Validation Report

Report for:

CLP Wind Farms India Private Limited

Validation of CDM project for

Wind power project in Maharashtra, India – Andhra Lake Phase - II

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Date	:	24/09/2012
Work carried out by	:	Archak Pattanaik Shubha Shanbhag Arnab Deb
Work verified by	:	Prabodha C Acharya Ketan S Deshmukh

LRQA Business Assurance

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1 Executive Summary

Lloyd's Register Quality Assurance Limited (LRQA) has been contracted by CLP Wind Farms India Private Limited (CLPWF), the project participant (PP), to undertake validation of the proposed project activity "Wind power project in Maharashtra, India – Andhra Lake Phase - II". The validation has been performed through a process of document review based on the project design document (PDD), Version 01 dated 08/09/2011 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 proposed project activity involves setting up of sixty three (63) Wind Turbine Generators (WTGs) with an aggregated installed capacity of 50.4 MW in Khed and Maval taluk of Pune district in Maharashtra, India. The generated electricity will be exported to the North East West & North-East grid (NEWNE) grid of India. This project is intended to reduce Green House Gas (GHG) emissions to the extent of electricity displaced from the regional grid. PP plans to eventually establish 113.6 MW wind farm in phases, Phase –I was of 56.0 MW capacity and Phase-II initially of 57.6 MW capacity. Phase-II of 57.6 MW later on was split into 50.4 MW and 7.2 MW as Phase - III. Project activity under this report refers to development of 50.4 MW (Andhra Lake Phase - II) and will be referred as the Project activity in this report.

The fulfillment 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 06 CARs and 06 CLs. The PP has taken actions and submitted to LRQA revised PDD and supporting. The validation team is of the opinion that the proposed project activity as described in the project design document Version 07.1 dated 24/09/2012 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 of 76,015 tCO_{2e} and contribute to the sustainable development of the host country. LRQA therefore requests the registration of "Wind power project in Maharashtra, India – Andhra Lake Phase – II" to the CDM Executive Board as a CDM project activity.

Lloyd's Register Quality Assurance Ltd
Hiramford
Middlemarch Office Village
Siskin Drive
Coventry CV3 4FJ
United Kingdom

Registered office:
Lloyd's Register
71 Fenchurch Street
London EC3M 4BS
United Kingdom

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Abbreviations

AIR	Additional Information Request
BE	Baseline emissions
BM	Build Margin
CARs	Corrective action requests
CAPM	Capital Asset Pricing Model
CDM	Clean development mechanism
CDM-EB	Executive board of clean development mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CDM VVM	CDM Validation and Verification Manual
CEA	Central Electricity Authority
CERs	Certified emission reductions
CLs	Clarification requests
CLPWF	CLP Wind Farms India Private Limited
CM	Combined Margin
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
DNA	Designated national authority
DOE	Designated operational entity
EF	Emission factor
EIA	Environmental impacts assessment
EIL	Enercon India Limited
ERPA	Emissions reduction purchase agreement
FAR	Forward action requests
GBI	Generation Based Incentive
GHG	Greenhouse gas
GSP	Global stakeholders' consultation process
GWh	Giga Watt Hour
HTC	Hydro Tasmania Consulting
IREDA	Indian Renewable Energy Development Agency
IMF	International Monetary Fund
IDC	Interest During Construction
IDFC	Infrastructure Development Finance Company Limited
IPCC	Intergovernmental panel on climate change
IPP	Independent Power Producer
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
LTAEO	Long Term Annual Energy Output
MAT	Minimum Alternate Tax
MSEDCL	Maharashtra Electricity Distribution Corporation Limited
MW / MWh	Mega watt / Mega watt hour
NCV	Net calorific value
NGO	Nongovernmental organization
NEWNE	North East West & North east
MNRE	Ministry of New and Renewable Energy
MoC	Modalities of Communication
MoEF	Ministry of Environment & Forest

MERC	Maharashtra Electricity Regulatory Commission
NTP	Notice to Proceed
NCDMA	National Clean Development Mechanism Authority
ODA	Official development aid
OM	Operating Margin
O&M	Operation and Maintenance
PDD	Project design document
PE	Project emissions
PP	Project participant
PPA	Power Purchase Agreement
PLF	Plant Load Factor
RoE	Return on Equity
SLM	Straight Line Method
tCO2e	Tonnes of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
UTM	Universal Traverse Mercator
WTGs	Wind Turbine Generators
WDV	Written Down Value

