Geographical Region The justification of geographical region is provided in revised PDD. 3. The web links which are not working have been updated in the PDD, version 02.					
Documentation Provided by Project Participant:					
Revised PDD, version 02					
Information Verified by Lead Assessor:					
Revised PDD, version 02 dated 26/07/2012 for common practice analysis					
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** 30/07/2012	
The PP has revised the common practice analysis demonstration in the revised PDD, version 02. The revised demonstration has been performed in line with Para 43, 44 and 46 of the additionality tool, version 06 and the same is found appropriate approach. Further The PP has justified the selected geographical region as well as updated the links in the revised PDD. Accepted. **Reopened: 05/10/2012** PP is requested to clarify, why is not more appropriate option to demonstrate the common practice analysis in accordance with revised guidance published in EB69, annex 8.					
Project Participant Response				**Date:** 15/10/2012	

PP has revised common practice analysis in line with guidance published in EB 69, annex8 and para 47 of additionality tool (Version 6.0.0)
Documents Provided by the Project Participant:
Revised PDD version 03 Common practice analysis sheet
Information Verified by the Lead Assessor:
Revised PDD, version 03 dated 15/10/2012 for revised common practice analysis section Common practice analysis sheet for demonstration
Reasoning for Not acceptance or Acceptance and close out: **Date:** 18/10/2012
The PP has revised the common practice demonstration in line with the EB 69, annex8 and para 47 of additionality tool. The same has been checked and is found appropriate. The project activity is not deemed as common practice. Accepted
Acceptance and close out by Lead Assessor: Closed **Date:** 18/10/2012

Date:	22/06/2012		Raised by:	Assessment Team		
Type:	CL	Number:	07		Reference:	Section C of PDD
Lead Assessor Comment:						
1) The PP has opted for the renewable crediting period. This comes to in total 21 years after 2 renewals. However the lifetime of the project activity WTGs are mentioned as 20 Years. Please clarify. 2) The PDD has considered the import from southern grid also in the calculation of the operating margin. Please clarify the appropriateness of the same.						
Project Participant Response:				**Date:** 27/07/2012		
1) The expected operational life of the WTGs as per specification provided by WTG manufacturer is 20 years. Hence, emission reduction will be claimed up to the lifetime of the project activity. 2) As per step 4 (a) , page 10 of "Tool to calculate the emission factor for an electricity system", Version 02.2.1 "to calculate the operating margin, the subscript *m* refers to the power plants/units delivering electricity to the grid, not including low-cost/must-run power plants/units, *and including electricity imports* to the grid. Electricity imports should be treated as one power plant *m.*" Accordingly, the import from southern grid (connected electricity system) has been considered in calculation of operating margin.						
Documentation Provided by Project Participant:						
NA						
Information Verified by Lead Assessor:						
Response of the PP						
Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 30/07/2012						
1) The PP has clarified that the crediting period of the project activity will be limited to the lifetime of the project. The same can be checked during the future validation of the renewable crediting period. Accepted 2) The PP has justified the consideration of imports in line with the tool. The same is appropriate approach. Accepted Reopened 05/10/2012: The PP has not used conservative approach in grid emission factor calculation. The value of 0.95285 tCO_2/MWh is rounded and reported as 0.9529 tCO_2/MWh. Please clarify						
Project Participant Response **Date:** 15/10/2012						
Grid emission factor is now conservatively revised as 0.9528.						
Documents Provided by Project Participant						
Revised PDD & CER calculation						
Information Verified by Lead Assessor						
Revised PDD version 03 and CER calculation for Grid emission factor correction						
Reasoning for Not Acceptance or Acceptance and close out: **Date:** 18/10/2012						
The PP has corrected its approach and now conservatively rounded down the GEF as 0.9528 tCO2/MWh.						

Accepted.	
Acceptance and close out by Lead Assessor: Closed	**Date:** 18/10/2012

Date:	22/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	08	Reference:	Monitoring

Lead Assessor Comment:

1) It is not clear if there will be check meter at the cluster point and the substation? Please clarify, what will happen in case of faulty main meter.

2) The PP has mentioned the re-calibration frequency of the meter at substation as 3 years. It is requested to clarify the basis for such consideration. Further, the PP has not defined the recalibration frequency of cluster meters.

