Validation Report

Report for:

ReNew Wind Energy (Rajkot) Private Limited (RNWERPL)

Validation of CDM project for

Wind Power Project at Rajkot, Gujarat

LRQA Reference	:	CDM-MUM-0061857 Version 05
Date	:	06/11/2012
Work carried out by	:	Ajesh Kumar Arnab Deb
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LRQA Business Assurance

Contents

1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by ReNew Wind Energy (Rajkot) Private Limited, the project participants (PP), to undertake validation of the proposed project activity "Wind Power Project at Rajkot, Gujarat". The validation has been performed through a process of document review based on the project design document, Version 01 dated 02/03/2012 initially submitted for validation and the subsequent revisions, follow-up interviews with the stakeholders, resolution of outstanding issues and issuance of the validation report.

The project activity is a 25.2 MW wind power project involving 12 WTGs of 2.1 MW capacity each. The WTGs are of model S-88 supplied by Suzlon Energy Limited. The project activity is located in Rajkot district of the state of Gujarat, India. The purpose of the project activity is to generate electricity from wind energy, which is a renewable source, and export it to the integrated Northern, Eastern, Western and North-Eastern (NEWNE) grid. The generated electricity will displace equivalent electricity from the NEWNE grid which is primarily fed by fossil fuel sources and thus help in the reduction of GHG emissions.

The fulfilment of the requirements as set forth in Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC), the modalities and procedures for a CDM (CDM M&P) and relevant decisions of the Conference of the Parties, serving as meeting of the Parties to the Kyoto Protocol (COP/MOP) and the Executive Board of the CDM (CDM-EB) have been evaluated and conformance to the validation requirements were confirmed based on the given information. A risk based approach was taken to conduct the validation and corrective action requests (CARs) and clarifications (CLs) were raised for relevant actions by the PP.

The validation team has found through the validation process 7 CARs and 1 CL. The PP has taken actions and submitted to LRQA a revised project design document and the supporting evidence. The validation team is of the opinion that the proposed project activity as described in the project design document Version 6.0 dated 22/10/2012 meets all the relevant UNFCCC requirements for the CDM, as well as the host country's national requirements and if implemented as designed, is likely to achieve the emission reductions and contribute to the sustainable development of the host country. LRQA therefore requests the registration of "Wind Power Project at Rajkot, Gujarat" to the CDM Executive Board as a CDM project activity.

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Abbreviations

ABT	Availability Based Tariff
BE	Baseline emission
BMR	Board Meeting Resolution
CARs	Corrective action requests
CDM	Clean development mechanism
CDM-EB	Executive board of clean development mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CDM VVS	CDM Validation and Verification Standard
CEA	Central Electricity Authority
CERs	Certified emission reductions
CLs	Clarification requests
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
CPA	Common Practice Analysis
DNA	Designated national authority
DOE	Designated operational entity
EF	Emission factor
EIA	Environmental impacts assessment
ERPA	Emissions reduction purchase agreement
FAR	Forward action requests
GBI	Generation Based Incentive
GEDA	Gujarat Energy Development Agency
GETCO	Gujarat Electricity Transmission Corporation Limited
GUVNL	Gujarat Urja Vikas Nigam Limited
GERC	Gujarat Electricity Regulatory Commission
GMT	Greenwich Mean Time
GHG	Greenhouse gas
GWh	Giga watt hour
GPS	Global Positioning System
GSP	Global stakeholders' consultation process
IPCC	Intergovernmental panel on climate change
IRR	Internal rate of return
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
kW / kWh	Kilowatt / Kilowatt hour
LE	Leakage emissions
LoA	Letter of approval
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
MNRE	Ministry of New and Renewable Energy
MoEF	Ministry of Environment and Forest
MW / MWh	Mega watt / Mega watt hour
NCV	Net calorific value
NEWNE	Northern Eastern Western and North-Eastern
NGO	Non governmental organisation
NCDMA	National Clean Development Mechanism Authority
ODA	Official development aid
OA	Open Access
PDD	Project design document
PE	Project emissions
PP	Project participant
PPA	Power Purchase Agreement

PLF	Plant Load Factor
PSA	Power Sale Agreement
RBI	Reserve Bank of India
ROE	Return of Equity
SBI	State Bank of India
SPV	Special Purpose Vehicle
SLDC	State Load Dispatch Centre
tCO_2e	Tonnes of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
WPI	Wholesale Price Index
WTG	Wind Turbine Generator

2 Introduction

The project participant (PP) ReNew Wind Energy (Rajkot) Private Limited has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake validation of the proposed project activity "Wind Power Project at Rajkot, Gujarat". This report summarises the findings of the validation process that has been conducted on the validation requirements of the CDM.

The validation has been undertaken by the team formed of the qualified personnel of LRQA as follows:

Names	LRQA entities	Role
Ajesh Kumar	LRQA India	Team Leader GHG Lead Validator Sector Expert
Arnab Deb	LRQA India	Team Member GHG Validator
Ankush Jain	LRQA India	Technical Reviewer Sector Expert
Andrew Ritchie	LRQA Ltd.	Decision Maker

Personnel being engaged in a CDM project validation are qualified based on the established procedures of LRQA to assure the resource requirements satisfy all the requirements of competence criteria for an AE/DOE under CDM (CDM-Accreditation Standard version 04). LRQA is designated as an operational entity and holds the full responsibility of decision-making regarding the validation, in line with the accreditation requirements of the CDM-EB. The certificate of appointment of the team personnel is attached to this report.

2.1 Objective

Validation is the process of an independent third party evaluation of a project activity on the basis of the PDD, against the requirements of the CDM as set out in Article 12 of the Kyoto Protocol, the CDM M&P, subsequent decisions made by the COP/MOP and CDM-EB, and other rules applicable to the proposed project activity including the host country's legislation and its specific requirements for sustainable development. The validation follows the requirements of the current version of the CDM validation and verification standard (CDM VVS Version 02.0) and the CDM Project Standards (PS Version 01.0) to ensure the quality and consistency of the validation work and the report.

2.2 Scope

The scope of validation is an independent and objective review of the project design. Review of the PDD is conducted against the requirements of the Kyoto Protocol, the CDM M&P and relevant decisions of the COP/MOP and the CDM-EB. LRQA follows a risk-based approach in the validation focusing on the identification of significant risks for project implementation and generation of CERs. Validation is not meant to provide any consulting towards the PP, however, the corrective actions requests (CARs) and clarifications (CLs) might provide input for improvement of the project design. A

validation conclusion shall become final subject to the decision maker's review by LRQA Ltd.

2.3 GHG Project Description

The project activity is a 25.2 MW wind power project involving 12 WTGs of 2.1 MW capacity each. The WTGs are of model S-88 supplied by Suzlon Energy Limited. The project activity is located in Rajkot district of the state of Gujarat, India. The purpose of the project activity is to generate electricity from wind energy, which is a renewable source, and export it to the North East West North-East (NEWNE) grid. The generated electricity will displace equivalent electricity from the NEWNE grid which is primarily fed by fossil fuel sources and thus help in the reduction of GHG emissions.

The geographical location and co-ordinates of the project activity WTGs are as below.

Location No.	Village/Taluka/District/State	Geographical Coordinates	
		Latitude(N)	Longitude(E)
G 034	Godladhar/Jasdan/Rajkot/Gujarat	22˚ 02' 39.2 "	71˚ 18' 58.5 "
G 036	Godladhar/Jasdan/Rajkot/Gujarat	22˚ 03' 01.8 "	71˚ 18' 08.2 "
G 037	Madhavipur/Jasdan/Rajkot/Gujarat	22˚ 03' 33.6 "	71˚ 18' 01.5 "
G 038	Godladhar/Jasdan/Rajkot/Gujarat	22˚ 02' 52.1 "	71˚ 18' 58.9 "
G 039	Godladhar/Jasdan/Rajkot/Gujarat	22˚ 03' 14.8 "	71˚ 18' 45.6 "
G 041	Madhavipur/Jasdan/Rajkot/Gujarat	22˚ 03' 47.3 "	71˚ 17' 49.0 "
G 042	Madhavipur/Jasdan/Rajkot/Gujarat	22˚ 03' 45.5 "	71˚ 18' 10.6 "
G 046	Kalasar /Jasdan/Rajkot/Gujarat	22˚ 05' 06.0 "	71˚ 16' 42.6 "
G 055	Devpara /Jasdan/Rajkot/Gujarat	22˚ 06' 04.6 "	71˚ 14' 19.7 "
G 056	Devpara /Jasdan/Rajkot/Gujarat	22˚ 06' 18.1 "	71˚ 14' 15.1 "
G 068	Madava /Jasdan/Rajkot/Gujarat	22˚ 08' 36.6 "	71˚ 14' 06.0 "
G 112	Kalasar/Jasdan/Rajkot/Gujarat	22˚ 04' 54.0 "	71˚ 16' 18.0 "

The validation team confirms that the Wind Turbine Generator (WTG) of Suzlon S-88 make, supplied by Suzlon Energy Limited, have a capacity of 2.1MW and are based on a proven technology[1] used elsewhere in the host country for electricity generation using wind energy.

The project activity is categorised in the sectoral scope 1- Energy Industries (renewable/non renewable sources).

The estimated GHG emission reductions are 48,338 tCO_2e per annum during the first crediting period of 7 years. The emission reduction has been estimated based on the ex-ante Plant Load Factor (PLF) estimated by the third party consultant AWS True Power LLC.

3 Methodology

3.1 Review of documents

The validation is performed primarily based on the review of the project design document (PDD) and the other supporting documentation.

[1] The Suzlon Energy Limited S -88 WTG technology is well known and proven in the wind power industry refer link below http://www.cwet.tn.nic.in/Docu/RLMM_List_01_2011.pdf

The PDD Version 01 dated 02/03/2012 was initially reviewed. LRQA requested the PP to present supporting information and documents relating to the project design and such additional information and documents were also reviewed by LRQA.

Through the process of the validation, the PDD and the supporting documents of the same were evaluated to confirm the actions taken by the PP to the CARs and CL issued by LRQA. The documents reviewed by LRQA are listed in Appendix B. LRQA reviewed the final version of the PDD version 6.0 dated 22/10/2012 to confirm that all changes agreed had been incorporated.

3.2 Site Visit and Follow-up interviews

A site visit and follow-up interviews with the stakeholders were conducted as detailed in the schedule as below:

Date	Location/ Address	Party Interviewed	Subjects Covered	Team Members on Site
11/04/2012	Project Site at villages Godladha, Madhavipur, Kalasar, Devpara, Madava, Rajkot district , Gujarat.	Representatives from Technology supplier	1. Selection of technology 2. Project boundary issues 3. Projects contribution to sustainable development 4. Performance of WTGs (Power generation, grid availability, PLF, Machine availability, losses etc.) 5. Physical identification of WTG based on unique identification number 6. Procedures for monitoring & reporting, QA/QC systems, system of training people. 7. Legal requirements including consents and approvals necessary for the project. 8. Electricity metering provision (Joint meter reading, if any), Calibration schedule of meters 9. Institutional arrangement of data collection and archiving 10. Record keeping – daily production report, operation log	Ajesh Kumar Arnab Deb

			11. Provisions for internal audits 12. Emergency preparedness	
11/04/2012	Project Site at villages Godladha, Madhavipur, Kalasar, Devpara Rajkot district, Gujarat.	Local stakeholders and PP representatives	1. Discussion on local stakeholder consultation process, land ownership, land sale deeds, transaction procedures 2. Intimation process for the meeting to local stakeholders' 3. Representation by stakeholders in stakeholders' consultation meeting 4. Minutes of meeting – Comments, action taken 5. Employment of local skilled and unskilled people 6. Views on the project activity 7. Any other issues of stakeholders' 8. Discussion on environmental impact assessment of the project if any	Ajesh Kumar Arnab Deb
12/04/2012 13/04/2012	Office of PP at 25, Dady Seth Road Aurum House, Mumbai	PP representatives & Consultant representative.	1. Investment and sensitivity analysis 2. Benchmark selection 3. Monitoring plan 4. Selection of site 5. Consideration of CDM revenues 6. Decision making process 7. Funding for project activity 8. Stakeholders' consultation related discussions	Ajesh Kumar Arnab Deb

A full list of persons interviewed is shown in Appendix C.

For details of all the findings of the desk review and site visit, please refer to the Validation Protocol and Findings in Appendix F.

3.3 Resolution of clarification and corrective action requests

LRQA applies the risk based approach aimed at focusing on high risk issues to the validation results while not omitting any part of the mandatory processes.

Findings identified in the process are indicated under the titles corrective action requests (CARs) and clarification requests (CLs) and forward action requests (FARs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective action request (CAR):

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

Clarification request (CL):

- Information is insufficient or not sufficiently clear to determine whether the applicable CDM requirements have been met.

FARs are to be raised to highlight issues related to project implementation that require review during the first verification of the project activity. FARs do not relate to CDM requirements for registration.

CARs and CLs are to be resolved or closed out if the PP modifies the project design, rectifies the PDD or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for registration to the CDM Executive Board.

For details of the nature of the issues raised, the nature of the responses provided the means of validation of such responses and the resulting changes in the PDD or supporting annexes please refer to the Validation Protocol and Findings in appendix F.

3.4 Internal quality control

A technical review by a qualified person independent from the validation team and a review by an authorised decision maker were conducted before the submission of the validation report to the PP and before requesting the registration of the project activity.

4 Validation protocol and conclusions

This section provides an overview of the validation activities undertaken by LRQA in order to arrive at the final validation conclusions and opinion. It includes general conclusions based on the Clean Development Mechanism Validation and Verification Standard (VVS) version 02.0. Further details in relation to each element of the protocol and each finding are shown in the Validation Protocol and Findings – Appendix F.

The protocol is structured based on the main validation requirements as follows:

- Approval by the Parties involved
- Participation requirements
- Project design document
- Project description
- Baseline and monitoring methodology
  - Applicability of the selected methodology
  - Project boundary
  - Baseline identification

  - Algorithms and/or formula used to determine emission reductions
- Additionality of a project activity
  - Prior consideration of the CDM
  - Identification of alternatives
  - Investment analysis
  - Barrier analysis
  - Common practice analysis
- Monitoring plan
- Local stakeholder consultation
- Environmental impacts.

4.1 Approval

A CDM project shall be approved by the Parties involved.

The host Party of the proposed project is India. India ratified the Kyoto Protocol on 26/08/2002. The Designated National Authority (DNA) is National Clean Development Mechanism Authority (NCDMA) established in the Ministry of Environment and Forests (MoEF), Government of India. A letter of approval from the host country, reference number 4/12/2012-CCC dated 10/10/2012 has been received. This letter of approval confirms the contribution of the project activity "Wind Power Project at Rajkot, Gujarat" to the sustainable development of India.

The project has currently been proposed as a unilateral CDM project and the Annex I Party has not yet been identified. In line with the provision of paragraph 57 of the 18th meeting of the CDM-EB, registration of a project activity can take place without an Annex I party being involved at the stage of registration.

For details relating to this section, please refer to the Validation Protocol in Appendix F.

4.2 Participation requirements

ReNew Wind Energy (Rajkot) Private Limited is a private entity having its registered office in India.

The contact details of the PPs are correctly provided in Annex 1 of the PDD.

Participation in the project activity of the PP has been authorised, as confirmed in the LoA issued by the DNAs of the Parties concerned. The team confirmed that no entities other than the authorised entities are indicated as project participants in the PDD.

For details relating to this section, please refer to the Validation Protocol in Appendix F

4.3 Project design document

The PDD was checked and confirmed as complete against the Guidelines for completing the project design document form version 01.0 EB 66 report Annex 8 referring to the latest version applicable to the validation

A valid form of the CDM-PDD under CDM VVS track is used that is the current form as available on the CDM website.

For details relating to this section, please refer to the Validation Protocol in Appendix F.

4.4 Project description

The project activity is a 25.2 MW wind power project involving 12 WTGs of 2.1 MW capacity each The WTGs are of model S-88 supplied by Suzlon Energy Limited. The project activity is located in Rajkot district of the state of Gujarat, India. The purpose of the project activity is to generate electricity from wind energy, which is a renewable source, and export it to the North East West North-East (NEWNE) grid. The generated electricity will displace equivalent electricity from the NEWNE grid which is primarily fed by fossil fuel sources and thus help in the reduction of GHG emissions.

The site locations have been confirmed through the site visit interaction and review of site-plan during site visit. Further, the area geo-coordinates were confirmed using a hand held GPS reader by the validation team.

The estimated GHG emission reductions are 48,338 tCO_2e per annum during the first crediting period of 7 years. The project activity is categorised in the sectoral scope 1- Energy Industries (renewable/non renewable sources).

LRQA confirms that the project description included in the PDD is accurate and complete. This description provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.

The project description was validated by document review including offer letter from technology supplier Suzlon Energy Limited, Purchase order, GEDA approval letter for site development, WTG commissioning certificate, interview, and the on-site visit.

Sustainable development

The host Party's DNA confirmed the contribution of the project activity to the sustainable development of the host Party.