2 Introduction

The project participant (PP), CLP Wind Farms India Private Limited (CLPWF) has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake validation of the proposed project activity Wind power project in Maharashtra, India – Andhra Lake Phase - II. 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:

Archak Pattanaik	LRQA Ltd. India	Team Leader CDM Lead Validator, Sector Expert
Shubha Shanbhag	LRQA Ltd. India	Team member CDM Validator Sector Expert
Arnab Deb	LRQA Ltd. India	Team member CDM Validator
Prabodha C Acharya	LRQA Ltd. India	Technical reviewer , Sector Expert
Ketan S Deshmukh	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 manual (CDM VVM Version 01.2) 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 proposed project activity involves setting up of sixty three (63) Wind Turbine Generators (WTGs), each of 800 KW capacities. The aggregated installed capacity of the project activity of 50.4 MW is installed at Khed and Maval taluk of Pune district in Maharashtra. The generated electricity will be exported to the NEWNE grid of India and intended to reduce Green House Gas (GHG) emissions to the extent of electricity displaced from the regional grid.

PP plans to eventually establish 113.6 MW wind farm in phases, Phase –I was of 56.0 MW capacity and Phase-II initially of 57.6 MW capacity. Phase-II of 57.6 MW later on was split into 50.4 MW and 7.2 MW as Phase -III. Project activity under this report refers to development of 50.4 MW (Andhra Lake Phase - II) and will be referred as the Project activity in this report.

The annual net electricity generation by the project activity is estimated to be 80,125 MWh per year and related GHG emission reductions are estimated to be 76,015 tCO_2e per annum.

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.

The PDD Version 01 dated 08/09/2011 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 CLs issued by LRQA. The documents reviewed by LRQA are listed in Appendix B. LRQA reviewed the final version of the PDD Version 07.1 dated 24/09/2012 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
13/10/2011	• Andhra Lake • MSEDCL Substation	Technology supplier (EIL) Local stakeholders Representative from project participant	• Selection of technology & Selection of site • Project boundary issues • Performance of WTGs, Power generation, grid availability, PLF, Machine availability,	Shubha Shanbhag

Date	Location/ Address	Party Interviewed	Subjects Covered	Team Members on Site
			losses etc • Physical identification of WTG based on unique identification number • Procedures for monitoring & reporting, QA/QC systems, training programme • Data collection, monitoring, recording at Central Monitoring station, discussion about the WTG controller and the data apportioning procedure • Electricity metering provision, Calibration schedule of meters • Institutional arrangement of data collection and archiving • Record keeping – daily production report, operation log • Provisions for internal audits • Emergency preparedness • Projects contribution to sustainable development • Legal requirements/ Other Statutory requirements • Discussion on sublease of land • Discussion on environmental impact assessment of the project • Discussion on local stakeholder consultation process • Invitation letters issued to local villagers • Representation by stakeholders in stakeholders' consultation meeting	

Date	Location/ Address	Party Interviewed	Subjects Covered	Team Members on Site
			• Minutes of meeting –Comments, action taken • Employment of local skilled and unskilled people • Views on the project activity	

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 (VVM) Version 01.2. 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 from approval from the host country, reference number 4/2/2012-CCC dated 25/07/2012 has been received. This letter of approval confirms the contribution of the project activity Wind power project in Maharashtra, India – Andhra Lake Phase – II 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

CLP Wind Farms India Private Limited is 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 PPs has been authorised, as confirmed in the LoAs 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 (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM) referring to the latest version applicable to the validation.

A valid form of the CDM-PDD 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 proposed project activity involves setting up of sixty three (63) Wind Turbine Generators (WTGs), each of 800 KW capacity with an aggregated installed capacity of 50.4 MW at Khed and Maval taluk of Pune district in Maharashtra. The generated electricity will be exported to the NEWNE grid of India.

In the baseline scenario, similar quantum of electricity would have been generated by the operation of grid-connected power plants and by the addition of new generation sources that would have led to emission of Green House Gases (GHGs).

PP plans to eventually establish 113.6 MW wind farm in the same location in three phases. Currently the phase –I of 56.0 MW capacity and Phase-II of 50.4 MW capacity has been commissioned. Phase-III of 7.2 MW is under development. The proposed project activity refers to development of 50.4 MW (Andhra Lake Phase - II).