Project Participant Response:	**Date:** 27/07/2012

1) The project activity involves the two primary metering location points, one at substation and second at the cluster metering point. The electricity supplied by the project activity will be apportioned with help of substation meter and cluster meters. There will be check meter at the substation, which will be used to cross check the main meter reading during the billing. There will not be any check meter at cluster meter site. In case of failure of the substation main meter, the readings from the GETCO substation at Nyara will be considered and on failure of cluster meter, the readings from the LCS meter will be considered.
2) The basis of recalibration frequency has been provided. The recalibration frequency of cluster meters shall be 3 years and the same has been updated in the revised PDD Version 02.

Documentation Provided by Project Participant:

Supporting for calibration frequency
Revised PDD, version 02

Information Verified by Lead Assessor:

Extract of the PPA for the project
Revised PDD, version 02

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 30/07/2012

1) The PP has justified the information regarding check meters at the site. The same will discussed with the O&M agency and site personnel during the site visit. The information provided has been consistently mentioned in the PDD, version 02. Accepted
2) As the PPA for the project activity, the meters will be calibrated during once in 3 years as per the GETCO rule. Accepted

Reopen: 05/10/2012

1) In PDD under section B.7.1, only one parameter is mentioned i.e. "Quantity of net electricity generation supplied by the project plant/unit to the grid in year y", and this parameter is a calculated parameter based on apportioning procedure. Thus, the PP is requested to clarify why the parameters directly measured and used in calculation of the "$\mathbf{EG_{PJ,y}}$ " are not included in the monitoring section? viz. project WTGs gross generation, imports, transmission losses etc. Further please clarify why the LCS data should not be used to cross check the net electricity supplied as the sales receipt would based on the same source of information (i.e. certificate of share of electricity)
2) Please clarify for transparent representation purpose why it is not more appropriate approach to provide a detailed diagram depicting the apportioning procedures showing the other non project activities WTGs and the respective substation with an example of apportioning for a particular month.

Project Participant Response	**Date:** 15/10/2012

1) The meter reading is taken jointly by representative of GEDA/SLDC and representatives of O&M contractor. The parameter such as $EG_{GETCO,Export}$, $EG_{GETCO,\ Import}$, $EG_{Cluster,WF,Export}$, $EG_{Cluster,WF,Import}$ used in calculation of $EG_{PJ,y}$ are not available with project participant and monitored in form of JMR,

which are not available to the PP. Hence, these parameters are not included in section b.7.1. Further, the only data available with PP is $EG_{PJ,y}$ (Net Electricity exported by the project activity to the grid) which is sourced from share certificate issued by State Load Dispatch Centre (SLDC), Gujarat. The LCS generation is available with the PP and now added as monitoring parameter, in order to cross check the net electricity generation. 2) The apportioning procedure is explained through example and detailed diagram in section B.7.2 of revised PDD.
Documents Provided by the Project Participant:
Revised PDD
Information Verified by Lead Assessor:
Revised PDD version 03 dated 15/10/2012 for the corrections made

Reasoning for not Acceptance or Acceptance and close out:	**Date:** 18/10/2012
1) The PP has clarified that it does not get the data for gross export import and other WTG data used in apportioning procedure. The same was checked and confirmed during the site visit and as mentioned by the PP is correct. The PP has added this information and clarified the apportioning procedures in the PDD. Accepted 2) The PP has revised added the apportioning procedure with an example in the PDD. This is transparent and clear representation. Accepted	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 18/10/2012