For details relating to this section, please refer to the Validation Protocol in Appendix F.

4.5 Baseline and monitoring methodology

Applicability of the selected methodology to the project activity

The project activity applied the approved baseline and monitoring methodologies:

ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". ACM0002 Version 12.3.0 is valid from 17/09/2010 to 10/05/2012. Requests for registration can be submitted until 11/01/2013; 23:59:59 Greenwich Mean Time (GMT).

LRQA confirms that the selected methodology is applicable to this project activity. The project applicability was confirmed against each condition in the approved methodology selected. Appendix F includes the list of each applicability condition, the steps taken to validate each one and the conclusions about its applicability to the proposed project activity.

For details relating to this section, please refer to the Validation Protocol in Appendix F.

Project boundary

The project boundary has been validated through documentation review on Gujarat Energy Development Agency wind farm setting up permission as referenced in Appendix B, interview and field survey that included physical site verification,

verification of electricity evacuation feeder configuration and site WTGs commissioning report by GEDA. This information was substantiated further via cross-checking with CO_2 baseline database Version 7.0 which was the latest version available at the time of submission of the PDD for validation to the DOE. Through the processes undertaken, the validation team confirmed that the identified project boundary, the selected sources and the gases were justified for the project activity and they meet the requirements of the approved methodology.

For details of whether any discrepancy was identified, and the processes undertaken, for example, issued CAR or requested clarification of, revision to or deviation from the approved methodology for approval by the CDM-EB before completion of the validation, please refer to the Validation Protocol in Appendix F.

Baseline identification

The baseline scenario identified in the PDD has been assessed against the requirements in the approved methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 12.3.0. LRQA can confirm that the procedure included in this methodology to identify the most reasonable baseline scenario, has been correctly applied.

The steps taken to assess the baseline identification are described in the Validation protocol in Appendix F.

LRQA confirms that:

- All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- 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.

Algorithms and/or formula used to determine emission reductions

LRQA has confirmed that the steps taken and the equations applied to calculate baseline emissions and emission reductions comply with the requirements of the approved methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 12.3.0. The steps taken to assess the algorithms and/or formula used to determine emission reductions are described in the Validation protocol in Appendix F.

LRQA confirms that:

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

4.6 Additionality of a project activity

The project additionality was demonstrated by the PP using the "Tool for demonstration and assessment of Additionality" Version 06.0.0. The PP has presented the financial unattractiveness of the project activity through investment analysis for which the PP has used benchmark analysis. The PP has chosen equity IRR as a financial indicator, the equity IRR has been compared with an appropriate benchmark, as per the Guidelines on the assessment of investment analysis, Version 05, Paragraph 12, Annex 5, EB 62. The required/expected return on equity was determined by using the default value provided in group -1 of appendix of EB 62 for the host country. Further, as per Paragraph 7 of the appendix, this default real value was converted to nominal term value using the long term inflation forecast of the central bank of the host country for the duration of crediting period.

Prior consideration of CDM

The start date for the project activity is 26/08/2011, the earliest date on which the purchase order was issued by ReNew Wind Energy (Rajkot) Private Limited to the technology supplier (Suzlon Energy Limited) and thereby the PP has committed to expenditures related to implementation of the project.

LRQA has validated the start date in accordance with Glossary of CDM terms Version 06, through the review of the purchase order between the technology supplier and the PP and interview with the senior management of the PP.

The project activity started after 02/08/2008. The PP has informed the Host Party designated national authority (DNA) and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. Such notification was made to UNFCCC secretariat and NCDMA on 7/11/2011 and 9/11/2011 respectively, which is within six month of start date, hence meeting the requirement of prior consideration guideline. Through the process of validation, LRQA confirms that the proposed project activity complies with the requirement of the Guidelines on the demonstration and assessment of prior consideration of the CDM Version 04.

The steps taken to assess the prior serious consideration of the CDM are described in the Validation protocol in Appendix F.

Identification of alternatives

The list in the Validation Protocol – Appendix F section 6.b, shows the alternatives given in the PDD, and clearly states how LRQA has validated whether these alternatives are credible and complete.

It is the opinion of LRQA that the list of alternatives provided in the PDD are credible and complete considering the technology and circumstances of the proposed Project activity as well as the investor's business.

Investment analysis

The Investment analysis option has been used to demonstrate the additionality of the proposed project activity. LRQA confirms that the PDD provides evidence that this project activity would not be economically or financially feasible, without the revenue from the sale of CERs.

The PP has shown that the project activity is additional by demonstrating that the financial returns of the proposed CDM project activity would be insufficient to justify the required investment.

For assessing the additionality of this project activity LRQA has complied with the

latest version of the "Guidelines 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 PP had presented the unprotected spreadsheet versions of the investment analysis, having readable formulae. LRQA could confirm that the investment analysis is presented in a transparent manner, to the extent that the reader can reproduce the results. The equity IRR has been calculated as 7.28%, which is appropriate at the time of decision making. The benchmark for the project has been calculated as 17.78% using default value provided in group -1 of appendix of EB 62 for the host country India and paragraph 7 of the appendix. The benchmark presented above is in nominal terms. This was done using the long term inflation forecast of the central bank of the host country for the duration of crediting period.

The investment analysis presented for 25.2 MW considers the Input values applicable at the time of decision making.

For details about the validation of the parameters used in the financial calculations and assessment of the benchmark applied, please refer to the Validation protocol in Appendix F.

LRQA confirms that the underlying assumptions for the investment analysis are appropriate and that the financial calculations are correct.

Common practice analysis

LRQA confirms that the proposed CDM project activity is not widely observed and commonly carried out in the state of Gujarat and in the host country, India.

For details about the validation of the geographical scope, the assessment of the existence of similar projects and also the assessment of the essential distinctions between the proposed project activity and any similar projects, please refer to the Validation protocol in Appendix F.

4.7 Monitoring Plan

The PDD includes a Monitoring Plan based on the approved monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 12.3.0, valid from 17/09/2010 to 10/05/2012. However, projects applying ACM0002 Version 12.3.0 can be submitted for requests for registration until 11/01/2013 23:59:59 GMT.

LRQA confirms that the Monitoring Plan described in the PDD complies with the requirements in the Monitoring Methodology and that the PP will be able to apply this Monitoring Plan, following the monitoring arrangements described in it.

For details about the validation of the Monitoring Plan, please refer to the Validation protocol in Appendix F.

4.8 Local stakeholder consultation

The PP invited the local stakeholders to comment on the proposed project activity on the 23/11/2011 before the publication of the PDD on the UNFCCC website. An invitation letter was delivered to the identified stakeholders personally by the PP representative. The local stakeholder consultation meeting was held at ReNew Substation at village Parawade; site Jasdan, in the state of Gujarat. About 20 people attended this meeting as per the minutes of the meeting.

LRQA confirms that the stakeholder consultation process targeted stakeholders and was appropriate for identifying stakeholders' opinions about the project and collecting their views.

For details about the steps taken to assess the adequacy of the Stakeholder consultation, please refer to the Validation protocol in Appendix F.

4.9 Environmental impacts

LRQA has confirmed that as per the host country regulations the project activity does not require an Environmental Impact Assessment (EIA) to be conducted.

For details about this, please refer to the Validation protocol in Appendix F.

4.10 Summary of Changes

Significant changes made to the original PDD published for Global Stakeholder Consultation Process are summarised below. The PDD Version 01 dated 02/03/2012 was modified and several changes occurred due to the result of validation process. The PDD Version 6.0 dated 22/10/2012 includes all these changes.

For details about the results of the responses to CARs and CLs, discussions on revisions to project documentation and the detailed changes to the PDD coming from the validation process, please refer to the Validation Findings Log in the Validation Protocol in Appendix F.

1. Change in IRR from 7.19% to 7.28% and Benchmark value from 17.65% to 17.78%. (Refer to closure of CAR04 & CAR05).
2. Details of LoA updated in section F of revised PDD.
3. Change in emission reduction from 48,342 tCO_2e/year to 48,338 tCO_2e/year (Refer to closure of CAR03).
4. Revision to monitoring plan wherein the apportioning logic is clearly described (Refer to closure of CAR07).
5. Change in Common Practice analysis (Refer to closure of CAR06).
6. Change in PDD format from CDM-PDD form Version 03 (VVM track) to F-CDM-PDD Version 04.1 (VVS track).
7. Section A.3 of the PDD revised to incorporate details related to PLF, WTG model number and the design life of the project activity. (Refer to closure of CAR02).
8. Change in project boundary schematic to represent all the power plants connected physically to the grid.

5 Comments by parties, stakeholders and NGOs

In line with the requirement of the Procedures for Processing and Reporting on Validation of CDM project activities, the PDD is to be made publicly available for 30 days subject to confidentiality provisions agreed with the PP, to enable comments to be received from Parties, stakeholders, and UNFCCC accredited NGOs on the validation and registration requirements.

The PDD was made publicly available in line with the requirements of the procedure for the period of 06/03/2012 to 04/04/2012 as per

http://cdm.unfccc.int/Projects/Validation/DB/H5XBG0BJF3XDLLC0H40QNO9CDY7WK1/view.html

No comments were received during the period.

6 Validation Opinion

LRQA has undertaken the validation of the proposed project activity "Wind Power Project at Rajkot, Gujarat" based on the requirements of CDM as set out in Article 12 of the Kyoto Protocol, the CDM M&P, the present annex, subsequent decisions made by the COP/MOP and CDM-EB, and the other rules applicable to the proposed project activity including the host country's legislation and its specific requirements for sustainable development.

The project activity is a 25.2 MW wind power project involving 12 WTGs of 2.1 MW capacity each. The WTGs are of model S-88 supplied by Suzlon Energy Limited. The project activity is located at Rajkot district in the state of Gujarat, India. The purpose of the project activity is to generate electricity from wind energy, which is a renewable source, and export it to the Northern Eastern Western and North-Eastern (NEWNE) grid. The generated electricity will displace equivalent electricity from the NEWNE grid which is primarily fed by fossil fuel sources and thus help in the reduction of GHG emissions.

In order to arrive at the final validation conclusions and opinion, LRQA carried out review of project documents, assessment of compliance with and application of the approved baseline and monitoring methodology as well as the approved methodological tools, field survey, physical on site assessment of the project site and interviewing the local stakeholders. There was no project component or issues excluded from the validation

Through the validation process, the validation team identified 7 CARs and 1 CL. The PP has taken action on the raised issues and submitted to LRQA the revised PDD and other supporting evidence. LRQA reviewed the response and actions taken by the PP, and all the findings were closed through the process.

The validation team is of the opinion that the proposed project activity conforms to all the relevant UNFCCC requirements for the CDM as well as the host country's national requirements, and if implemented as designed, is likely to achieve the validated emission reductions of 48,338 tCO_2e and contribute to the sustainable development of the host country. Therefore LRQA requests the registration of "Wind Power Project at Rajkot, Gujarat" to the CDM Executive Board as a CDM project activity.

Decision Maker

Andrew Ritchie

Climate Change Services Manager

6th November 2012

7 Appendices

7.1 Appendix A: Letter of approval for the project by the host and investing country DNA

Letter of Approval from the Ministry of Environment and Forests (MoEF), Government of India (Host Country DNA) No.4/12/2012-CCC dated 10/10/2012.

7.2 Appendix B: List of documents reviewed

Category A documents (documents prepared by the PP)

1.	Project Design Document Version 01 dated 02/03/2011, Version 02 dated16/05/2012, Version 03 dated 05/06/2012, Version 4.0 dated16/07/2012, Version 5.0 dated19/07/2012 & Version 6.0 dated 22/10/2012.
2.	Combined Investment analysis & ER spreadsheet Version 1 dated 02/03/2012,Version 2 dated 16/05/2012,Version 3 dated 08/06/2012,Version 4 dated 06/07/2012, Version 5 dated19/07/2012 and Version 6 dated14/09/2012
3.	Common Practice Analysis spreadsheet File name: Common practice analysis_ Rajkot
4.	Certificate of incorporation issued by Registrar of company given at Delhi for ReNew Wind Energy(Rajkot) private limited dated 25/08/2011
5.	WTG Offer letter dated 07/06/2011fromSuzlon Energy Limited.
6.	Board approval for the project activity dated 10/08/2011
7.	Note on Power sales option for the proposed 25.2MW project dated 08/08/2011
8.	Purchase order reference/SEL/Po/001/2011-12 dated 26/08/2011 from ReNew Wind Energy (Rajkot) private limited.
9.	Prior consideration F-CDM-Form dated 07/11/2011
10.	Prior consideration intimation to UNFCCC dated 07/11/2011 & NCDMA dated 09/11/2011
11.	Invitation letters dated 02/11/2011 to stakeholders for local stakeholder meeting to be conducted on 23/11/2011
12.	Stakeholders consultation process minutes dated23/11/2011
13.	Wind Assessment report by AWS Truepower LLC Dated 05/08/2011
14.	GEDA approval for WTG farm ref: GEDA/PWF/SGWPL-RWEPL/Jasdan/12-3/474 dated 22/03/2012
15.	Commissioning cert issued by GEDA, Ref:GEDA/PWF/SGWPL-RWEPL/Jasdan/12-3/1013 dated11/06/2012 for 1x2.1MW WTG and Ref:GEDA/PWF/SGWPL-RWEPL/Jasdan/12-3/255 dated 26/04/2012 for 11x2.1MW WTG
16.	Tariff order No.1 of 2010 dated 30/01/2010 by Gujarat Electricity Regulatory commission
17.	No ODA deceleration from PP dated 07/03/2012
18.	Note on determination of Open Access Tariff by General Carbon
19.	IREDA GBI Approval letter Ref :223/39/WE/2010/IREDA/885 dated 12/07/2012
20.	IREDA GBI registration portal for PP http://110.234.218.202/iredawindmill/form/ReportgbiScheme.aspx
21.	Loan sanction letter Ref:PFS/Debt/RWERPL/I dated 13/02/2012
22.	Consolidated project sub lease land details notarised dated 04/04/2012
23.	PPA ref:GUVNL/GM(com)/WF(REC)/74 with Gujarat Urja Vikas Nigam Limited dated 29/03/2011
24.	Power sale agreement for OA tariff dated 07/03/2012 with Philips Electronics

	India Pvt. Limited.
25.	Operational guidance for Implementation of GBI for grid connected Wind power project by IREDA dated 05/05/2010
26.	Procedure for JMR and credit report for project in the state of Gujarat by Suzlon energy limited

Category B documents (other documents referenced)

1.	ACM 0002-"Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.3.0)
2.	Tool to calculate the emission factor for an electricity system" Version 02.2.1
3.	CO2 Baseline Database for the Indian Power Sector, User Guide Version 7.0
4.	Tool for demonstration and assessment of additionality (Version 06.1.0)
5.	CO_2 baseline database Version 06for Indian power sector
6.	User guide version 7.0 CO_2 baseline database for Indian power sector. http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
7.	Clean Development Mechanism Project design document form (CDM- PDD)
8.	Guidelines for completing the Project Design Document (CDM-PDD) and the Form for proposed new small scale methodologies (CDM-NM) Version 07
9.	Guidelines for completing the Project Design Document Version 01.0 EB 66 Annex -08
10.	Glossary of CDM terms Version-06, EB-66 Annex 63.
11.	Guidelines on the Assessment of Investment Analysis version 05 (Annex 5 to the report of 62nd meeting of the CDM-EB)
12.	Guidelines on the Demonstration and Assessment of prior consideration of the CDM (Version 04)
13.	Guideline for the reporting and validation of plant load factors (Version 01)
14.	Clean Development Mechanism Validation and Verification Standard Version 02.0 (Annex 4 EB 65)
15.	Clean Development Mechanism Validation and Verification Manual Version 01.2 (Annex 01, EB 55)
16.	Eligibility Criteria for Host Country Approval, National CDM Authority, Ministry of Environment & Forests
17.	Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006
18.	RBI Inflation forecast for the host country for the crediting period http://rbi.org.in/scripts/PublicationsView.aspx?id=13360
19.	Income Tax benefits details referred at http://law.incometaxindia.gov.in/DitTaxmann/IncomeTaxActs/2005ITAct/section80ia.htm
20.	Prior consideration of the PP on the UNFCCC CDM website:http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html
21.	EIA notification S.O 3067 dated 01/12/2009 at http://moef.nic.in/downloads/rules-and-regulations/3067.pdf
22.	EIA notification dated 14/09/2006 http://www.moef.nic.in/legis/eia/so1533.pdf
23.	CDM-Executive Board; "Clarifications on the consideration of national and/or sectoral policies and circumstances in baseline scenarios" version 02, Annex 3 of EB 22

7.3 Appendix C: List of persons interviewed

Mr. Kishore Rathod – ReNew Wind Energy (Rajkot) Private Limited.

Mr. Parag Sharma – COO - ReNew Wind Energy (Rajkot) Private Limited.