The geographic coordinates of the project activity in latitude and longitude were confirmed as below:

Serial No.	WTG Loc. No.	Latitude (North)			Longitude (East)		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
1	19	18	51	3.1	73	38	32
2	20	18	51	12.8	73	38	32.3
3	21	18	51	17.5	73	38	29.6
4	22	18	51	23	73	38	33.7
5	23	18	51	22.8	73	38	22.5
6	24	18	51	29	73	38	22.3
7	25	18	51	33.6	73	38	22
8	26	18	51	41.4	73	38	28.7
9	27	18	51	45.9	73	38	27.7
10	28	18	51	53.6	73	38	30.6
11	29	18	51	59.9	73	38	24.9
12	30	18	52	5.1	73	38	21.9
13	31	18	52	7.8	73	38	20.3
14	32	18	52	15.6	73	38	18.2
15	33	18	52	20.8	73	38	16.9

16	34	18	52	25.6	73	38	14.5
17	35	18	52	32.7	73	38	10.9
18	36	18	52	33.6	73	38	1.3
19	96	18	58	1.3	73	31	58.1
20	97	18	58	7.4	73	31	55.6
21	107	18	59	39.2	73	35	7.4
22	108	18	59	29	73	35	13.5
23	109	18	59	24.1	73	35	17
24	110	18	59	20.1	73	35	21.7
25	111	18	59	14.1	73	35	25.9
26	112	18	59	10.8	73	35	29.5
27	113	18	59	7.9	73	35	33.4
28	115	18	59	1.5	73	35	47.3
29	116	18	58	57.8	73	35	53
30	117	18	58	51.7	73	36	1.2
31	118	18	58	47.8	73	36	4.2
32	119	18	58	43	73	36	8.1
33	120	18	58	37.9	73	36	10
34	121	18	58	34.2	73	36	13.9
35	122	18	58	29	73	36	19.1
36	123	18	58	25.6	73	36	21.7
37	124	18	58	21.6	73	36	26.8
38	190	18	48	24	73	33	38.2
39	191	18	48	28.9	73	33	36.1
40	193	18	48	40.6	73	33	42.7
41	194	18	48	47.5	73	33	46.3
42	195	18	48	48	73	33	35.5
43	196	18	48	54.2	73	33	34.1
44	197	18	48	58.5	73	33	31.1
45	198	18	49	4.1	73	33	30.6
46	199	18	49	8	73	33	27.4
47	200	18	49	12.9	73	33	26.3
48	201	18	49	17.8	73	33	27.2
49	202	18	49	24.1	73	33	26.8
50	203	18	49	29.2	73	33	24.9
51	204	18	49	31.5	73	33	16.4
52	205	18	49	36.5	73	33	14.4
53	206	18	49	41.8	73	33	16.2
54	207	18	49	48.1	73	33	16.8
55	208	18	49	52.8	73	33	16.1
56	209	18	49	58.3	73	33	16.4
57	210	18	50	4	73	33	14.1
58	211	18	50	6.4	73	33	9.2
59	212	18	50	9.9	73	33	4.4
60	213	18	50	14.7	73	32	58.2
61	214	18	50	20.2	73	32	52.8
62	500	18	50	54.4	73	38	29.4
63	511	18	59	33.3	73	35	10.3

The WTGs are supplied by EIL and are connected to the NEWNE grid system of India. Net electricity generated will displace the grid electricity which is predominantly fossil

fuel based, thereby reducing the GHG emissions.

The expected net PLF from the project activity is 18.15% as presented in the Long Term Annual Energy Output Assessment (LTAEOA), a third party PLF assessment study conducted by Hydro Tasmania Consulting.

The description of the project activity has been confirmed through the site survey, interview and review of project related documents. 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, date of commissioning, arrangements for O&M and necessary clearances for setting the project activity.

The technical specifications of the project provided in the PDD were confirmed during the site survey and also from the technical specifications provided by the WTG supplier. 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 E-53 of EIL has been listed by 'Centre for Wind Energy Technology', Govt. of India, which confirms the approval/certification of the model type.[1]

The accuracy and completeness of the project description was validated by document review including offer letter from the technology supplier, purchase orders, tariff order, commissioning certificates, purchase orders, PPA, interview, and field survey. (Refer Appendix B of the validation report).