Date:	22/06/2012		Raised by:	Mr. Mahesh Pandya	
Type:	CAR	Number:	09	Reference:	ISHC comments
Lead Assessor Comment:					
PP is requested to provide its inputs to the following comments raised during ISHC. 1) Please explain location selection criteria. 2) How many skilled/unskilled people from surrounding area were employed at this project during commissioning and operation as mentioned in social well being section? 3) List of stakeholders in stakeholder meeting is not attached with PDD. 4) What would be impact of negative environmental conditions of area upon project? What would be alternatives in that case? 5) What is Complain redress policy of company?					
Project Participant Response:			**Date:** 27/07/2012		
Please find below the response of PP on comments raised during ISHC. 1. The locations have been selected based on locations offered by supplier. The WTG supplier selects the site locations considering technical feasibility and wind potential available at site and offers it to the investors. Based on offer of the Enercon, the site at Lapur was selected by the PP 2. Around 80 to 316 semiskilled/unskilled contractor people mostly local were employed by WTG supplier during commissioning of the project providing employment of approximately 287,101 man hours between April 2011 to March 2012. During the operation stage around 5-10 semiskilled/unskilled contractor people mostly from local are employed by O&M contractor providing employment of approximately 2937 man hours between April 2012 to June 2012. Supporting for the same has been enclosed. 3. The relevant records for stakeholders meeting including list of stakeholders have been submitted to the DOE. 4. Wind is a clean source of energy and there are no negative impacts due to the electricity generation from wind. 5. Appropriate complaint redressal policies are available for different types of stakeholders. For example shareholders' grievances committee reviews shareholder grievances; whistle blower policy seeks to provide a mechanism for the employees to disclose any unethical behaviour, improper practices and wrongful conduct taking place in the company for appropriate action. Refer website of the company http://www.torrentpower.com/ and annual report of the company available on http://www.torrentpower.com/investors/pdfs/2012/tpl-annual-report-11-12.pdf for detailed information.					
Documentation Provided by Project Participant:					

1. Supporting for local persons employed	
Information Verified by Lead Assessor:	
numbers for local persons employed as provided by the EPC contractor Enercon	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 30/07/2012
1) The PP has justified the choice of location accepted 2) The PP has provided the information regarding the local personnel employed/benefited by the project activity. The same was discussed along with EPC contractor and the local stakeholders as consulted during the site visit and found appropriate. Accepted 3) The PP has already provided the identified stakeholders and type of attendees for the meeting the PDD. The attendance list for the meeting has been provided by the PP and is checked. The information provided in the PDD is consistent with the same. Accepted. 4) This is wind power project and there are no negative impacts of the project on environment or any grounds found. Accepted 5) The PP is requested to more specific information regarding its policy related to the general/CDM stakeholder complains. **OPEN**	
Project Participant Response:	**Date:** 21/08/2012
5) At project site representatives of O&M contractor and at least one employee of PP would be available who would supervise day to day operation and maintenance of the project. The local stakeholder can express their concern/complaints locally either to employee of Torrent Power or to representative of O&M contractor at Tebhada Substation. The O&M contractor/employee of Torrent Power would do needful to resolve the complaint. The other complaint redressal policies/procedures are as discussed above.	
Documentation Provided by Project Participant:	
NA	
Information Verified by Lead Assessor:	
Response of the PP	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 25/08/2012
The PP has justified the procedure it would follow and step it would take for the any compliance from the stakeholders. Accepted	
Acceptance and close out by Lead Assessor: Closed	**Date:** 25/08/2012

Date:	22/06/2012		Raised by:	Benjamin franklin	
Type:	CAR	Number:	10	Reference:	ISHC
Lead Assessor Comment:					
PP is requested to provide its inputs to the following comments raised during ISHC. 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. 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 3. Non- debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5. 4. Please check the project boundary of the project activity is not based on the guidance of the applicable project category. 5. Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6 6. The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned in the PDD. 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. 8. Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD 9. All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5. 10. Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not					

demonstrated with justification. Refer B.5.
11. Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5
12. Proof for PLF is not justified.
13. Date of offer is not provided
14. Project cost is not as per state norms. Refer B.5.
15. O&M charges and its escalation is not as per norms
16. IT rate assumed is not as per standard practice.
17. The application of MAT which is based on tax holiday while calculating WACC is not appropriate.
18. The PP has not explained and justified the key assumptions and rationale.
19. The PP and consultant has not Illustrate in a transparent manner all data used to determine the baseline emissions.
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.
21. National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify.
22. Explain and justify all relevant methodological choices for the proposed project activity
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.
24. CER revenue assumed is not consistently applied
25. Project cost is not as per norms, DOE has to check and clarify.
26. The project cost of the project should be based on offer and not on purchase order or tariff order.
27. O&M charges considered are on higher side. Pls. clarify.
28. Benchmark calculation is not as per WACC tool (EB53 Annex 8)
29. Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD.
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.
31. Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD.
32. Date of PPA is not mentioned in the prior consideration of CDM
The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1
34. PP has not provided for each parameter the chosen value or, where relevant, the qualitative information.
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.
36. Explain and justify the choice for the source of data.
37. Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1
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
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
40. The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1
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.
42. The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54).
43. The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3
44. Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1
45. Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2.
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.
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.
48. The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).
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.
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?
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.
52. Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving.
53. The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information.
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 facilities comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.
55. Project Participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity.