Mr. Harikrishnan Nair- O & M In-Charge -Suzlon Energy Limited
Mr. Hardik Shah – Consultant

Local Villagers
Mr. Suresh Metha Farmer, Vadali village
Mr. Munna Bai Rathod Farmer, Kamalapur village

7.4 Appendix D: How due account has been taken to the public input made to the validation requirements

The PDD was made publicly available in accordance with the requirements of the Procedures for processing and reporting on validation of a CDM project activity for the period 06/03/2012 to 04/04/2012 as per

http://cdm.unfccc.int/Projects/Validation/DB/H5XBG0BJF3XDLLC0H40QNO9CDY7WK1/view.html

No comments were received during the period

7.5 Appendix E: Certificate of Appointment

Validation of "Wind Power Project at Rajkot, Gujarat"

We hereby certify that the following personnel have engaged in the validation process that has fully satisfied the competence requirements of the validation of the CDM project activity.

Name of Person	Assigned Roles
Ajesh Kumar	Team Leader & Sector Expert
Arnab Deb	Team Member
Ankush Jain	Technical Reviewer & Sector Expert
Andrew Ritchie	Decision Maker

Signed by

Decision Maker

Andrew Ritchie
Climate Change Services Manager
6th November 2012

7.6 Appendix F: Validation Protocol and findings log

This document has been produced by the LRQA Validation Team after the completion of the desk review and the site visit.
It outlines the validated situation in relation to a number of criteria, including those defined in the Validation and Verification Standard (VVS) produced by the CDM Executive Board.
The questions within this document must be completed in full and in your own words. The purpose of this protocol is to record LRQA's opinion and LRQA's findings.
If LRQA has identified issues requiring corrective action or clarification, make a reference in the 'Conclusion' column, and state details **in the section marked 'Findings'.**

	Validated situation	Conclusion
SECTION 1. Approval and contribution to sustainable development		
Host Country Approval		
1. Has the Host country DNA provided a written approval?	Yes ☒ No ☐ NA☐ [2] Host Country approval from DNA available for the project titled "Wind Power Project at Rajkot, Gujarat". PP has submitted the LoA reference no. 4/12/2012-CCC dated 10/10/2012. CAR01 was initially raised as PP did not provide the LoA. Later, the LoA was provided and CAR was closed	~~CAR01~~ OK
2. Confirm that the letter has been issued by the Party's DNA and is valid for the proposed CDM project activity under validation	Yes ☒ No ☐ NA☐ The LoA dated 10/10/2012 with reference 4/12/2012-CCC is issued by the Ministry of Environment & Forests, Government of India, which is the designated national authority (DNA) of the host country as per http://cdm.unfccc.int/DNA/index.html. The LoA is issued and valid for the proposed CDM project activity.	OK

[2] For each section and question where a YES / NO / NA answer is required, explain your choice.

	Validated situation	Conclusion
3. Mention the means of validation employed to assess the authenticity of the Letter of Approval. Indicate the source of the LoA (for example, PP or directly from the DNA)	The LoA was also compared with those of other approval cases issued by the DNA. The team confirmed the authenticity of the letter issued.	OK
4. Does the written Letter of Approval confirm the following: (a) The Party is a Party to the Kyoto Protocol (including ratification)? (b) Participation is voluntary? (c) The proposed CDM project activity contributes to the sustainable development of the country? (d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	Yes ☒ No ☐ NA☐ The LoA confirms: (a) The Host Country Party has ratified the Kyoto Protocol in August 2002. (b) The participation is voluntary. (c) The project contributes to sustainable development in the Host Country. The LoA indicates the precise title of the proposed CDM project activity as indicated in the PDD.	OK
5. Is the letter of approval unconditional with respect of (a) to (d) above?	Yes ☒ No ☐ NA☐	OK
6. Does the LoA from the host party acknowledge the bundle activity (if applicable)?	Yes ☐ No ☐ NA☒	NA
Annex I Party Approval		
7. Has the Annex I country DNA provided a written approval?	Yes ☐ No ☐ NA☒ Not applicable since Annex 1 Party has not been identified in the project activity as confirmed from Section A.3 of the PDD. In accordance with the paragraph 57 of the 18th meeting of the CDM-EB, registration of a project activity can take place without an Annex I party being involved at the stage of registration.	NA
8. Confirm that the letter has been issued by the Party's DNA and is valid for the proposed CDM project activity under validation.	Yes ☐ No ☐ NA☒	NA
9. Mention the means of validation employed to assess the authenticity of the Letter of Approval. Indicate the source of the LoA (for example, PP or directly from the DNA).	Not applicable as no Annex 1 party is involved in the project.	NA

	Validated situation	Conclusion
10. Does the written Letter of Approval confirm the following: (a) The Party is a Party to the Kyoto Protocol (including ratification)? (b) Participation is voluntary? (c) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	Yes ☐ No ☐ NA☒	NA
11. Is the letter of approval unconditional with respect of (a) to (c) above?	Yes ☐ No ☐ NA☒	NA
Host Country and Annex I Party Approval		
12. Do any of the Letters of Approval contain additional specification of the project activity? Like: - PDD Version number? - Validation report version number? Make sure that the request for registration is made on the basis of the documents specified in any of the letters.	The LoA does not refer to any specific version number of the PDD or validation report	OK

		Validated situation		Conclusion
SECTION 2. Authorisation				
1	Confirm that the PPs are listed in a tabular form in section A.4 of PDD and that this information is consistent with the contact details provided in Annex 1 of the PDD and with the contact details in the MoC.	Host Party PP name in PDD/ A.4	ReNew Wind Energy (Rajkot) Private Limited (RNWERPL)	OK
		Host Party PP name in PDD/ Annex 1	ReNew Wind Energy (Rajkot) Private Limited (RNWERPL)	
		Host Party PP name in MoC	ReNew Wind Energy (Rajkot) Private Limited (RNWERPL)	
		Annex 1 Party PP name in PDD/ A.4	NA	
		Annex 1 Party PP name in PDD/ Annex 1	NA	
		Annex 1 Party PP name in MoC	NA	
2	Confirm that each of the PPs has been approved by at least one Party involved.	Yes ☒ No ☐ NA☐ The project activity is currently developed as a unilateral project. Annex I participant is not specified at this stage.		OK
3	Confirm that no entities other than those approved as PPs are included in section A.3 of PDD.	Yes ☒ No ☐ NA☐ ReNew Wind Energy Private Limited is the only PP as indicated in the PDD.		OK
4	Ensure that the approval of participation has been issued from the relevant DNA. If in doubt verify this with the corresponding DNA.	The Letter of Approval (LoA) dated 10/10/2012 has been issued by the host country DNA. The Designated National Authority (DNA) is the National Clean Development Mechanism Authority (NCDMA) established in the Ministry of Environment and Forests (MoEF), Government of India.		OK

		Validated situation	Conclusion
SECTION 2.1 Modalities of communications			
1	Validate the corporate identity of all the PPs and the focal point included in the MoC letter: - Validate the signatures - Validate the employment status. To validate this use any of the following options: a. Directly checking with evidence from PPs and the corresponding companies, for example, contracts, personal identity card or passport, HR records. b. Notarised documentation, e.g power of attorney for signing on behalf of the company and the other PPs. c. Written confirmation from the PP that all the personal details are valid and accurate.	Corporate Identity of the PP, ReNew Wind Energy (Rajkot) Private Limited validated by cross-verifying the Certificate of Incorporation. Under Form -1 No. U4010DL2011PTC224171 dated 25/08/ 2011 Issued by Registrar of companies, National Capital Territory of Delhi and Haryana, PP is a private limited company incorporated under the Companies Act- 1956. Personal identity and the signatures of the authorised signatory to the focal point were verified with personal identity documents issued by the Govt of India and the validation team deemed it appropriate and authentic. Employment status for the authorised signatory to the focal point verified with the Human resource department record. Certificate of employment dated 16/07/2012 of the signatories mentioned in the MOC for the sole focal point obtained from the PP. The validation team consider this authentic and appropriate.	OK
2	If a written confirmation (option c) is chosen from the options above, the following issues shall be validated: - The PP sending the written confirmation and signing it shall be the one signing the contract with LRQA. - The person signing the written confirmation and the person signing the MoC (if they are different persons) are duly authorised to do so on behalf of all the PPs, that is, they have a signed authorisation from the other PPs and the identity and role of the person who has signed this authorisation has been checked.	NA	NA
3	Has the MoC been completed as per the latest "Procedures for MoC between the project participants and the Executive Board"? - No modifications to the template / form should be made and each document should be clearly dated - Title of the project and names of project participants and	Yes ☒ No ☐ NA☐ MoC dated 16/07/2012 was submitted by the PP • ReNew Wind Energy (Rajkot) Private Limited is the sole focal point and the information is filled in in accordance with the MoC form F-CDM-MOC and the requirements of the procedures. • No modifications were made to the template and date is clearly	OK

focal points should be fully consistent with those indicated in all other project documentation - Focal point scopes should be clearly and correctly indicated - Contact details and specimen signatures of focal point entities including those of project participants in Annex 1 should be correctly entered. Only one telephone, fax, email contact should be entered per authorized signatory. In cases where additional contact details are included, only the first indicated information will be taken into account and only the official business address of the proposed entity should be provided on the F-CDM-MOC form. - The Statement of Agreement in Section 3 should be signed by one authorized signatory for each project participant; signatures made available in Section 3 should correspond to those indicated in the related Annex 1 document; focal point entities who are not designated as project participants should not sign Section 3.	specified • Title of project and names of project participant and focal point are consistent with other project documents shared/submitted by PP.	

	Validated Situation	Conclusion
SECTION 3. Project design document		
1. Is the project activity Small Scale or Normal Scale?	Normal Scale ☒ Small Scale ☐ Bundled Small Scale ☐ (cross as appropriate) The project is of total capacity 25.2 MW (12 x 2.1 MW) in Gujarat which is above 15 MW. Hence the project falls under the normal scale category	OK
2. Has the PDD used the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM Website? Check outputs from the completeness check.	Yes ☒ No ☐ Initial PDD Version 01 submitted for webhosting was done in VVM track complying with guideline for completing the project design document (CDM-PDD) Version 7, EB41, Annex 12 and PDD Format Version 03, EB25, Annex 15 which are the current versions available in UNFCCC CDM website. Completeness check was done on the initial PDD Version 01dated 02/03/2012 submitted to LRQA, no deviation from the requirement of guideline for completing the project design document(CDM-PDD) was identified in the PDD Version-01 and the same was webhosted for GSP on 06/03/2012. During the course of validation, the PP converted the initial PDD in VVM track to VVS track. The template of the final PDD (Version 6.0 dated 22/10/2012) conforms to F-CDM-PDD form Version 04.1 and to the guidelines for completing the Project design document form EB-66 Annex 8. F-CDM-PDD form Version 04.1 is the current version available in UNFCCC CDM website.	OK

	Validated situation	Conclusion

SECTION 4. Description of project activity

1. Describe the process undertaken to validate that the description of the proposed CDM project activity as contained in the PDD sufficiently covers all relevant elements, is accurate, and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity.	The project activity is 25.2 MW (12 Nos. × 2.1 MW) wind power generation project activity located at Villages: Godladha, Madhavipur, Kalasar, Devpara in district Rajkot in the State Gujarat of India and supplies generated electricity to the NEWNE grid of India. The project activity is estimated to supply 50,733 MWh of electricity per annum to the NEWNE grid and expected average annual emission reductions are 48,338 tCO_2e /annum over a period of 7 years. The technical details with respect of the WTG provided in the PDD were confirmed with technical brochures from Suzlon. In confirming the details, the parameters with respect of the rotor diameter, rotor speed, nominal power, hub height and the expected annual generation were given special emphasis. The model S-88 of Suzlon has been listed by 'Centre for Wind Energy Technology', Govt. of India confirming availability of type certificate. **Description** / **Specifications** Wind speed at rated output: 14 metre/second Cut in speed: 4 metre/second Cut out speed: 25 metre/second Hub height: 79 metre Power regulation: Pitch Rotor diameter: 88 metre Swept area: 6082 metre^2 Generator type: Asynchronous slip ring type induction generator Generator rated power output: 2100 kW Voltage: 690 V Expected Operational Life: 25 years The purpose of the project activity is to generate the electricity through sustainable means using wind power resource and to utilise the generated output for selling to the state electricity utility, in turn contributing to the climate change mitigation efforts.	~~CAR02~~ OK

	During the process of validation, LRQA confirmed the capacity, unique identification of the project activity, estimated power generation, arrangement for evacuation of electricity generated, technical specifications, and date of commissioning and necessary clearances for setting the project activity. The list of documents reviewed during the course of the validation is presented under Appendix B. CAR02 was raised as the PDD Version-01 did not mention the WTG model, net generation by the project activity and the Plant Load Factor; PP has revised the PDD to include the details. CAR02 was closed. The team has cross-checked the" Estimation of the wind Resource and energy yield of the proposed Jasdan Wind Project " (PLF) study by a third party AWS True Power LLC, report dated 05/08/2011. The report specifies an evaluation period average net generation of 76.1GWh for 37.8MW for which the PLF study was conducted. As the PP had planned to implement 25.2MW in the same wind farm, the PP had apportioned the PLF for 25.2MW as 76.1 * (25.2/37.8) = 50.73 GWh for 25.2MW capacity. This works out to a PLF of 22.98%. The expected PLF from the project activity is 22.98% as per study conducted by third party for determining PLF. This is in accordance with the Para 3 (b), Annex 11 of the report of 48th meeting of the CDM EB "Guidelines for the reporting and validation of plant load factors" (Version 01). Third party PLF of 22.98% was considered by the PP in the investment analysis. The third party reported PLF indicated a value similar to that stated by the Gujarat state electricity regulatory commission tariff order dated 30/01/2010 which states a capacity utilisation factor of 23% for tariff determination in the state of Gujarat. The third party PLF of 22.98% is specific to the project site and considered to be a valid assumption for the financial analysis and hence accepted. The description of the project activity was validated based on review of the PDD, supporting documents, physical site visit and field interviews with the PP and technology supplier personnel.	
2. Confirm that the exact project location is provided in the PDD with Geographical coordinates, check the accuracy of them and the format of the notation (Grades, minutes, seconds or decimal indicating	The project activity involves the 25.2MW wind power project involving 12 WTGs of 2.1 MW capacity each. The WTGs are of model S-88 supplied by Suzlon Energy Limited. The project activity is located in Rajkot district of state of Gujarat, India.	OK

latitude N or S and Longitude E or W)
Please include here the Geographical coordinates:

The geographical location and co-ordinates of the project activity WTGs are as below.

Location No.	*Village/Taluka/District/ State*	*Geographical Coordinates*	
		Latitude(N)	*Longitude(E)*
G 034	Godladhar/Jasdan/Rajkot/ Gujarat	22˚ 02' 39.2 "	71˚ 18' 58.5 "
G 036	Godladhar/Jasdan/Rajkot/ Gujarat	22˚ 03' 01.8 "	71˚ 18' 08.2 "
G 037	Madhavipur/Jasdan/Rajkot/Gujarat	22˚ 03' 33.6 "	71˚ 18' 01.5 "
G 038	Godladhar/Jasdan/Rajkot/ Gujarat	22˚ 02' 52.1 "	71˚ 18' 58.9 "
G 039	Godladhar/Jasdan/Rajkot/ Gujarat	22˚ 03' 14.8 "	71˚ 18' 45.6 "
G 041	Madhavipur/Jasdan/Rajkot/Gujarat	22˚ 03' 47.3 "	71˚ 17' 49.0 "
G 042	Madhavipur/Jasdan/Rajkot/Gujarat	22˚ 03' 45.5 "	71˚ 18' 10.6 "
G 046	Kalasar /Jasdan/Rajkot/Gujarat	22˚ 05' 06.0 "	71˚ 16' 42.6 "
G 055	Devpara /Jasdan/Rajkot/Gujarat	22˚ 06' 04.6 "	71˚ 14' 19.7 "
G 056	Devpara /Jasdan/Rajkot/Gujarat	22˚ 06' 18.1 "	71˚ 14' 15.1 "
G 068	Madava /Jasdan/Rajkot/Gujarat	22˚ 08' 36.6 "	71˚ 14' 06.0 "
G 112	Kalasar/Jasdan/Rajkot/Gujarat	22˚ 04' 54.0 "	71˚ 16' 18.0 "

The validation team conducted a site visit and confirmed the consistency of the described project activity in the PDD and the actual implementation. It could be confirmed that the project activity was commissioned and under operation during the time of the site visit. The site locations have been confirmed through commissioning certificates and through site visit interaction.