Project Participant Response: | **Date:** 27/07/2012

Refer the below table

Sr No	ISHC	Project Participant's Response
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.	The PP has already mentioned the above mentioned details in section A.2 of the web hosted PDD.
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	The PP has included the following lines section A.4.3 of PDD, Version 02, "The technology used in the project activity is environmentally safe and sound and there is no technology transfer to the host party involved."
3	Non-debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5.	The PP would like to state that this is a large scale project activity and hence EB54 Annex 13 (Debundling tool) is not applicable to the project activity at hand.
4	Please check the project boundary of the project activity is not based on the guidance of the applicable project category.	According to the guidance of the methodology ACM0002 Version 12.3.0, "*The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.*" The PP has included the 62 WTGs, the NEWNE Grid and the power plants connected to the NEWNE grid in the project boundary. The edited diagram has been incorporated in the PDD Version 02.
5	Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6	The PP has stated the reasons for choosing option A in step 4 of section B.6.1 of the PDD. The PP has referred to the "Tool to calculate the emission factor for an electricity system" version 02.2.1 to calculate the emission factor of the NEWNE Grid. This tools states that the weighted average CM method (option A) should be used as the preferred option. The simplified CM method (option B) can only be used if:

		• The project activity is located in a Least Developed Country (LDC) or in a country with less than 10 registered CDM projects at the starting date of validation; and • The data requirements for the application of step 5 above cannot be met. India is not a least developed country and more than 10 projects have been registered under CDM mechanism from India. The data required for application of step 5 is available on CEA Database Version 7.0 http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm. Hence option B cannot be applied. Moreover, emission factor calculated using option A is conservative.
6	The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned in the PDD.	As per Para 28 of additionality tool, version 06, PP has identified the post tax equity IRR as most suitable financial indicator for the project activity. The PP has mentioned in the webhosted PDD that it has calculated the post tax equity IRR for demonstrating the additionality of the project activity.
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.	The PP has considered the grid power plants only, and not included the off-grid power plants while computing the emission factor for the project activity. The same is mentioned in step 2, section B.6.1 of the PDD.
8	Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD.	The PP has not chosen the PLR as the benchmark for the project activity. The PP has stated in the webhosted PDD that it has chosen expected return on equity as the benchmark for the project activity.
9	All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5	PP has discussed all the issues of investment analysis as per relevant guidelines in the PDD.
10	Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not demonstrated with justification. Refer B.5.	Justifications for all parameters including O&M, insurance, loan, escalation, and tariff have been adequately demonstrated in section B.5 of the PDD. Moreover, the justifications and evidences for these parameters have been submitted to DoE for validation.
11	Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5.	The proof for the proposed debt to equity ratio has been submitted to DoE for validation.
12	Proof for PLF is not justified.	The PP has submitted the third party consultant report dated 21/03/2011 and proof for PLF considered at the time of decision making to the DOE along with justification.
13	Date of offer is not provided	The PP has mentioned date of offer in PDD Version 02.
14	Project cost is not as per state norms. Refer B.5.	The PP has considered the project cost on the basis of offer received from WTG supplier which is in line with para 6 of EB 62, annex 5. The PP has also intimated to UNFCCC and NCDMA in prior consideration form submitted on 17/09/2011 that while planning to undertake this project activity, the PP faced substantial investment barriers (e.g. due to higher cost of wind power project compared to the costs considered by regulatory authority in determination of tariff). Hence, the normative project cost (i.e project cost considered by state

		regulatory authority) cannot be considered as project cost. Moreover, the PP has also submitted proof for actual project cost to DoE for cross verification and validation.
15	O&M charges and its escalation is not as per norms.	The PP has considered the O&M charges and its escalation on the basis of offer received from Enercon which is in line with para 6 of EB 62, annex 5. Moreover, the PP has also submitted proof for O&M costs to DoE for cross verification and validation.
16	IT rate assumed is not as per standard practice	The corporate tax rate has been considered as 33.99% and the MAT Rate has been considered as 16.995%. Both of these values are as per the Income Tax Act, 1961.
17	The application of MAT which is based on tax holiday while calculating WACC is not appropriate.	For the project activity, the PP has used expected return of equity as the benchmark and the same is mentioned in webhosted PDD. Hence, this question is not applicable.
18	The PP has not explained and justified the key assumptions and rationale.	All the key assumptions have been clearly justified and explained in the webhosted PDD. The supporting and justification for the same have been submitted to the DoE for validation.
19	The PP and consultant has not Illustrate in a transparent manner all data used to determine the baseline emissions.	The PP has clearly explained the steps and calculation of emission reduction in section B.6, and annex 3 of the PDD. The same is in line with guidelines provided in EB 41, Annex 12.
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.	This is a large scale project activity. Hence, options provided under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities are not applicable for the project activity.
21	National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify.	Relevant national and/or sectoral policies and circumstances are considered and listed in section B.4 and B.5 of the PDD.
22	Explain and justify all relevant methodological choices for the proposed project activity.	This is a 49.6 MW Wind based power generation project. The purpose of the project activity is to utilize wind energy for generation of electricity. The project activity will reduce anthropogenic emissions of greenhouse gases (GHG's) in the atmosphere by displacing electricity delivered to the NEWNE grid that would have otherwise been generated by the operation of grid-connected power plants (mainly fossil-fuel based) and by the addition of new generation sources in the grid.
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.	Data that is calculated with equations provided in the methodology or default values specified in the methodology has not been included in compilation.

24	CER revenue assumed is not consistently applied.	The PP has not stated CER revenue in the PDD. The PP has calculated post tax-equity IRR without considering CDM benefit to demonstrate additionality as per the requirement of "Tool for the demonstration and assessment of additionality, version 06.0.0".
25	Project cost is not as per norms, DOE has to check and clarify.	Refer response number 14 above.
26	The project cost of the project should be based on offer and not on purchase order or tariff order.	The project cost is based on offer from Enercon
27	O&M charges considered are on higher side. Pls. Clarify	Refer response number 15 above.
28	Benchmark calculation is not as per WACC tool (EB53 Annex 8).	EB 53 Annex 8 is the Approved Consolidate Methodology ACM 0015 Version 03. Hence, not applicable.
29	Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD.	It has been mentioned in the PDD that the PP has used the post tax equity IRR as the financial indicator for the project activity in section B.5 of the PDD.
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.	The basis for calculation of benchmark is stated in step 2b of section B.5 of the PDD. The expected RoE has been selected by the PP as appropriate benchmark for equity IRR. The PLR has not been selected as benchmark and not mentioned in PDD.
31	Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD.	The prior consideration of CDM is clearly mentioned in section B.5 of the PDD. Moreover, the same has also been provided to DOE for validation.
32	Date of PPA is not mentioned in the prior consideration of CDM.	The date of PPA is not required to be mentioned in the prior consideration of CDM. Further the supportings for prior consideration have been submitted to DOE for validation.
33	The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1.	The same has been justified in step 3 of section B.6.1 of the PDD.
34	PP has not provided for each parameter the chosen value or, where relevant, the qualitative information.	The PP has clearly mentioned each parameter and chosen value including its source and where relevant mentioned qualitative information in the PDD B.6 of the PDD.
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.	The actual value applied is already mentioned in section B.6 of the PDD.
36	Explain and justify the choice for the source of data	The PP has clearly explained and justified the choice for the source of data of each parameter and chosen value including its source and where relevant also mentioned qualitative