The validation team confirmed the appropriateness of the project description in

	the PDD by reviewing project documentation and conducting the site assessment. Further, the wind farm area geo-coordinates were confirmed using a hand-held Global Positioning System (GPS) reader.		
3. Confirm that the physical site inspection reflects the description in the PDD of the proposed CDM project activity. Describe briefly the physical site inspection: Travel details and installations, facilities and buildings visited.	The validation team confirmed the appropriateness of the project description in the PDD by reviewing project documentation and conducting the site assessment. The site visit was conducted on 11/04/2012 at site and on 12-13/04/2012 at the PP corporate office at Mumbai. The visit included the inspection of the substation, grid interconnection point, metering location, WTG installation and meetings with local stakeholders.		OK
4. If the team did not undertake a physical site inspection, describe the justification as approved by the CDM Quality Manager. (VVS 02.0: 65-67)	The validation team travelled to the location of the project activity on 11/04/2012. Physical inspection of the WTG, interview with the local stakeholders and the PP were conducted on the same day at the project site. Later, the validation team met the PP's team and its representative at their corporate office in Mumbai on 12-13/04/2012. Details are provided in section 3.2 of this report.		OK
5. If the proposed CDM project activity involves the alteration of an existing installation or process, ensure that the project description clearly states the differences resulting from the project activity compared to the pre-project situation.	Pre-project	Project activity	NA
	Not Applicable	Not Applicable The project activity is a Greenfield project)	
6. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance (ODA).	The details of project funding were also discussed during the site visit and it was confirmed through the interviews conducted with the senior management that the project was funded through debt and equity and did not involve any diversion of ODA. The project proponent has provided a declaration dated 07/03/2012 stating that it has not availed any ODA/public funding for the project.		OK
7. If the project activity is a small scale one, confirm that it is not a debundled component of a large scale project, in line with the Guidelines for assessment of de-bundling for SSC project activities.	Not Applicable.		NA

Check if there is another registered small scale project activity or an application to register one. Take into account specific debundling requirements for Type I project activities. Describe how this has been validated.		
	Validated situation	**Conclusion**
SECTION 5. Application of the selected baseline and monitoring methodology applicability		
1. Have the baseline and monitoring methodologies selected by the project participants been previously approved by the CDM Executive Board, that is, does it appear on the methodologies page of the UNFCCC website?	Yes ☒ No ☐ NA☐ ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 12.3.0. ACM0002 Version 12.3.0 is valid from 17/09/2010 to 10/05/2012. Requests for registration can be submitted until 11/01/2013 23:59:59 GMT. The methodology refers to the following methodological tools: • Tool for the demonstration and assessment of additionality Version 06.1.0 • Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, Version 2 EB 41 • Tool to calculate the emission factor for an electricity system, Version 02.2.1 The Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion is not applied as the project activity does not involve fossil fuel combustion.	OK
2. If the project activity is a Small Scale one; does it qualify within the threshold of the three possible types of small scale projects? Confirm information provided in the PDD.	Not Applicable	NA
3. If the project activity is a Small Scale one; which approved small scale methodology does the project apply? Confirm that the SSC methodology is applied with the general guidelines to SSC CDM methodologies.	Not Applicable	NA

4. Determine whether the methodology selected is applicable to the project activity including that the used version is valid. Describe steps taken to assess the relevant information contained in the PDD in the table below.	The team confirmed that the methodology selected is applicable and the version used for the proposed project activity is valid from 17/09/2010 to 10/05/2012. Requests for registration can be submitted until 11/01/2013 23:59:59 GMT. Steps taken to assess the applicability of the methodology are detailed below.	OK

No.	Applicability conditions in the ACM 0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 12.3.0.	Information in the PDD	Steps taken to assess PDD information	Conclusion
1	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 project activity is a greenfield plant grid-connected renewable power generation project. Hence, it meets the applicability criteria	The project involves the installation of new wind power plant/unit. LRQA has confirmed this through the site visit, review of supply offer, purchase order and commissioning reports of the WTGs. The team confirmed that the condition is applicable to the project activity.	OK
2	The methodology is applicable under the following conditions: • 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; • 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	The Project activity involves installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). Hence, it meets the requirement	The project activity involves installation of new power plant at the site (Greenfield project). LRQA has confirmed this through the site visit, review of supply offer, purchase order and commissioning reports of the WTGs. The team confirmed that the condition is applicable to the project activity.	OK

	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;			
3	In case of hydro power plants: At least one of the following conditions must apply: • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m^2 after the implementation of the project activity; or • The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m^2 after the implementation of the project activity.	Not applicable to the Project activity as the Project activity involves installation of a wind power plant	The project activity is not a hydro power project as confirmed through the document review of the supply offer, purchase order, commissioning reports of the WTGs and site visit. The team confirmed that the condition is not relevant to the project activity.	OK
4	In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m^2 after the implementation of the project activity all of the following conditions must apply: • The power density calculated for the entire project activity using equation 5 is greater	Not applicable to the Project activity as the Project activity involves installation of a wind power plant.	The project activity is not a hydro power project as confirmed through the document review of the supply quotation, purchase order, commissioning reports of the WTGs and site visit. The team confirmed that the condition is	OK

	than 4 W/m^2; • All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant; • The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; • The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m^2, is lower than 15 MW; • The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m^2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs.		not relevant to the project activity	
5	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; Biomass fired power plants; 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 Project activity is installation of a wind power plant and hence does not involve the following- • Switching from fossil fuels to renewable energy sources at the sites • Biomass fired power plants • Hydro power plants	The team confirmed that the project activity is installation of wind power plant and does not fall in any of the criteria mentioned	OK
6	In the case of retrofits, replacements, or capacity additions, this methodology is only	The project activity is a greenfield installation of a wind power project and does not classify	The team confirmed that the condition is not relevant to the greenfield project	OK

	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”.	as a retrofit, replacement, or capacity addition. Hence this condition is not applicable to the project activity.	activity.	

	Validated situation	**Conclusion**
5. Confirm that any specific guidance provided by the CDM Executive Board in respect to an approved methodology has been correctly applied.	The approved methodology specifies clear criteria to check the applicability conditions and each condition was checked as detailed above.	OK
6. If a determination regarding the applicability of the selected methodology to the proposed CDM project activity cannot be made, request clarification of the methodology in line with the guidance provided by the CDM Executive Board. Describe the clarification request and response.	Not Applicable	NA
7. If the Validation Team determines that the proposed CDM project activity does not comply with the applicability conditions of the methodology, the Team may proceed by means of requesting revision to or deviation from the methodology in line with the guidance provided by the CDM Executive Board. Describe the request for revision or deviation and approval by the CDM Executive Board.	Not Applicable	NA

	Validated situation	Conclusion
SECTION 5a. Project boundary		
1. Does the project boundary include physical, geographical site of the industrial facility, processes, or equipment that are affected by the project activity?	Yes ☒ No ☐ NA☐ The project boundary has been validated through the review of the commissioning certificates, by means of physical site visit & interviews with the technology supplier & site personnel. The validation has determined that the delineation of the project boundary in the revised PDD is correct and meets the requirements of the applicable methodology of ACM0002 Version 12.3.0. All sources and gases required by the applied methodology have been included within the project boundary. The validation team has confirmed that the project boundary is clearly defined and complies with the requirement of the methodology.	OK
2. If the proposed project activity has both Afforestation/Reforestation (A/R) and non-A/R components, to avoid double counting of emission sources, LRQA shall confirm that the emissions associated with the A/R activity will be accounted for and documented by the A/R project activity.	Not Applicable	NA
3. If there are any GHG emissions occurring within the proposed CDM project activity boundary, which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reductions as a result of the implementation of the project, LRQA shall request clarification of, revision to, or deviation from the methodology as appropriate.	The validation of the project activity did not reveal any other greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed CDM project activity which is expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by ACM0002 Version 12.3.0. This is in accordance with paragraph 87 of CDM VVS (Version 02.0).	OK
4. Confirm that all sources and GHGs required by the methodology have been included within the project boundary.	The project boundary has been validated through the review of purchase order, commissioning certificates, and also by means of physical site visit & interviews with the technology supplier and site personnel.	OK

		Validated situation	Conclusion
	Describe here if any emission source that will be affected by the project activity and is not addressed by the approved methodology, has been identified. In such case request clarification of, revision to or deviation from the methodology in accordance with EB guidance. Use the table below for this purpose:	The validation has determined that the delineation of the project boundary in the revised PDD is correct and meets the requirements of the applicable methodology. All sources and gases required by the applied methodology have been included within the project boundary. The validation team has confirmed that the project boundary is clearly defined and complies with the requirement of the methodology.	

Gases and Sources Included In The Project Boundary						
	Source	**Gas**	**Inc./Exc. Pdd**	**Justification PDD**	**Steps Taken To Assess PDD Justification**	**Conclusion**
BASELINE	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Yes	In the baseline scenario, electricity would be sourced from the NEWNE Grid which in turn would have been connected to fossil fuel fired power plants which emit CO_2.	The project activity aims at generating electricity using wind energy supplying to the NEWNE grid which is mainly supplied by fossil fuel based power plants. The project activity will red uce CO_2 emission from power generation by the grid connected power plants based on fossil fuels.	OK
		CH_4	No	No methane emission is expected. Hence excluded	The project activity will also reduce CH_4 and N_2O emissions from power generation by the grid connected power plants based on fossil fuels but the emissions are minor in volume and reasonable to be excluded for simplification. This is also more conservative.	OK
		N_2O	No	No nitrous oxide emission is expected. Hence excluded.		

PROJECT	Greenfield wind energy conversion system	CO_2	No	The project activity does not emit carbon dioxide.	The validation team has confirmed that project activity involves wind power project capacity of 25.2MW (12WTGs of each 2.1MW capacity) which is a Greenfield project. There will be no CO_2 emission from the project activity. This was confirmed during site visit	OK
		CH_4	No	No methane emission is expected	Not Applicable	NA
		N_2O	No	No nitrous oxide emission is expected	Not Applicable	NA

	Validated situation	Conclusion
SECTION 5b. Baseline scenario identification and description.		
1. Determine whether the PDD provides a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity.	The PDD provides the description of identified baseline scenario which would have been undertaken in the absence of the proposed project activity and in line with the applied methodology requirements.	OK
2. Confirm that any procedure contained in the methodology to identify the most reasonable baseline scenario, has been correctly applied.	Yes ☒ No ☐ NA☐ As per ACM0002 Ver. 12.3.0. 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 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 PDD correctly applied this scenario to the project activity. Since this baseline scenario is prescribed/predefined by the approved methodology, this is acceptable in accordance with the requirements of clause 115 of CDM VVS version 02.0.	OK

3. Check each step in the procedure described in the PDD to identify the baseline scenario against the requirements of the methodology. (Note that if the methodology requires use of tools, that is, such as the tool for the demonstration and assessment of additionality and the combined tool to identify the baseline scenario and demonstrate additionality, the guidance in the methodology shall supersede it in the tool.)	Methodology specifies pre-defined baseline scenario for new grid connected renewable power plant project, which is correctly applied to the project scenario.	OK
4. Based on financial expertise and local and sectoral knowledge, determine whether all scenarios that are considered by the project participants and are supplementary to those required by the methodology, are reasonable in the context of the proposed CDM project activity and that no reasonable alternative scenario has been excluded. Use the table below for this purpose:	The baseline scenario for the project is in accordance with the applied approved methodology. Hence the validation team confirms that no further analysis is required and the baseline scenario is appropriate for the project activity and in accordance with the requirements of Paragraph 115 of CDM VVS version 02.0.	OK

Alternative Scenario Ref.	Description in the PDD	Cross-checked with	Validation Opinion
NA	NA	NA	NA
NA	NA	NA	NA

5. Determine whether the baseline scenario identified is reasonable by validating the assumptions, calculations and rationales used, as described in the PDD. It shall be ensured that documents and sources referred to in the PDD are correctly quoted and interpreted. Cross check the information provided in the PDD with other verifiable and credible sources, such as local expert opinion. The table above may be used for this purpose.	The baseline scenario is in accordance with the applied methodology ACM0002 Version 12.3.0. Since this baseline scenario is prescribed by the approved methodology, this is acceptable in accordance with the requirements of clause 115 of CDM VVS Version 02.0.	OK
6. Is the identified baseline scenario in line with regulatory or legal requirements and does it take into account relevant national and/or sectoral policies?	There is no legal requirement on the choice of a particular technology for power generation in the host country. The identified baseline scenario is in line with the regulatory / legal requirements as prescribed by the applied methodology.	OK
7. If applicable, identify the type of national and/or sectoral policies: - E+: Those adopted after the adoption of the Kyoto Protocol (11 December 1997) shall not be taken into account in identifying the baseline scenario. Please describe how the baseline scenario refers to the hypothetical situation without these national and or sectoral policies. - E-: Those adopted after the adoption of the M&P for a CDM (11 November 2001) shall not be taken into account in identifying the baseline scenario. Please describe the hypothetical situation without these national and/or sectoral regulations being taken into account for the baseline identification.	As the baseline scenario is as per the applied methodology, this is not applicable.	OK
8. Is this identification supported by official and/or verifiable documents (for example, studies, web pages, certificates, etc)?	As the baseline scenario is as per the applied methodology, this is not applicable.	OK

	Validated situation	**Conclusion**
SECTION 5c. Algorithms and/or formulae used to determine emission reductions		

	Validated situation	Conclusion
1. Compare the equations and parameters in the PDD to those in the selected approved methodology and determine if they have been correctly applied to calculate project emissions, baseline emissions, leakage, and emission reductions. Confirm that adequate justification has been provided for selection between different options.	**Baseline emissions** According to the methodology ACM0002 Version 12.3.0, for new grid connected renewable power plant, the baseline emissions are the product of electricity produced by renewable energy generating unit multiplied by the emission factor of the grid. $BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$ $EG_{PJ,y}$ = 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/yr) $EF_{grid, CM, y}$ = 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. (tCO_2/MWh). The equation used for calculation of baseline emission is in line with equation No. 6 of the applied methodology and is appropriate. Calculation of $EG_{PJ,y}$ Since the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then: $EG_{PJ,y} = EG_{facility,y}$ $EG_{PJ,y}$ = 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) $EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh) This is in line with equation No. 7 of the applied methodology and is appropriate.	~~CAR03~~ OK

	Validated situation	Conclusion
	Calculation of the emission factor ($EF_{grid, CM, y}$) The baseline emission factor is calculated as a Combined Margin (CM) consisting of Operating Margin (OM) and Build Margin (BM) factors based on data from an official publicly available source. The CM emission factor (EF) for the displaced electricity was calculated based on the 'Tool to calculate the emission factor for an electricity system' Version 02.2.1 (hereinafter referred to as "the tool"), in accordance with the applied methodology. The PP uses the EF for the grid electricity as calculated in CO_2 Baseline Database for the Indian Power Sector published by the Central Electricity Authority (CEA), Ministry of Power, and Government of India. The CEA publishes on an annual basis the General Review and the Performance Review of Thermal Power Stations which is used by the majority of CDM project promoters. The database for baseline estimation issued by the CEA has been developed consistently with the availability of data in India. The database is an official publication of the Government of India for the purpose of CDM baselines. The CEA Database Version 7.0 has been applied as it was current at the time of submission of the PDD for validation. The step-wise estimation of the Combined Margin Emission Factor is provided as below: **Step 1** of the *tool* requires identification of the relevant electric power system. In line with the requirements specified in the tool, the PP has selected the regional grid based on the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity. The Indian electricity system is divided into two grids, the Integrated Northern, Eastern, Western, and North-Eastern regional grids (NEWNE) and the Southern Grid. Each grid covers several states. Since the project activity is located in the Gujarat region, the selection of the NEWNE Grid (which includes the state of Gujarat) for the purpose of estimation of baseline emission factor is considered appropriate. Therefore, the validation team confirmed the applicability of Step 1 of the *tool*. **Step 2** of the *tool* gives the PP an option to include off-grid power plants in the project electricity system. The PP has chosen only grid power plants for analysis.	

	Validated situation	Conclusion
	Step 3 of the *tool* requires selection of a method for estimation of operating margin. Of the four methods provided in the *tool* for calculating the operating margin ($EF_{grid,OM,y}$), the PP has selected simple OM method since the low-cost/must-run resources constitute less than 50% of total grid generation on average of the five most recent years, i.e. from 2006-07 to 2010-11.	

Year	Low-cost/must-run resources of net generation
2006-07	18.5%
2007-08	19.0%
2008-09	17.4%
2009-10	15.9%
2010-11	17.6%

It can be clearly established that the share of the low cost/ run resources constitute to less than 50% of the total grid generation.
Low operating cost/must run resources include hydro and nuclear.

The tool provides two options – (i) ex-ante option and (ii) ex-post option in calculating the simple OM. The PP has chosen the ex-ante option for determining the OM. This choice of ex-ante option which is based on a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation, was found acceptable in view of the availability of the requisite data vintages.

Step 4 of the *tool* requires the calculation of the operating margin emission factor according to the Simple OM method chosen as per Step 3 above.