		information in the PDD.
37	Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1.	The PP has clearly explained the ex-ante option of calculating OM in step 3 of section B.6.1 of the PDD.
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.	The data that has been sourced from the CEA Database Version 07, http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm. The build margin emission factor in the CEA database is calculated using the guidelines provided by the UNFCCC in the "Tool to calculate the emission factor for an electricity system" version 02.2.1.
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.	The PP has referred to the "Tool to calculate the emission factor for an electricity system" version 02.2.1 to calculate the emission factor of the NEWNE Grid. This tool states that option B can only be used if data for option A is not available. The PP would like to state that it has sourced data from the database of Central Electricity Authority Version 07. PP has clearly mentioned in the PDD that the CEA database uses option A.
40	The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1.	The PP has clearly mentioned the usage of CEA Database version 7 in section B.6.1 of the PDD for build margin emission factor. The CEA database is in itself based on the "*Tool to calculate emission factor for an electricity system*."
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	The calculation of OM, BM and CM has been duly detailed in Annex 3 of the PDD. The PP has submitted the spread sheet to the DOE.
42	The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54).	This is a large scale Project based and applicable methodology is ACM0002, Version 12.3.0 and not AMS 1 D Version 16.0 EB 54. Hence, the same is not applicable for the project activity.
43	The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer	The project activity will supply electricity to the NEWNE Grid and hence, PP has calculated emission factor value of NEWNE Grid.
44	Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1	As per ACM0002, the quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* shall be continuously measured and at least monthly recorded. The electricity is continuously measured through all the meters as prescribed in section B.7.1. and is recorded on monthly basis through the procedure specified in Section B.7.1. The same has been updated in the PDD, Version 02.
45	Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2.	The PP would like to state that the metering system has been detailed in section B.7.1 of the PDD. Further, the Meters located at the sub – station and the cluster meters are sealed and calibrated by the Gujarat Electricity Transmission Corporation Ltd (GETCO) authorities and the system followed is as per the metering regulations of the CEA.
46	Where the values have been	The PP has included the procedures for measured data in

	measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance.	section B.7.1 of the PDD. Further, the description of the roles and responsibilities with regards the individual functions have been detailed in Annex 4 of the PDD as well.
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.	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 has already been provided in section B.7.2 and Annex 4 of the PDD.
48	The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).	The PP has mentioned all the sources from where data has been taken in the relevant sections of the PDD.
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.	The parameter is to be monitored according to guidance provided in ACM0002, Version 12.3.0. The PP has mentioned required details for measurement in section B.7.1 of the PDD.
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?	The accuracy class of the meters, calibration frequency of meters etc. have been mentioned in the PDD. The calibration of Main Meter/s shall be carried out by GETCO and calibration of cluster meter shall be carried out by Enercon India Limited (O&M Contractor). The CDM Reviewer is responsible for ensuring timely calibration of all the required equipments.
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	The PP has provided detailed description of the monitoring plan in section B.7.2 and Annex 4 of the PDD. The monitoring plan also describes the operational and management structure that PP will implement to monitor the emission reduction.
52	Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving	The Roles and responsibilities and institutional arrangements for data collection and archiving have been detailed in section Annex 4 of the PDD.
53	The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background	The relevant further background information is provided in The PP has detailed the Monitoring Plan in section B.7.2 and Annex 4 of the PDD.

	information	
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 facilities comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.	The process by which comments the local stakeholders have been invited and compiled is mentioned in E.1 of the PDD. The details of comments received are described in section E of the PDD.
55	Project Participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity.	The PP has explained the project activity to local stakeholders through presentation on CDM and project. PP has also summarized the response of stakeholders on questionnaire submitted to stakeholders.

Documentation Provided by Project Participant:	
Revised PDD, version 02	
Information Verified by Lead Assessor:	
Response of the PP and revised PDD, version 02 dated 26/07/2012	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 30/07/2012
The PP has justified its stand and responses on the comments raised. All the issues as raised by the stakeholder have been taken care by the PP and validated by the assessment team. Accepted	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 30/07/2012

Date:	06/10/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	11	Reference:	Local stake holder consultation
Lead Assessor Comment:					
Contradiction has been found in the local stakeholder consultation. A summary of the local stakeholder consultation is provided in the PDD, which shows that some of the stakeholders have described the project activity having significant negative impact. However, the PDD, further states that there are no adverse or negative from the project activity. Please clarify the actions taken by the PP for comments received or the inconsistency.					
Project Participant Response:			**Date:** 15/10/2012		
During stakeholders meeting, the PP had obtained feedback from the stakeholders in the form of questionnaire in order to address their concerns. Based on the questionnaire feedback, the response shows that 69% of the stakeholders were having a little knowledge about wind power project. Among them some of the stakeholders having little knowledge about the wind technology had provided the feedback that there may be negative impact on livelihood and land usage due to the project activity. The specific concern was regarding the grazing of cattle as it is important part of the rural livelihood in the concern project area. However, such concerns/questions of the stakeholders were clarified during the stakeholders meeting. The Project Proponent has clarified to the stakeholders that the project activity implementation does not affect the local land usage for cattle grazing activity or other livelihood matters of the local population. The summary of the same is provided in the section E.3 of the PDD. The stakeholders were satisfied with the response and all the concerns were resolved. Thus, it has been reported in the PDD that there are no adverse or negative impacts from the project activity. It is evident from the summary (as provided in the section E.3 of the PDD & to DOE also) that 100% of the stakeholders have supported the construction of project activity and overall there was an agreement that the project activity contributes towards sustainable development.					