Year	Absolute emissions (including imports) (tCO_2)	Net generation (including imports) (GWh)	Specific emissions (tCO_2/MWh)

	Validated situation	Conclusion

2008-09	430,502,442	427,700	1.00655
2009-10	453,067,520	463,384	0.97774
2010-11	468,438,871	482,597	0.97066

EF_{gridOM} = (430,502,442 + 453,067,520 + 468,438,871) / (427,700 + 463,384 + 482,597) x1000

EF_{gridOM} = 0.9842 tCO_2/MWh

Step 5: Identification of the group of power units to be included in the Build Margin

The sample group of power units m selected for calculation of the build margin consists of the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently. The data pertaining to the units thus identified are detailed in the Version 7.0 of the Baseline Carbon Dioxide Emissions database of the Central Electricity Authority (CEA).

As part of the validation of Step 5 of the tool, LRQA confirmed the BM for the year 2010-11 as per the following summary:

Year	Absolute emissions (tCO_2)	Net Generation (GWh)	Specific emissions (tCO_2/MWh) BM
2010-11	101,146,601	117,779.22	0.8587

Step 6 of the *tool* requires calculation of the build margin emission factor.
The CEA database provides a BM value for the NEWNE grid as 0.8587 tCO_2/MWh.

	Validated situation	Conclusion
	Step 7 of the *tool* requires calculation of the combined margin emission factor as per the following equation: $EF_{CO2,grid,y} = EF_{grid,OM,y} \times w_{OM} + EF_{grid,BM,y} \times w_{BM}$ According to the guidance on selecting alternative weights in the tool, the default weights applicable for wind projects are w_{OM} = 0.75 and w_{BM} = 0.25 for the first and subsequent crediting period have been applied. The baseline grid emission factor has been calculated as; $EF_{CO2,grid,y} = EF_{grid,CM,y}$ = 0.9528 tCO_2e/MWh The baseline emissions thus can be estimated as: $BE_y = EG_{BL,y} \times EF_{CO2,grid,y}$ = 50,733 MWh x 0. 9528 tCO_2e/MWh = 48,338 tCO_2e Annual average baseline emission is estimated to be 48,338 tCO_2e. Ex-ante electricity generation has been evaluated based on 'Guidelines for the reporting and validation of plant load factors' Version 01, Annex 11, and CDM EB report of its 48th meeting. **Project emissions (PE_y)** According to the chosen baseline methodology ACM0002, for wind energy based renewable energy project activities, $PE_y = 0$ **Leakage (LE_y)** No leakage emissions are considered, as per the methodology. Hence, $LE_y = 0$ As no project emission (PE_y) or leakage (LE_y) is considered for the project activity, the estimated baseline emission (BE_y) becomes the emission reduction (ER_y). **Emission reductions** As provided in the methodology, emission reduction is calculated from the equation:	

	Validated situation	Conclusion
	$ER_y = BE_y - PE_y$ The equation used for calculation of emission reduction is in line with equation (11) of the applied methodology and is appropriate. ER_y: Emission Reductions in the year y (tCO_2e/y) BE_y: Baseline emissions in the year y (tCO_2e/y) PE_y: Project emissions in the year y (tCO_2e/y) The annual emission reductions from the project activity can be estimated as the difference between the baseline emissions and the project emissions as follows: $ER_y = BE_y - PE_y$ $ER_y = 48{,}338 - 0$ $= 48{,}338\ tCO_2e$ For emission factor determination, the PP has used Version 7.0 of CEA data base for Emission factor. However the emission factor (Combined Margin) considered for the baseline emission was not accurate, which made the baseline emission non conservative. Hence CAR03 was raised. The PP has addressed CAR03 and the calculation for baseline emission factor is now made in line with the requirements of 'Tool to calculate the emission factor for an electricity system' Version 02.2.1. Hence CAR03 was closed.	

<table>
<tr><th></th><th>Validated situation</th><th>Conclusion</th></tr>
<tr><td>2. Verify the justification given in the PDD for the choice of data and parameters used in the equations to determine estimated emission reductions.
If data and parameters will not be monitored throughout the crediting period and will remain fixed, assess that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions.
If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, confirm that the estimates provided in the PDD for these data and parameters are reasonable.
List all data and parameters provided in the PDD in the tables in next column.</td><td>
<table>
<tr><th>Data/Parameter title: $EF_{grid,CM,y}$</th><th>Comments</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes ($EF_{grid,CM,y}$) Hence found to be OK.</td></tr>
<tr><td>Fixed throughout the crediting period?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes, (tCO_2e/MWh)</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes, CEA database Version 7.0</td></tr>
<tr><td>Value provided is considered reasonable?</td><td>Yes, 0.9528</td></tr>
<tr><td>Has this value been verified?</td><td>Yes, verified with the CEA database Version 7.0</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>NA</td></tr>
</table>
<table>
<tr><th>Data/Parameter title: $EF_{grid,OM,y}$</th><th>Comments</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Fixed throughout the crediting period?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes, CEA database Version 7.0</td></tr>
<tr><td>Value provided is considered reasonable?</td><td>Yes,0.9842</td></tr>
<tr><td>Has this value been verified?</td><td>Yes, CEA database Version 7.0</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>NA</td></tr>
</table>
<table>
<tr><th>Data/Parameter title: $EF_{grid,BM,y}$</th><th>Comments</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Fixed throughout the crediting period?</td><td>Yes</td></tr>
</table>
</td><td>~~CAR-03~~
OK</td></tr>
</table>

	Validated situation		Conclusion
	Data unit correctly expressed?	Yes	
	Appropriate description of parameter?	Yes	
	Source clearly referenced?	Yes, CEA database Version 7.0	
	Value provided is considered reasonable?	Yes,0.8587	
	Has this value been verified?	Yes, CEA database Version 7.0	
	Choice of data correctly justified?	Yes	
	Measurement method correctly described?	NA	

The grid emission factors have been verified with the CEA database available at the site http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm

Data/Parameter title: $EG_{facility,i,y}$	Comments
Title in line with methodology?	Yes
Fixed throughout the crediting period?	No, shall be determined ex post (Certificate for share of electricity generated by wind farm provided by GETCO)
Data unit correctly expressed?	Yes MWh/year
Appropriate description of parameter?	Yes Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y*
Source clearly referenced?	Yes, Certificate for share of electricity generated by wind farm provided by GETCO
Value provided is considered reasonable?	Yes, 50,733 MWh

	Validated situation		Conclusion
	Has this value been verified?	Yes, the value has been verified based on the generation figure presented by AWS True Power LLC dated 05/08/2011. However, this parameter shall be monitored. Refer section 7 of this validation protocol for details.	
	Choice of data correctly justified?	Yes, Monitored ex post	
	Measurement method correctly described?	Yes, Continuous measurement and at least monthly recording	

Data/Parameter title: $EG_{WTG\ yard,I,y}$	Comments
Title in line with methodology?	Yes
Fixed throughout the crediting period?	No, shall be determined ex post
Data unit correctly expressed?	Yes, MWh/year
Appropriate description of parameter?	Yes, Sum of electricity generation measured at individual yard meters of all project WTGs connected to feeder i during period y
Source clearly referenced?	Yes, Yard meter readings of project activity WTGs
Value provided is considered reasonable?	Measured ex-post.
Has this value been verified?	Yes
Choice of data correctly justified?	Yes, Monitored ex post

<table>
<tr><th></th><th>Validated situation</th><th>Conclusion</th></tr>
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<table>
<tr><td>Measurement method correctly described?</td><td>Yes, Continuous measurement and at least monthly recording</td></tr>
</table>
<table>
<tr><th>Data/Parameter title: $EG_{Allyard,I,y}$</th><th>Comments</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Fixed throughout the crediting period?</td><td>No, shall be determined ex post</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes, MWh/year</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes, Sum of electricity generation measured at individual yard meters of all project and non project activity WTGs connected to feeder i during the period y</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes, Yard meter readings of project activity WTGs</td></tr>
<tr><td>Value provided is considered reasonable?</td><td>Measured ex –post.</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes, Monitored ex post</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes, Continuous measurement and at least monthly recording</td></tr>
</table>
</td><td></td></tr>
<tr><td>3. Confirm that all assumptions and data used by PPs are listed in the PDD including their references and sources, and that the documentation used as the basis for these assumptions and source of data is correctly quoted and interpreted in the PDD.
If the project activity has both A/R and non A/R components, ensure that no emissions associated with the A/R activity are accounted for.</td><td>Yes, all assumptions and data used by the PP are listed in the PDD including their references and sources.

The grid emission factor is calculated based on the CO_2 Baseline Database for the Indian Power Sector published by the Central Electricity Authority (CEA), Ministry of Power, Government of India (http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm)

Section B 6.3 specifies Net electricity generation form the Project activity as 50,733 MWh/Annum. The basis for the net electricity generation for the project is</td><td>OK</td></tr>
</table>

	Validated situation	Conclusion
	based on the third party survey carried out by AWS Truepower LLC. The PP has submitted the complete analysis report to LRQA for validation. The validation team considers the net energy assessment for the wind farm published dated 05 August 2011 as appropriate. http://www.awstruepower.com/solutions/wind/energy-assessment/	
4. Confirm that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.	The validation team confirms that the estimate of baseline emissions can be replicated using the data and parameter values provided in the PDD.	OK
5. If any of the parameters used to calculate ERs have been obtained using sampling methods, please use the "Standard for sampling and surveys for CDM project activities and PoA" paragraphs 20 to 26 to determine whether the sampling plan proposed by the PPs will provide parameter value estimates in an unbiased and reliable manner. Provide the following data for each parameter in the sampling plan: - The size of the sample: n - The acceptance number: c	No sampling technique adopted in the PDD for ER estimation. Hence, not applicable.	OK

	Validated situation	Conclusion
SECTION 6. Additionality of a project activity		
1. Does the PDD clearly describe how the proposed CDM project activity is additional?	Yes ☒ No ☐	OK
2. List the documents and tools provided by the CDM Executive Board used to demonstrate the additionality	"*Tool for demonstration and assessment of Additionality"* Version 06.1.0	OK
Additionality for small-scale project activities Determine whether the proposed project activity is additional in accordance with CDM requirements applicable for small-scale project activities: Attachment A to Appendix B of 4/CMP 1 annex II and "non binding best practice examples to demonstrate additionality for SSC project activities"		
3. Describe and assess the relevant criteria for the automatic additionality of the following cases: a) Type I project activities up to 5 MW that employ renewable energy as their primary technology, b) Type II energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year, c) Type III project activities that aim to achieve emissions reductions at a scale of no more than 20 $ktCO_2e$ per year.	Not Applicable as the project is of 25.2 MW capacity which falls under normal scale project category.	NA

	Validated situation	Conclusion
SECTION 6a. Prior consideration of the clean development mechanism		
1. Does the PDD clearly indicate the start date of the project activity in format: dd/mm/yyyy, and is it in line with the Glossary of CDM Terms?	Yes ☒ No ☐ The start date of the project has been considered as 26/08/2011 i.e. The date of purchase order raised on the technology supplier, i.e Suzlon Energy Limited. LRQA has validated the start date in accordance with Glossary of CDM terms version 06, EB66 Annex 63 through the review of purchase order with	OK

	Validated situation	Conclusion
	technology supplier for WTG & commissioning certificate issued to PP by GEDA.	
If the PDD was published for Global Stakeholder Consultation process after the start date, check that the CDM benefits were considered necessary in the decision to undertake the project activity as a CDM project, following the below queries.		
2. For a project activity with a start date on or after the 02 August 2008, confirm that the PPs have informed the host party DNA and the UNFCCC secretariat in writing of their intention to seek CDM Status. If such a notification has not been provided by the PPs within 180 days of the project activity start date, determine that the CDM was not seriously considered in the decision to implement the project activity.	As the start date was after 02/08/2008, in accordance with the "Guidelines on the demonstration and assessment of prior consideration of the CDM" (Version 04) the PP had informed the Host Party DNA and the UNFCCC secretariat on 09/11/2011 & 07/11/2011 respectively of their intention to seek CDM status. This is within 6 month from the start date of the project activity. Start date of the project activity is on 26/08/2011 which is the date on which the PP had placed purchase order with the technology provider Suzlon Energy Limited. The validation team has reviewed the copy of the prior consideration form that has been sent to the UNFCCC and found the information relevant to the project under implementation. The notification was further confirmed from the list of notifications received by the UNFCCC from the UNFCCC website. http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html The validation team confirmed that the PP has communicated the prior CDM consideration of the project activity to the NCDMA through mail dated 09/11/2011 and confirmation email received from NCDMA dated 11/11/2011 acknowledging the receipt of notification. The validation team had confirmed the name of the project activity in the list of notifications received by the UNFCCC available from the UNFCCC website. Thus, LRQA confirms that the CDM was seriously considered in the decision to implement the project.	OK
For a project activity with a start date before 02 August 2008		

	Validated situation	Conclusion
3. Check the following requirements through document reviews to assess the PPs prior consideration of the CDM: (a) Evidence that must indicate that awareness of the CDM before the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project. (b) Reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.	Not Applicable	NA
4. Describe the process for cross-checking the evidence. The assessment of real and continuing actions should focus on real documented evidence, including an assessment of the authenticity of the evidence, that is, letters, email exchanges and other documented communications. These shall be considered as evidence only after assessing the reliability and authenticity of them, inter alia through cross-checking (for example, interviews)	Not Applicable	NA
5. The time gap between the documented evidence of prior CDM consideration and continuing and real actions shall be within the following period: a) Less than two years: continuing and real actions were taken to secure CDM status for the project activity; b) Greater than two years and less than three years: justify any positive or negative validation opinion based on the context of the evidence and information assessed; c) Greater than three years: continuing and real actions were not taken.	Not Applicable	NA

	Validated situation	Conclusion
6. If authentic evidence to support the serious prior consideration of the CDM as indicated above is not available, determine that the CDM was not considered in the decision to implement the project activity	Not Applicable	NA

	Validated situation	Conclusion
SECTION 6b. Identification of alternatives		
1. Does the PDD identify credible alternatives to the project activity, to determine the most realistic baseline scenario? Assess this list of alternatives and ensure that: (a) The list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity. (b) The list contains all plausible alternatives considered to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity. (c) The alternatives comply with all applicable and enforced legislation. If the Baseline scenario is prescribed in the approved methodology, no further analysis is required and this section is not applicable..	LIST OF ALTERNATIVES No / Description in the PDD / Describe why it is credible and complete 1 — As per the methodology 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 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 most realistic baseline scenario prescribed in the PDD is in accordance with the applied methodology ACM0002 Version 12.3.0, which pre-defines the baseline scenario for new grid connected renewable power plant. This project falls under the above said category. Hence, it is credible and complete. 2 — *The proposed project activity not undertaken as a CDM project* — The project activity is not feasible without CDM revenues. This argument has been discussed in	OK

	Validated situation		Conclusion
		activity	detail in section 6c below.	

	Validated situation	Conclusion
SECTION 6c. Investment analysis		
1. Verify the accuracy of financial calculations carried out for the investment analysis: (a) Conduct a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters. (b) Cross-check the parameters against third-party or publicly available sources, such as invoices or price indices. (c) Review feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants.	The PP has demonstrated additionality by applying the investment barrier in accordance with the "*Tool for demonstration and assessment of Additionality*" Version 06.1.0. The tool provides a step-wise approach to demonstrate Additionality. A thorough assessment of all parameters and assumptions used in the financial analysis was conducted by the validation team. The parameters were cross-checked with relevant sources. The details on the validation of input parameters and assumptions are presented in the below table	OK
2. Assess the correctness of computations carried out and documented by the project participants	The validation team has assessed the correctness of the calculations that were carried out by the PP. CAR04 & CAR05 were raised during the review and assessment of the financial parameters of the investment analysis. CAR04 was raised as the project start date mentioned in the PDD was not appropriate. Further, the investment sheet had an error on the benchmark calculation and the long term inflation value considered for the host country. The PP addressed the issue in the revised spreadsheet and PDD, hence the finding was closed. CAR05 was raised as the justification for the open access tariff considered in the financial working was not justified. The PP provided the justification to the DOE and the validation team found it acceptable. Hence the finding was closed. The resolution is detailed in the findings section of this protocol. IRR was calculated for a period of 25 years, which reflects the period of expected operation of the underlying project activity (technical lifetime) and hence was	~~CAR04~~ ~~CAR05~~ OK

	Validated situation	Conclusion
	found to be appropriate. GERC tariff order dated 30/01/2010 considers the life of wind energy generator as 25 years. LRQA confirms that the salvage value (fair value of any project activity assets at the end of the assessment period) is added back as cash inflows in accordance with guidance 4 of 'Guidelines on the Assessment of Investment Analysis'. LRQA confirms that the tax calculation considers benefit under section 80 IA of the Income Tax Act under which such projects are entitled to a tax holiday for 10 consecutive years out of the first 15 years. Tariff escalation of 5.40% , which is the host country 10 year median inflation, forecasted by central bank for the crediting period, was effected from 13th year in the Equity IRR working for the WTG's availing open access tariff. Accelerated depreciation available to the PP was not considered, since the project has availed the benefit of Generation based incentive (GBI). GBI and accelerated depreciation are mutually exclusive as per the host country regulation as provided by Ministry of new and renewable energy (MNRE) under the Government of India. In accordance with guidance 5 of 'Guidelines on the assessment of investment analysis', LRQA confirms that the depreciation has been added back to net profits for the purpose of calculating the Equity IRR. The PP had presented the unprotected spreadsheet versions of all investment analyses, having readable formulae. LRQA could confirm that the investment analysis is presented in a transparent manner, to the extent that the reader can reproduce the results. It was confirmed by the validation team from the available evidence and relevant accounting practices that in the estimation of the post tax Equity IRR, the PP had applied the accepted local accounting and taxation principles. LRQA confirms that all the input values considered for the investment analysis were applicable at the time of investment decision. It is in compliance with the guidance 6 of the Guidelines on the assessment of the investment analysis Version 5. Also, the assessment of input parameters has been confirmed in accordance to paragraph 118 & 120 of CDM VVS Version 02.0. The equity IRR calculated with the input parameters as provided below work out to 7.28% for the project activity without considering the benefits from the CDM	

<table>
<tr><th></th><th>Validated situation</th><th>Conclusion</th></tr>
<tr><td></td><td>revenue, which is less than the benchmark of 17.78%.</td><td></td></tr>
<tr><td>3. Assess the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions.</td><td>Power generation, O&M cost, power tariff and capital cost are the critical parameters affecting the IRR and are correctly selected for sensitivity analysis.