Documentation Provided by Project Participant:	
List of local stake holders	
Information Verified by Lead Assessor:	
Response of the PP Attendance sheet for local stakeholder, minutes of the meeting and feedback questionnaire Interview with local stake holder	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 18/10/2012
The PP has clarified the issue or the observed comment. Some local stakeholder had shown concerns regarding the effect of project activity on local cattle land grazing activity as it have impact on local livelihood and land usage. The same was clarified by the PP during the meeting as it the project activity does not affect the local cattle land grazing and it can still used for the same. The minutes of meeting and summary provided in the PDD have been checked and are found appropriate with the response of the PP. Further one of the local stakeholders Mr. Rahul Mistry, who has raised this comment, was telephonically interviewed by the assessment team. It is confirmed that the concerns were resolved by the PP and stakeholders were satisfied. The assessment team had further interviewed other stakeholders during the site visit and no adverse comments were found. It has been observed from minutes of meetings and interviews that all the stake holders have supported the construction of project activity and overall there was an agreement that the project activity contributes towards sustainable development. Accepted	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 18/10/2012

A.4 Annex 4: Team Members Statements of Competency

Name: Harsh Raval

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s*): TA 1.2 Energy generation from renewable energy sources*	
2. Energy Distribution	
Technical Area(s*):*	
3. Energy Demand	
Technical Area(s*):*	
4. Manufacturing	
Technical Area(s*):*	
5. Chemical Industry	
Technical Area(s*):*	
6. Construction	
Technical Area(s*):*	
7. Transport	
Technical Area(s*):*	
8. Mining/Mineral Production	
Technical Area(s*):*	
9. Metal Production	
Technical Area(s*):*	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s*):*	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s*):*	
12. Solvent Use	
Technical Area(s*):*	
13. Waste Handling and Disposal	
Technical Area(s*):*	
14. Afforestation and Reforestation	
Technical Area(s*):*	
15. Agriculture	
Technical Area(s*):*	

Approved Member of Staff by: Siddharth Yadav Date: 17/07/2012

Name: Anshul Sharma

Status

-	Lead Assessor	x	-	Expert	
-	Assessor	x	-	Financial Expert	x
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Technical Area(s*):*

2. Energy Distribution
Technical Area(s*):*

3. Energy Demand
Technical Area(s*):*

4. Manufacturing
Technical Area(s*):*

5. Chemical Industry
Technical Area(s*):*

6. Construction
Technical Area(s*):*

7. Transport
Technical Area(s*):*

8. Mining/Mineral Production
Technical Area(s*):*

9. Metal Production
Technical Area(s*):*

10. Fugitive Emissions from Fuels (solid, oil and gas)
Technical Area(s*):*

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Technical Area(s*):*

12. Solvent Use
Technical Area(s*):*

13. Waste Handling and Disposal
Technical Area(s*):*

14. Afforestation and Reforestation
Technical Area(s*):*

15. Agriculture
Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 07/03/2012

Name: NAYAN JYOTI DEKA

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s*):*	
TA 1.1 Thermal energy generation from fossil fuels and biomass	
TA 1.2 Energy generation from renewable energy sources	
2. Energy Distribution	
Technical Area(s*):*	
3. Energy Demand	
Technical Area(s*):*	
4. Manufacturing	
Technical Area(s*):*	
5. Chemical Industry	
Technical Area(s*):*	
6. Construction	
Technical Area(s*):*	
7. Transport	
Technical Area(s*):*	
8. Mining/Mineral Production	
Technical Area(s*):*	
9. Metal Production	
Technical Area(s*):*	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s*):*	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s*):*	
12. Solvent Use	
Technical Area(s*):*	
13. Waste Handling and Disposal	
Technical Area(s*):*	
14. Afforestation and Reforestation	
Technical Area(s*):*	
15. Agriculture	
Technical Area(s*):*	

Approved Member of Staff by: Siddharth Yadav Date: 20/07/2012