<table>
<tr><th rowspan="2">Parameter Varied for IRR</th><th colspan="2">Variation</th><th rowspan="2">Cross Over Point</th></tr>
<tr><th>-10 %</th><th>+10%</th></tr>
<tr><td>Net Generation (PLF)</td><td>4.77%</td><td>9.45%</td><td>53%</td></tr>
<tr><td>Project Cost</td><td>9.42%</td><td>5.23%</td><td>-37%</td></tr>
<tr><td>O &M</td><td>7.60%</td><td>6.95%</td><td>-394%</td></tr>
<tr><td>Tariff</td><td>4.78%</td><td>9.43%</td><td>53%</td></tr>
</table>
Base IRR: 7.28%
Benchmark:17.78%
The equity IRR of the project activity is 7.28% (the calculation is presented in the IRR sheet) without considering CDM revenues. The sensitivity analysis shows that the IRR is not affected by the varying of critical parameters by ±10% and within the benchmark applied for (17.78%).
<u>Net Generation / Plant Load Factor</u>:
The IRR does not cross the benchmark if the annual net electricity generation or PLF is increased by +10%. The IRR crosses the benchmark only when the PLF attains 35.00%.(i.e. increase of 53% to the base PLF assumed). The PLF considered for the project of 22.98% is based on the third party wind assessment report dated 05/08/2011 which is in line with ‘Guidelines for the reporting and validation of plant load factors’ Version 01, Annex 11, CDM EB report of its 48th meeting. LRQA also reviewed the Gujarat state electricity regulatory commission tariff order dated 30/01/2010 which states a capacity utilisation factor of 23.00% for tariff determination in the state of Gujarat which was applicable at the time of investment decision.
The difference between the Third party PLF and GERC tariff order based PLF is only 0.086% which is well within the 10% sensitivity range, while the PLF of 22.98% considered in the project activity is specific to the project site. Hence the</td><td>OK</td></tr>
</table>

	Validated situation	Conclusion
	PLF of 22.98% is appropriate and realistic in the context of the project activity. Therefore, the PLF considered for the project can be deemed appropriate and an increase in PLF in the range of 53% is implausible. Project cost: The IRR is within the benchmark for a reasonable variation of -10% of the project cost as provided in the table above. As the project activity is operational and the costs have already been incurred by the project participant, LRQA reviewed the purchase orders issued by the PP to confirm the actual project cost. The actual cost for the project is within the sensitivity range considered. The Equity IRR reaches the benchmark at a variation of -37%, which is unlikely to happen since the project is already in operation. The Purchase Order dated 26/08/2011 indicates the total project cost as INR 1,435.308 million, which is 2.02% lower than the offer cost of INR 1,464.996 million. O&M cost: The IRR does not cross the benchmark even when the O&M cost is made zero. A decrease in O&M cost to zero is not feasible considering the high inflation rate in the host country. Since the PP has entered into an O&M agreement with the service provider, there is no possibility for further reduction in the O&M cost. Tariff : The tariff approved by GERC is fixed for 25 years. Hence, the possibility of tariff increase by 53% above GERC tariff rate is not a realistic scenario. The PP has sourced the preferential tariff from the Gujarat Electricity Regulatory Commission Order No.1 of 2010 which is applicable at the time of decision making. The validation team cross-checked with the tariff order dated 31 January 2010 and confirmed the tariff was the appropriate one available to the PP at the time of investment decision. The PP at the time of investment decision had decided to go in for the feed in tariff (preferential tariff) for 7 WTG's (7x 2.1MW) and open access tariff for the remaining 5 WTG's.(5 x 2.1MW). This was further confirmed during the site visit as the evacuation feeders at the site substation are configured for 5 WTGs in one feeder and 7 WTGs in another feeder. This confirms the PP has planned the project implementation having 7WTGs under preferential tariff route.	

	Validated situation	Conclusion
	For the remaining 5 x 2.1MW WTGs, the PP has considered an open access tariff based on the study report note "Determination of open access tariff" dated 13/07/2011 presented to ReNew Wind Power Private Limited[3] by General Carbon Advisory Pvt. Limited. This Open access tariff note was available to the PP at the time of decision making. Open access tariff considered at the time of investment decision is compared with the actual open access long term power sale agreement between the PP and the buyer. The tariff realised was found to be 0.76% (INR3.93/KWh Vs INR 3.90/KWh) higher than that considered at the time of investment decision. Hence an increase of 53% in open access tariff is unrealistic and unlikely. LRQA confirmed that the result of the sensitivity analysis consistently supports the conclusion that the project activity is not financially attractive. Based on the validation of the investment analysis that included an assessment of all parameters and assumptions used in calculating the relevant financial indicator, cross-checks against third party or publicly available sources and correctness of calculations carried out, the financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	

Use the table below to list all the inputs to the investment analysis and to describe how each parameter has been validated:

Parameter/input	Symbol/ Unit	Value	Source	Means of validation	Conclusion
Project Capacity	MW	25.2 (12 X 2.1 MW Each)	Quotation from supplier	The capacity of WTG was verified from the supplier quotation dated 07/06/2011.The quotation was sought for 12 WTGs of 2.1MW capacity each. The team has cross-checked the following documents 1. Purchase Order Ref No REN/SEL/Po/001/2011-12 dated	OK

[3] ReNew Wind Energy (Rajkot) Private Limited (PP) is a wholly owned subsidiary and SPV of ReNew Wind Power Private Limited.

				26/08/2011 for 12 WTGs of each 2.1 MW capacity between ReNew Wind Energy (Rajkot) Pvt. Limited and Suzlon Energy Limited. 2. Commissioning certificate, reference GEDA/PWF/SGWPL-RWEPL/Jasdan/12-13/255 dated 26/04/2012 for 2.1 MW x 11 WTGs and 3. GEDA/PWF/SGWPL-RWEPL/Jasdan/12-13/1013 dated 11/06/2012 for 2.1 MW x 1 WTG The validation team has confirmed the implementation of project activity through site visit. At the time of the site visit, the project is fully commissioned for all 12 WTGs of 2.1 MW capacity.	
Project Cost	Million INR	1464.996	Quotation from supplier	The project cost was sourced from the supplier offer dated 07/06/2011. The offer specifies a total price of INR 1464.996 million for 12 WTGs including supply of materials, labour and services, identification, selection and allocation of land, obtaining all Government permissions etc. The validation team has cross-checked the total project cost considered by the PP at the time of decision making with actual cost of the project as mentioned below. • Purchase Order dated 26/08/2011 the total project cost is specified as INR 1435.308 million which is 2.02% lower than the offer cost. This variation would not impact the project additionality, as evident from the sensitivity analysis which was also carried out against the project cost -10%, as the equity IRR does not cross the benchmark IRR.	OK
O&M cost & escalation per annum	Million INR /MW/Year % per annum	0.65 5 %	GERC Wind Power Tariff Order (dt. 31/01/2010), Page 14 GERC Wind Power Tariff Order (dt. 31-01-2010), Page 14	The PP has sourced the O&M cost and its escalation/annum from the Gujarat Electricity Regulatory Commission Order No.1 of 2010 which is applicable at the time of decision making. The PP had signed an O&M agreement with the technology supplier Suzlon Energy Limited. During the validation, LRQA compared the O&M cost assumed at the time of investment decision with the actual O&M cost agreed with the supplier. The team found the actual O&M cost is 0.88 Million INR/ MW/Year with 5% escalation year on year which is 28.75% higher than the one considered at the time of Investment decision. Hence the validation team deems the O&M cost of INR 0.65 million/MW/annum and escalation of 5% from 2nd year onwards to be reasonable and appropriate.	OK

Net Annual Generation	Million KWh	50.733	Third party wind assessment report	The estimated net generation was sourced from the third party wind assessment report available at the time of decision making. The team has cross-checked the ”Estimation of the wind Resource and energy yield of the proposed Jasdan Wind Project” (PLF) study by a third party AWS True Power LLC, report dated 05/08/2011.The report specifies a 20 year average net generation of 50.733 GWh for 25.2MW capacity. This works out to a PLF of 22.98%.The expected PLF from the project activity is 22.98% as per study conducted by third party for determining the PLF. This is in accordance with the Para 3 (b), Annex 11 of the report of 48th meeting of the CDM EB “Guidelines for the reporting and validation of plant load factors” (Version 01). Third party PLF of 22.98% was considered by the PP in investment analysis. The third party reported PLF at P90 indicated a value similar to that stated by the Gujarat state electricity regulatory commission tariff order dated 30/01/2010 which states a capacity utilisation factor of 23% for tariff determination in the state of Gujarat. Third party PLF of 22.98% is considered to be a valid assumption for the financial PLF has been subjected to the sensitivity analysis with 10% variation on either side. The validation team has confirmed the net annual generation used for the project investment analysis is reasonable and appropriate.	OK
Tariff rate	INR/KWh	3.56 (7 WTGs x 2.1MW)	GERC Wind Power Tariff Order (dt. 31-01-2010)	The PP has sourced the preferential tariff from the Gujarat Electricity Regulatory Commission Order No.1 of 2010 which was applicable at the time of decision making. The validation team cross-checked with the tariff order dated 31/01/2010 and confirmed the tariff was the appropriate one available to the PP at the time of the investment decision. The PP, at the time of investment decision, had decided to go for the feed in tariff (preferential tariff) for 7 WTG’s (7x 2.1 MW). This was further confirmed during site visit as the evacuation feeders at the site substation are configured for 5 WTGs in one feeder and 7 WTGs in another feeder. This confirms the PP had planned the project implementation having 7 WTGs under preferential tariff route. Although, at the time of investment decision, the host country had	OK

				regulations such as Renewable Energy Certificate mechanism which can bring additional revenue to renewable energy generation projects; these policies are not mandated by law and therefore, considering the "Clarifications on the consideration of national and/or sectoral policies and circumstances in baseline scenarios" Annex 3 of EB 22, such policy falls as E- policy adopted after 11 November 2001. Therefore, the PP has not accounted for these policies and their impacts in the argument of additionality. Hence, the tariff rate as per GERC tariff order was considered appropriate at the time of the investment decision. http://www.gercin.org/renewablepdf/en_1303211765.pdf .	
Tariff rate (Under open access mechanism)	INR/KWh	3.90 (5 WTGs x 2.1 MW)	Third party Report	The PP has sourced this information from the third party study report note on "Determination of open access tariff" dated 13/07/2011 conducted for the PP holding company ReNew Wind Power Private Limited by General Carbon Advisory Pvt. Limited. This Open access tariff note was available to the PP at the time of decision making. The PP, at the time of investment decision, had decided to go for the open access tariff for 5 WTGs (5 x 2.1 MW). This was further confirmed during site visit as the evacuation feeders at the site substation are configured for 5 WTGs in one feeder and 7 WTGs in another feeder. This confirms the PP had planned the project implementation having 5 machines under open access route. The validation team has cross-checked the open access tariff considered by the PP at the time of investment decision making with the actual PPA for the WTG under open access mechanism. Even though the PP has considered 5 WTGs under the Open Access (OA) Mechanism, in reality the PP has only managed to have 1 WTG under open access mechanism due to market constraints. The power sale agreement indicates a power sale price of 3.93 INR/KWh, which is 0.76% higher than the OA tariff assumed at the time of decision making. This variation does not impact on the project additionality, as evident from the sensitivity analysis which was also carried out against the Tariff rate for +10%, as the equity IRR does not cross the benchmark IRR. However for the additionality argument, the PP has considered all the 5 WTGs under open access tariff regime and LRQA considers this	OK

				conservative and acceptable. As the open access PPA is for the period of 13.5 years, a tariff escalation of 5.40 % is effected from the 13th year . Escalation applied equals the host country 10 year median inflation forecasted by the central bank. LRQA considers this appropriate as the benchmark return was also inflated by the same amount to convert it to nominal term value using the long term inflation forecast of the central bank of the host country for the duration of crediting period. LRQA confirms that even with the consideration of year on year escalation of 5.40% on the open access tariff from the 13th year, the project return will not cross the benchmark IRR of 17.78%.	
Generation Based Incentive (GBI)	INR/ KWh	0.5	Ministry of New and renewable Energy scheme http://mnre.gov.in/	In accordance with host country regulations, a renewable energy project in the host country can avail either of Generation Based Incentive (GBI) or accelerated depreciation. Here, the PP has considered GBI during investment decision. Financial working considers the GBI revenue in cash inflow, since GBI is mutually exclusive to the benefit of accelerated depreciation in the host country. The PP has not considered this in the working. The validation team further cross-checked the information provided in the PDD/IRR working with the publically available document and confirmed that the consideration of GBI incentive of 0.5 INR/KWH was accurate and appropriate at the time of investment decision. http://inwea.org/others/OPERATIONAL_GUIDELINES.pdf GBI would not be available to any wind power project selling power to a third party. Hence it is not applicable to the WTG considered under Open access mechanism. The PP has initially considered 5 machines under open access route during decision making. IRR working submitted by the PP has considered GBI revenue for 7 machines out of 12 WTGs commissioned in the project activity. However, the PP managed to sell power through open access mechanism only for one machine. GBI notification document Ref:223/39/WE/2010/IREDA/885 dated 12/07/2012 indicates 11 WTGs out of a total of 12 WTGs in the project activity is under GBI consideration. The PP had considered only 7 WTGs under GBI at the time of investment decision making. However,	OK

				in reality, 11 WTGs are availing the benefit of GBI. Project return marginally increases to 7.57% when GBI revenue from the entire 11 machine is accounted in the cash flow. However project return does not cross the benchmark IRR of 17.78%.	
Residual Value of plant and machinery	%	10	GERC Tariff Order (dt. 31-01-2010), Page 22	The residual value assumed by PP is confirmed to be appropriate and in line with standard accounting practices followed within the host country. It has been validated with Companies Act; schedule XIV, section 205 and 350, which states that asset can be depreciated up to 95%. As per GERC guidelines, salvage value is to be considered at 10% of the capital cost. http://www.gercin.org/renewablepdf/en_1303211765.pdf . The residual value is added back in the terminal year in the IRR working submitted by the PP. Hence, the validation team concluded that the value is accurate and suitable.	OK
Interest rate	%	13.25	SBI BPLR Minus 1% (as per GERC Tariff Order (dt. 31-01-2010)Page - 17)	GERC tariff order dated 30/01/2010 recommends an interest rate which equals the State Bank of India (SBI) PLR minus 1%. The PP considered a rate of interest based on the prevailing SBI PLR rate at the time of investment decision which equals 14.25%. http://in.reuters.com/article/2012/01/09/india-plr-idINL3E8C962820120109 In line with Para 120 of VVS Version 02.0, the validation team also noted that the actual interest rate at which the loan was sanctioned is 13.00% which is based on the term loan approval letter from the financial institution. Project return increases marginally to 7.41% by considering the actual approved interest rate of 13.00% and does not cross the benchmark IRR of 17.78%. Therefore, the rate of interest considered for investment analysis is acceptable.	OK
Debt :Equity ratio	%	70:30	GERC Tariff Order (dt. 31-01-2010)	The debt equity ratio (70:30) considered by the PP at the time of investment decision is in line with the tariff order of Gujarat Electricity Regulatory Commission (GERC) dated 30/01/2010. Debt equity ratio suggested by GERC is considered and is acceptable for the investment analysis. In reality, the project is funded at a debt:equity ratio of 2.09, i.e. Debt 67.5% and Equity 32.5%. Project return does not cross the benchmark IRR of 17.78% with the actual debt:equity availed by the PP	OK

				for the project activity.	
Debt Repayment Term	Year	10	GERC Tariff Order (dt. 31-01-2010), Page 16	The tenure of term loan is considered as per the GERC tariff order which was available at the time of the investment decision. However, as per actual loan sanction letter, the tenure is 13.25 years which results to lower equity IRR rate of 7.16%. The validation team considered the shorter debt repayment period of 10 years considered at the time of investment decision was conservative, hence acceptable.	OK
Corporate tax	%	33.22	Indian Govt.IT Act	In accordance with the local taxation laws. Tax rate is calculated as base rate with 7.5% surcharge and 3% education cess. Base rate for the corporate tax is 30%.	OK
Depreciation rate as per Companies Act	%	5.28%	The Companies Act,1956 - SCHEDULE XIV	The validation team confirmed that the rate of depreciation as per the Companies Act 1956 has been applied for calculation of Profit Before Tax. The validation team confirmed that depreciation, being a non-cash item, has been added back to the Profit after Tax for calculating IRR, which is in accordance with guidance 5 of 'Guidelines on the Assessment of Investment Analysis'.	OK
Service Tax on O&M expenses	%	10.30%	Directorate of Service Tax, Ministry of Finance, Govt. of India	The service tax for calculating O&M cost is as per the applicable tax rate at the time of investment decision (August 2011). The validation team cross-checked the publically available source and found the same acceptable. http://www.saraltaxoffice.com/resources/st.php	OK
MAT rate	%	20.01	Indian IT Act for FY 2011-12	In accordance with the local taxation laws. MAT rate is calculated as base rate with 7.5% surcharge and 3% education cess. Base rate for the MAT is 18.5%.	OK

	Validated situation	**Conclusion**
4. Confirm the suitability of any benchmark applied in the investment analysis: (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	Project proponent had demonstrated that the financial returns of the proposed CDM project activity would not be sufficient to justify the required investment (conformity to paragraph 119(C) of VVS). For demonstrating the financial unattractiveness of the project activity, the PP had chosen investment analysis. Since the alternative to the project activity is supply of electricity from connected grid system where no investment is required, therefore, benchmark analysis is considered appropriate, in accordance with Guidance 19 of Guidelines on the assessment of investment analysis, Version 05	~~CAR04~~ OK

	Validated situation	Conclusion
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. (d) Confirm the suitability of the benchmark (WACC) by checking that its components are calculated using reasonable vintage years that are consistent with the investment horizon and the period for risk free rate. Guidance 15 of the Guidelines on the Assessment of Investment Analysis should be taken into account for estimating the market return rate.	The PP has chosen equity IRR to demonstrate the additionality of the project. Equity IRR is used by the project developers to evaluate the investment worthiness of the project and guidance 12 of Annex 5, EB62 allows the use of equity IRR to demonstrate the additionality argument. The required /expected returns on equity have been attained by using the default value provided in group -1 project categories as contained in the appendix of EB 62 for the host country, Further, as per paragraph 7 of the appendix, the default value of the expected return on equity in real term was transformed to nominal value using the long term inflation forecast of the central bank of the host country for the duration of crediting period. Expected return on equity as per Appendix of EB 62 annex 5. Default values for the expected return on equity for group -1 project categories for the host country is 11.75% in real terms. Further, the PP had converted the real term return of equity to nominal value ROE as per Paragraph -07 of appendix, the PP has applied the inflation forecast of the central bank of the host country for the duration of the crediting period. The long term survey of professional forecaster published on 25/05/2011 by the reserve bank of India for inflation based on wholesale price Index (WPI) was available to the PP at the time of investment decision making. The PP has consider the median 10 year WPI inflation of 5.4 % (Table A.7). http://rbi.org.in/scripts/PublicationsView.aspx?id=13360 Thus, the default value of 11.75% (real) was transformed to nominal ROE using the fisher equation[4] . $COE_{nominal} = (1+COE_{real})* (1+$ Average inflation forecast$)-1$ Based on the above equation the Nominal bench mark return on nominal term was calculated as 17.78%.	

[4] Aswath Damodaran, Book on Investment Valuation _2nd edition (Page 8 of Chapter 13)

	Validated situation	Conclusion
	This was further cross-checked with an online nominal rate calculator. http://tfsfrd.tamu.edu/tdss/Basic/rates.htm LRQA considers this appropriate as the PP has followed the requirement provided in the Annex 5 of EB-62. Hence the validation team was of the view that the expected return of 17.78% from the project was commensurate with the risk involved in the renewable energy project particularly that of a wind project. Thus, the benchmark determined for the project activity was found to be in line with VVS version 02.0 Para 119(C) and EB 62, Annex 05. CAR04 was raised as the PDD Version 01 published for GSC does not use the correct sources and formula for calculating the nominal value from the default real value provided in the appendix. The PP resubmitted the benchmark return calculation by using the appropriate central bank data for long term inflation forecast for the host country. The error in the Fisher formula was also corrected. Hence the CAR-04 finding was closed. The validation team confirmed that the project Equity IRR does not cross the benchmark calculated based on appendix default values i.e. 17.78%.	
5. If the project participants rely on values from a Feasibility Study Report (FSR) approved by any national authority, the team is required to ensure that: (a) The FSR has been the basis of the decision to proceed with the investment in the project, that is, that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed. (b) The values used in the PDD and associated annexes are fully consistent with the FSR and, where inconsistencies occur, the DOE should validate the appropriateness of the values. (c) On the basis of its specific local and sectoral expertise, confirmation is provided, by cross-checking or other	Not Applicable, as the PP has used the values from the technology supplier quotation.	NA

	Validated situation	Conclusion
appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision. Use the table below to cross-check input values and describe here the results of the comparison.		

	Validated situation	Conclusion
SECTION 6d. Barrier analysis		
1. Does the PDD demonstrate that the proposed project activity faces barriers that prevent its implementation and do not prevent at least the implementation of one of the alternatives? Provide here an overall determination of the credibility of the barrier analysis. Use the below table to list each barrier considered in the PDD and to describe how the team undertake their validation.	Not applicable	NA

Barriers are issues in project implementation that could prevent a potential investor from pursuing the implementation of the proposed project activity. The identified barriers are only sufficient grounds for demonstration of additionality if they would prevent potential project proponents from carrying out the proposed project activity undertaken without being registered as a CDM project activity.

Type of Barrier	Description in the PDD	Determination			Conclusion
		Barriers are real	Prevent implementation of PA	Do not prevent implementation of BL	
Access to finance	Not Applicable				--
Risks related barriers	Not Applicable				--
Technological	Not Applicable				--

Due to prevailing practice	Not Applicable				--
Other	Not Applicable				--
First of its kind	Not Applicable				--

	Validated situation	Conclusion
SECTION 6e. Common practice analysis		
1. Describe how the geographical scope of the common practice analysis has been validated. Assess whether the geographical scope (for example, the defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type.	The PP has presented common practice analysis in accordance with the stepwise approach prescribed by the Tool for the demonstration and assessment of additionality version 06.1.0 In accordance with paragraph 5 of the Tool for the demonstration and assessment of additionality Version 06.1.0, the PP had considered the entire host country as default to determine the geographical area. The validation team confirmed the geographical area determined by the PP as appropriate and in accordance with paragraph 5 Tool for the demonstration and assessment of additionality Version 06.0.0 and paragraph 129 (a) of the CDM VVS Version 02.0. LRQA confirmed the use of India as the default region as per the common practice analysis spreadsheet submitted by the PP.	OK
2. Determine to what extent similar and operational projects (for example, using similar technology or practice), other than CDM project activities[5]; have been undertaken in the defined region.	The PP has considered *"Measure"* as *(b) Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies)*;" and this is in line with the paragraph 6 of the additionality tool. The PP has considered power project activities with +/-50% capacity as per Step	~~CAR06~~ OK

[5] Registered CDM project activities and CDM project activities that have been published on the UNFCCC website for global stakeholder consultation as part of the validation processes

	1 (12.60 MW – 37.80 MW) commissioned in the host country for the common practice analysis. The validation team confirmed that this is in line with the paragraph 47 (applicable output range as ±50% of the design output capacity of 25.2 MW of the project activity). As per Step 2 all the projects that deliver the same output to be identified as N_{all} The list of all the project activities under different technologies are listed in the common practice analysis spreadsheet. In all, the PP has identified 458 projects. Project activities registered under CDM and projects under validation in the capacity range are excluded. Detailed breakup is as follows : Thermal – 94 Project Hydro -209 Project Biomass- 123 Project Wind - 32 Project N_{all} = 458 The validation team confirmed that all the information on projects in different technologies is identified using sources available in public domain. Information on wind projects are sourced from the directory of Indian wind power 2011. For thermal, hydro and nuclear power plants information, the CEA database version 06 was used. Use of version 06 of the CEA database was considered appropriate since this version was available at the time project start date. Further analysis spreadsheet has considered all the project activity under different technologies that has started commercial operation before the project activity start date. This is in line with the CPA guidance EB 63 Annex 12 Step 02. For solar and biomass power plant identification, the PP used Information available from Ministry of Renewable Energy (MNRE under the Government of India) and the respective state renewable energy development agency. Web links are provided in the common practice analysis spreadsheet. In Step 3, out of the 458 identified power plants, the PP has calculated the N_{diff}	

	as 426 by removing the similar wind projects .The identified power plants with different technology include 94 thermal power plants, and 209 hydro power plants and 123 biomass projects. In Step 4, the PP has calculated F factor which is 0.0699 and $N_{all} – N_{diff} = 32$. The applied tool specifies in conclusion to paragraph 47 that: "*The proposed project activity is a "common practice" within a sector in the applicable geographical area if both the following conditions are fulfilled:* *(a) the factor F is greater than 0.2, and* *(b) N_{all}-N_{diff} is greater than 3*." Since one of the above criteria is not fulfilled, the validation team conclude that the project activity is not a common practice in India. CAR06 was raised as the PP had not considered all the technologies in the PDD Version 1.0 published for GSC. The PP revised the common practice analysis in the revised PDD; further, the PP submitted a detail common practice analysis spreadsheet which covered all the data source information to the DOE. LRQA confirmed that all the available information in the spreadsheet was accurate and credible. Hence, CAR06 was closed. Based on the information available to the validation team, it was confirmed that similar activity is not widely observed and the project activity is not considered as a common practice in the region.	
3. If similar and operational projects, other than CDM project activities, are already widely observed and commonly carried out in the defined region, assess whether there are essential distinctions between the proposed CDM project activity and the other similar activities.	As above	OK

	Validated situation	Conclusion

SECTION 7. Monitoring plan

1. *Compliance of the monitoring plan with the approved methodology and the applicable tools.* Confirm that the MP contains all the necessary parameters and that they are monitored in accordance to the approve Methodology and the applicable tools using the following table:

Parameter	Monitoring Methodology / Tools description	PDD description	Validated situation	Conclusion
$EG_{facility,i,y}$	**Data unit**: MWh/yr **Description**: Quantity of net electricity generation supplied by the project plant/unit to the grid in year y **Source of data:** Project activity site **Measurement procedures (if any):** Electricity meters	**Data unit**: MWh/year **Description:** Quantity of net electricity supplied by the project WTGs connected to feeder i to the grid in period y **Source of data :** Sum of net electricity generation values as per all the certificates for share of electricity generated by Wind farm provided by GETCO/SLDC for the year y **Value(s) applied:** 50,733 MWh **Measurement methods and procedures:** The net electricity generated and fed into the grid shall be directly referred from the respective	Data unit and description are described correctly. The validation team confirms the description of the parameter is in accordance with the methodology i.e. Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y The unit is correctly mentioned as MWh/year and the value of data is 50,773 MWh/year (at a PLF of 22.98%). The credit note provided by the state utility Company GETCO shall be used as source for $EG_{facility,y}$. This was confirmed during site visit interviews with the PP and the O&M staff. The net electricity supplied from the project WTGs is evacuated at 33kV through two separate feeder lines to Parveda site substation (33 kV/66 kV) wherein the electricity is stepped up to 66 kV. Separate metering is done for each feeder at the metering switchyard on high voltage side at the Parveda sub-station, The total export & import to these feeders is monitored using the main meter, ABT Meter & the check meter, which are electronic tri-vector meters. There are feeder-wise monitoring arrangements to measure the electricity export and electricity import using energy meters of 0.2s accuracy class.	~~CAR07~~ OK

	Monitoring frequency: Continuous measurement and at least monthly recording **QA/QC procedures**: Cross check measurement results with records for sold electricity	certificates for share of electricity generated by Wind farm provided by GETCO/SLDC. The above values are calculated by specific apportioning mechanism. The same has been provided in appendix 5 of this PDD for reference. As Readings from both the WTG yard meters (tri-vector meters) as well as the ABT[6] meters installed at the 33/66 kV Parveda substation are used for arriving at the net electricity generation supplied by the project to the grid, their ,measurement methods and procedures are described below: Monitoring: Continuous measurement and at least monthly recording. Archiving: Electronic and Paper Data type: Measured &	The net electricity supplied to the grid by the given WTG for the given month (net export kWh) is obtained by subtracting electricity import from electricity export. The monitoring arrangement for the $EG_{facility,y}$ was confirmed during site visit interviews with the PP and the O&M staff. CAR07 was raised as the PDD Version 1.0 published for GSP was not clear on the measurement method adopted using ABT meter & Yard meter. The revised PDD appendix 5 incorporated the same. Hence CAR07 was closed.	

[6] ABT = Availability Based Tariff

	Any comment:-	Calculated Responsibility: The O&M site-in-charge shall be responsible for the regular recording of data. For ABT meter: Accuracy Class: 0.2S (Active) and 0.5S (Reactive) For Tri-vector meter (installed at the yard near each WTG): Accuracy Class: 0.2S **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures** The Quantity of net electricity generation from the certificate for share of electricity will be cross-checked with the invoices for the sale of power by the project proponent. The meter(s) shall be calibrated and maintained by the state utility as per their own schedule and this frequency of meter calibration is not within the control of the Project		

		Proponent. However, PP would ensure that calibration is carried out at least once in 3 years **Purpose of data:** Calculation of baseline emissions **Additional comment:** The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.		
$EG_{WTG\_yard,i,y}$		**Data unit**: MWh/year **Description:** Sum of electricity generation measured at individual yard meters of all project WTGs that are connected to feeder i during period y **Source of data :** Yard meter readings of project activity WTGs **Value(s) applied:** - **Measurement methods and procedures:** This parameter would only be used for calculation of $EG_{facility,i,y}$ in cases when the	Data unit and description are described correctly. The monitoring arrangement for the $EG_{WTG\_yard,i,y}$ was confirmed during site visit interviews with the PP and the O&M staff. CAR07 was raised as the PDD Version 1.0 published for GSP was not clear on the measurement method adopted using ABT meter & Yard meter. The revised PDD appendix 5 and section B 7.3 incorporated the same. Hence CAR07 was closed All other parameters relating to $EG_{facility,i,y}$ as applicable to $EG_{WTG\_yard,i,y}$ have also been confirmed by the validation team.	~~CAR07~~ OK

		start/end dates of monitoring period do not match with the start/end dates of certificate for share of electricity generated by Wind farm provided by GETCO/SLDC or if there are both project and non-project WTGs connected to a particular feeder i. This parameter is the sum of electricity measured at yard meters of all the project WTGs on a continuous basis. These meter readings will be recorded at on a daily basis. O&M contactor will have the responsibility of monitoring this parameter. Monitoring: Continuous measurement and at daily recording. Archiving: Electronic and/or Paper Data type: Measured & Calculated **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures** The yard meters installed near individual WTGs will		

		be tested at least once in a year and calibrated (if required). **Purpose of data:** Calculation of baseline emissions **Additional comment:** The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.		
$EG_{Allyard,i,y}$		**Data unit**: MWh/year **Description:** Sum of electricity generation measured at individual yard meters of all project and non-project WTGs that are connected to feeder i during period y **Source of data :** Yard meter readings of project & non-project activity WTGs **Value(s) applied:** - **Measurement methods and procedures:** This parameter would only be used for calculation of $EG_{facility,i,y}$ in cases when the	Data unit and description are described correctly. The monitoring arrangement for the $EG_{Allyard,i,y}$ was confirmed during site visit interviews with the PP and the O&M staff. All other parameters relating to $EG_{facility\ i,y}$ as applicable to $EG_{Allyard,i,y}$ have also been confirmed by the validation team.	OK

		start/end dates of monitoring period do not match with the start/end dates of certificate for share of electricity generated by Wind farm provided by GETCO/SLDC or if there are both project and non-project WTGs connected to a particular feeder i. This parameter is the sum of electricity measured at yard meters of the project and non-project WTGs on a continuous basis. These meter readings will be recorded at on a daily basis. O&M contactor will have the responsibility of monitoring this parameter. Monitoring: Continuous measurement and at daily recording. Archiving: Electronic and/or Paper Data type: Measured & Calculated **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures** The yard meters installed		

		near individual WTGs will be tested at least once in a year and calibrated (if required). **Note:** The project proponent does not have any control over the yard meter readings of other project developers and therefore the values certified by the O&M contractor/GETCO/SLDC will be directly used for the purpose of calculation. **Purpose of data:** Calculation of baseline emissions **Additional comment:** The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.		
2. *Implementation of the plan:* confirm that the monitoring arrangements described in the monitoring plan are feasible within the project design. Described the steps undertaken to assess this.			The monitoring plan describes the objective, organisational structure, roles and responsibility, the monitoring instruments, data monitoring procedure and the management system. A site review was conducted and confirmed that the monitoring is planned in a reasonable manner and considered feasible to be implemented by the PP.	OK
3. *Implementation of the Plan:* confirm that the means of implementation of the MP, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by / resulting from the proposed CDM project activity can be reported ex post and verified			The monitoring plan includes the internal quality control and assurance process, data control system and regular calibration of the monitoring instruments as appropriate that will ensure reliable monitoring and reporting of the ERs.	OK

	Validated situation	Conclusion
SECTION 8. Local stakeholder consultation		
1. Determine whether comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited.	The PP had invited the stakeholders through Invitation letter dated on 02/11/2011. This was confirmed by the validation team through the review of copy of invitation letters sent by PP dated 02/11/2011. It was confirmed by the validation team that the meeting was conducted in the local language (Gujarati) so as to allow the stakeholders to understand the project activity details and socio-economic benefits. The stakeholders were encouraged to give their opinion about the project activity. No adverse comments were received through stakeholders' consultation process. This was also confirmed by the validation team during the site visit stakeholder interaction.	OK
2. Confirm that the summary of the comments received as provided in the PDD is complete.	The validation team confirmed that the summary of comments received as provided in the PDD is complete. This was confirmed by the validation team through the review of minutes of stakeholder's meeting dated 23/11/2011.	OK
3. Confirm that the project participants have taken due account of any comments received and have described this process in the PDD.	No adverse comment was received during the local stakeholder consultation process that requires further action by the PP. This was confirmed by the validation team through the review of minutes of stakeholder's meeting dated 23/11/2011.	OK

	Validated situation	Conclusion
SECTION 9. Environmental Impacts		
1. Is an EIA required by the environmental legislation of the host country? Describe the legislation applicable.	The PDD mentions that wind projects will not fall under the purview of the Prior Environmental Clearance of Ministry of Environment & Forests, hence no EIA study is required. The PDD mentions EIA notification S.O 3067 dated 01/12/2009 at http://moef.nic.in/downloads/rules-and-regulations/3067.pdf. The validation team has reviewed the applicable EIA notifications and regulations of the host country and confirmed that wind power projects would not fall under the purview of the EIA as per the notification dated 14/09/2006 (http://www.moef.nic.in/legis/eia/so1533.pdf) and notification dated 01/12/2009 (http://moef.nic.in/downloads/rules-and-regulations/3067.pdf.). The validation team has confirmed that no EIA study or clearance is required for setting up wind power projects. The PP has obtained the requisite GEDA Permission for setting up of 25.2 MW wind farm at Rajkot, Gujarat.	OK
2. Confirm whether the project participants have undertaken an analysis of environmental impacts and, if required by the host Party, an environmental impact assessment.	EIA not applicable to this project.	OK
3. Confirm that environmental impacts considered significant by the PPs or the Host country are described in the PDD, including mitigation measures.	The rules of host country do not require EIA for the type of the project activity.	OK

Findings[7]

1. Grade / Ref:	CAR 01	2. Date:	23/04/2012	3. Status:	Closed
4. Requirement:		Paragraph 38 of CDM VVS Version 02.0			
5. Nature of the Issue Raised:					
Letter of approval from host country DNA not available for the Project Activity					
6. Nature of responses provided by the project participants:					
The letter of approval dated 10/10/2012 (ref no. 4/12/2012-CCC) issued by host country DNA has been provided.					
7. Assessment of such responses:					
PP submitted the LoA from the host party DNA (ref 4/12/2012 dated16/08/2012). LOA confirms the participation of PP and the project activity's contribution to sustainable development of the host country.					
8. References to resulting changes in the PDD or supporting annexes:					
NA					

1. Grade / Ref:	CAR 02	2. Date:	23/04/2012	3. Status:	Closed
4. Requirement:		Guidelines for completing the CDM PDD (EB -41 Annex 12)			
5. Nature of the Issue Raised:					
Section A.4.3 of the PDD Version 1.0 do not provide information related to 1]Plant Load Factor and Net Generation of Wind farm 2]Monitoring Equipment and their location in the system not provided in this section 3] Design life of WTG as per GSC PDD Ver 1.0 given as 25 Years. Product Brochure and Purchase order mention this as 20 Years. 4] Model Name of the WTG not mentioned in section A 4.3					

[7] Explanation of the Findings Log structure:
1. Grading and Sequential Number of the finding 2. Date of Original Finding 3. New, Open, Closed 4. Requirement (VVS, PDD-CDM, etc) 5. Reference to Protocol
6. Details of PP's response 7. Evaluation from the Validation team 8. List of changes made as a result of the finding

5] In Section B2 of the PDD, all the applicability conditions of the methodology have not been addressed.
6. Nature of responses provided by the project participants:
1] Section A.3 of the PDD (as per PDD form Version 04.1) has been updated to provide information related to Plant Load Factor and Net generation of wind farm. Revised PDD has been provided for DOEs perusal. 2] Description of 3 meters and monitoring arrangement has now been added in section B.3 of the revised PDD (as per PDD form Version 04.1). A note on the monitoring & measurement arrangements has also been provided for DOEs reference. . 3] Design life of WTG as per product brochure and purchase order is 20 Years, PP had considered a life of 25 years for proving project's financial additionality as per the CERC Order dated 09/11/2010 (http://www.cercind.gov.in/2010/November/Signed_Order_256-2010_RE_Tariff_FY_11-12.pdf). This leads to a conservative estimation of project's returns. 4] Model Name of the WTG has now been mentioned in the section A 3 of the revised PDD (as per PDD form Version 04.1). Revised PDD has been provided for DOEs perusal 5 All the missing applicability condition incorporated in the revised PDD.
7. Assessment of such responses:
1. Section A.3 of the PDD has been revised with the net generation and plant load factor (PLF). The same is confirmed from the third party PLF assessment study and therefore the finding is closed. 2. Details of Monitoring Equipment and their location in the system have been added in PDD section B.3.0 (PDD Form Version 04.1(VVS)). Further background information on monitoring plan is provided in appendix 5 of the revised PDD wherein the details pertaining to the Main meter, Check meter and an Availability Based Tariff (ABT) meter are provided. Hence the finding is closed. 3. The project life time as per the product brochure and purchase order is 20 years, however as confirmed from the web link provided by the PP, CERC specifies 25 years to be considered for project lifetime. The assumption leads to a conservative IRR calculation and can be deemed appropriate. The finding is therefore closed. 4. PP has mentioned the model name in the PDD and the same is consistent with the product brochure. Therefore, the finding is closed. 5. Applicability condition of the methodology has been correctly described in the PDD.
8. References to resulting changes in the PDD or supporting annexes:
Revised PDD Section A.3.B.3. and Appendix -5

1. Grade / Ref:	CAR 03	**2. Date:**	23/04/2012	**3. Status:**	Closed
4. Requirement:		Tool to calculate the emission factor for an electricity system			

5. Nature of the Issue Raised:
PDD Version 1.0 was available for GSP in the month of Feb 2012. For emission factor determination the PP has used Version 7.0 of CEA database for emission factor . However the emission factor (Combined Margin) considered for the baseline emission is not appropriate which makes the baseline emission non conservative.
6. Nature of responses provided by the project participants:
The emission factor (Combined Margin) considered for the baseline emission calculation is rounded down and revised. The respective Sections in the PDD & ER estimation spreadsheet are updated accordingly. Revised PDD & ER spreadsheet has been provided for DOEs perusal.
7. Assessment of such responses:
The emission factor has been calculated as per the tool to calculate emission factor considering CEA database 7.0 sheets, conservatively. The same has been confirmed and therefore the finding is closed.
8. References to resulting changes in the PDD or supporting annexes:
Revised PDD Section B.6.1,B6.2,B6.3,B6.4and the revised ER spreadsheet dated 14/09/2012

1. Grade / Ref:	CAR 04	2. Date:	23/04/2012	3. Status:	Closed
4. Requirement:	Paragraph 106 of CDM VVS Version 02.0 Paragraph 121 of CDM VVS Version 02.0 Guidelines on the assessment of investment analysis Ver 5.0				
5. Nature of the Issue Raised:					
Section B.5 of PDD Ver 1.0 1. Date of investment decision making not presented in the chronology of events table in PDD Version 1.0 2. PP to clarify how return on equity is calculated from the value in real terms to nominal terms. 3. PP to justify how inflation rate is estimated following the approach prescribed in paragraph 7 of appendix to the Guidelines on the assessment of investment analysis, Version 05. 4. CDM chronologies point No .5 mention as “Commissioning expected “. During the site visit it was found that the project was commissioned. 5. Start date 26/08/2011 mention to supply agreement with the WTG Supplier. However no supply agreement was signed with the technology supplier to the date mentioned in the PDD Version 1.0					
6. Nature of responses provided by the project participants:					
1. The date of investment decision is now provided in the table. Revised PDD has been provided for DOEs perusal. 2. The source for Fisher formula has been revised now to “Aswath Damodaran, Book on Investment Valuation _2nd edition (Page 8 of Chapter 13)”. The revised PDD has been submitted for DOEs perusal. 3. 10 year WPI inflation based on RBI Inflation forecast for the host country is now considered. As per the guidelines on the assessment of investment analysis (EB62, paragraph 7), “The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period”. This is the option chosen by the PP. 4. CDM chronologies point No .7 is corrected since the plant is commissioned. Revised PDD has been provided for DOEs perusal.					

5. The PDD section C has now been corrected to mention the start date as the date of placement of PO to technology supplier. Revised PDD has been provided for DOEs perusal
7. Assessment of such responses:
1. Chronology in section B.5 has been updated. Therefore, the finding is closed. 2. Fisher Formula provided is checked and found to be appropriate. The sources referenced are credible, Hence the finding is closed. 3. Considering 10 year of forecasted inflation data is deemed conservative and appropriate for transforming nominal value to real value. Choosing RBI as an option among the three alternatives is acceptable as per the guidelines and therefore the finding is closed. 4. The correction has been made to the PDD and therefore the finding is closed. 5. The chronology table 6 in sections B.5 and C.1.1 now correctly mention the start date as the date of purchase order with the technology provider Suzlon Energy Limited. Therefore, the finding is closed.
8. References to resulting changes in the PDD or supporting annexes:
Revised PDD sections B.5 & C.1.1.

1. Grade / Ref:	CAR 05	**2. Date:**	23/04/2012	**3. Status:**	Closed
4. Requirement:		Paragraph 120 of CDM VVS Version 02.0			
5. Nature of the Issue Raised:					
The following assumptions used in the investment analysis spreadsheet need to be justified for their appropriateness: 1) Basis of open access tariff rate INR 3.90 for 5 WTGs (2.1 MW x 5) at the time of investment decision for the project activity. 2) Why CER sharing with consumers considered in the financial spreadsheet.					
6. Nature of responses provided by the project participants:					
1. The basis for consideration of open access tariff rate of INR 3.90 for 5 no. WTG is the note submitted from third party which was available to the PP at the time of taking investment decision. The note has already been shared with the DOE as a part of the AIR response. Further, it was also discussed & observed during the site visit that the machines have been grouped in 5 + 7 configuration (connected to Feeder-1 & Feeder-2) as the initial plan (at time of investment decision) was to take 5 WTGs in OA route and 7 in preferential tariff route as per AIR doc # 8.h., the note from General Carbon, it is evident that they had suggested 5 machines under OA mechanism. Further as per the internal note circulated to board members at the time of decision making (attached), it was recommended to consider this configuration (5+7) so as to mitigate the risk with OA mechanism. The DOE has also verified at the site that the Feeder configurations are also 5 WTGs in one feeder and 7 WTGs in another feeder. Hence it can be concluded that the PP had planned project implementation in the same manner.. 2. CER sharing with consumers has now been excluded. Revised PDD & financial spreadsheet has been provided for DOEs perusal.					
7. Assessment of such responses:					
1. The PP has sourced this information from the third party study report note on “Determination of open access tariff” dated 13/07/2011 conducted for the PP holding company ReNew Wind Power Private Limited by General Carbon Advisory Pvt. Limited. This Open access tariff note was available to the PP at the time					

of decision making. The PP, at the time of investment decision, had decided to go for the open access tariff for 5 WTGs (5 No.x 2.1 MW). This is further confirmed during the site visit as the evacuation feeders at the site substation are configured for 5 WTGs in one feeder and 7 WTGs in another feeder. This confirms the PP had planned the project implementation having 5 machines under open access route. The validation team has cross-checked the open access tariff considered by the PP at the time of investment decision making with actual power sale agreement for the WTG under open access mechanism. Even though the PP has considered 5 WTGs under the OA Mechanism, in reality the PP has only managed to have 1 WTG under open access mechanism due to market constraints. The power sale agreement indicates a power sale price of INR 3.93 /KWh. LRQA deems the consideration of open access tariff of INR3.90/KWh based on third party study at the time of investment decision appropriate and conservative, considering the preferential tariff based on GERC tariff order available to the PP at the time of decision is only INR 3.56/KWh. 2. The CER sharing between consumer & Discom is not required as the PP is not selling any power to the Discom. PP has removed it from the Investment analysis calculation. Therefore the finding is closed
8. References to resulting changes in the PDD or supporting annexes:
PDD Version5.0 sectionB.5 and IRR spread sheet dated 19/07/2012

1. Grade / Ref:	CAR 06	**2. Date:**	23/04/2012	**3. Status:**	Closed
4. Requirement:		Paragraph 128 of CDM VVS Version 02.0			
5.Nature of the Issue Raised:					
Common practice analysis carried out in the PDD Version 01 is not in compliance to the requirement of paragraph 47 of additionality tool. Analysis presented in the PDD does not include data for biomass, thermal, nuclear and hydro technologies.					
6. Nature of responses provided by the project participants:					
Common practice analysis is now carried out according to the latest guidelines and the PDD is updated accordingly. Revised PDD & common practice analysis spreadsheet has been provided for DOEs perusal.					
7. Assessment of such responses:					
PP has revised the common practice analysis considering all the technology in the measure applicable. Further, the PP has chosen the host country as the applicable geographic area. This is in line with the paragraph 47 of the additionality tool and satisfies all the conditions for common practice analysis. Further, the PP has submitted a detailed analysis spreadsheet which is very transparent in its data source. The validation team consider this appropriate; hence the finding was closed.					
8. References to resulting changes in the PDD or supporting annexes:					
Section B.5 of PDD Version 5.0 & Common Practice Analysis spreadsheet.					

1. Grade / Ref:	CAR 07	**2. Date:**	23/04/2012	**3. Status:**	Closed
4. Requirement:		Para 122 of CDM-VVM version 01.2			
5. Nature of the Issue Raised:					
The monitoring procedures described in section B.7 of the PDD do not include details of the metering of net electricity generated by the WTG.					

Detailed description of measurement methods and procedures to be applied are not provided. Description of the parameter $EG_{facility,y}$ was inconsistent with methodology Version 12.3.0.
6. Nature of responses provided by the project participants:
Description for parameters in B.7.1 has been revised to be in line with the applied methodology. Detailed description of monitoring methodology and apportioning procedure is provided in PDD – Appendix 5.
7. Assessment of such responses:
PP has incorporated all the necessary correction and a detailed procedure for apportioning of electricity generated by the individual WTG in the project activity. The revised PDD version 5.0 appendix 5 clearly provides information related to monitoring and apportioning. The validation team considers this reasonable. Hence, the finding is closed.
8. References to resulting changes in the PDD or supporting annexes:
PDD version5.0 section B.7 and Appendix -5 .

1. Grade / Ref:	CL01	**2. Date:**	23/04/2012	**3. Status:**	Closed
4. Requirement:		Guidelines on the assessment of investment analysis Ver 5.0			
5. Nature of the Issue Raised:					
Project Equity IRR has been worked out to be 7.19% as per investment decision financial working. Please clarify how with this low equity return lead to decisiveness towards project Implementation when the cost of debt assumed at the time of investment decision is 13.75%.					
6. Nature of responses provided by the project participants:					
As per the extract of board resolution, PP knew that on a stand-alone basis, the project returns were below expectations and the project was not viable for implementation. But considering the potential revenue from sale of CERs, the project's returns were expected to improve and thus improving its financial viability. As per the extract of the board minutes shared with the DOE, it is evident that PP has taken decision to invest in the project activity only with consideration of revenues from sale of CERs					
7. Assessment of such responses:					
The Board Meeting Resolution (BMR) and minutes were checked in PP's corporate office, and also the BMR confirms the PP's decision in going ahead with the project only with revenue from the sale of CERs. Original board resolution was provided to the validation team for verification. Decision making financial sheet clearly indicates to what extend the project return will improve with the CDM revenue with the available CER price at the time of decision making. The validation team is certain that the board have decided to invest in the project by considering the associated CDM revenue available to the project activity under CDM. Hence the clarification is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
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