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 third party PLF Assessment Report, Facilitation Agreement, Offer letter from Technology supplier Enercon India Ltd., 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". (Version 12.3.0). The methodology is valid for seeking registration until 11 Jan 2013 23:59:59 GMT.

LRQA confirms that the selected methodology is applicable to this proposed project activity. The methodology 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.

[1] http://www.cwet.tn.nic.in/html/information_ml.html

Project boundary

The project boundary includes WTG site, the Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) substation, the NEWNE grid and all power plants physically connected to the grid. The project boundary has been validated through review of relevant documents (e.g. commissioning certificates, PPA), onsite assessment (WTG sites, MSEDCL substation) and interviews with EIL & CLPWF personnel.

This information was substantiated via cross check with CO_2 baseline database version 6.0 which is the latest version available at the time of submission of the PDD for validation. Through the processes taken, the validation team confirmed that the identified project boundary, the selected sources and the gases were justified for the proposed project activity and they meet the requirements of the applied methodology.

For details of whether any discrepancy was identified, and the processes taken, 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

Since electricity generated from the proposed project activity will be supplied to the NEWNE grid, generation mix of NEWNE grid is considered as the baseline scenario.

The identified baseline scenario 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 validation team confirms that the identified baseline scenario is appropriate and validated in line with the requirements of § 105[2] of VVM Version 01.2.

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

[2] § 105 of VVM: The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required.

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 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 Jan 2013 23:59:59 GMT.

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.

Prior consideration of CDM

The start date for the project activity is as stated in the PDD is 16/09/2009, the date on which Notice to Proceed (NTP) was issued by the project participant to EIL. To substantiate the claim PP has submitted a copy of the "Notice to Proceed' (NTP) issued to the equipment supplier.

The PP had taken an investment decision on 26/09/2008 and signed a Facilitation Agreement with the equipment supplier on 29/09/2008. As per the Clause 2.3 (c) of the facilitation agreement,

"*Enercon shall not commence the works for the project until the Company has; issued a Notice To Proceed. The company shall issue the notice to proceed on or before 1 September 2009 or such other extended date as mutually agreed to between the parties in writing, failing which the agreement shall terminate automatically and Enercon shall refund the advance payment to the company. On full refund of the advance payment, Enercon shall have no further obligations or liabilities towards the company in respect of the project or under this agreement.*"

From the above it becomes clear that, though Facilitation Agreement was signed on 29/09/2008, it does not provide any commitment towards financial expenditures without issuance of the NTP. During the course of validation it was confirmed that, the project participant has not undertaken any construction/erection or any real action on the implementation of the project activity prior to the date of issuance of NTP. Since the *real action of the program activity* (Notice to Proceed) had begun on 16/09/2009 as per Glossary of CDM terms (Version 05.0), this date has been treated as the start date of the project activity.

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

to Host Party DNA on 25/08/2009, which are before the project activity starting date (i.e.16/09/2009). The intimation on to UNFCCC and Host party DNA was for total capacity of 113.6 MW, later on the PP decided to implement the project into 3 phases, "Wind power project in Maharashtra, India – Andhra Lake Phase – I (56 MW)", "Wind power project in Maharashtra, India – Andhra Lake Phase – II (50.4 MW)", "Wind power project in Maharashtra, India – Andhra Lake Phase – III (7.2 MW)". Revised intimation was sent to both UNFCCC and Host party DNA on 13/02/2012, as confirmed from the email communication and status of project in UNFCCC prior consideration page.

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 project activity is governed by the methodology ACM 0002 (Ver. 12.3.0). The methodology states,

"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"

Paragraph 105 of VVM (Version 01.2) states,

"The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required"

Since the approved methodology prescribes the baseline scenario, no further analysis on alternatives is required. However, the project participant has identified two alternatives, viz., the project activity undertaken without CDM benefits and status quo, i.e., importing electricity from the grid.

Both the alternatives are in compliance with all applicable legal and regulatory requirements as

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement; and
- the Electricity Act 2003 does not restrict or empower any authority to restrict the fuel choice for power generation;

Since the baseline is prescribed by the chosen methodology and the project participant has taken into consideration project activity being undertaken without CDM benefits, validation team concludes that the project activity is in conformity with paragraph 105 and 106 of VVM (version 01.2).

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

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 PPs have 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 "Guidance on the Assessment of Investment Analysis" as provided by the CDM Executive Board and with other relevant guidance including the latest guidelines on plant load factors, "Guidelines for the reporting and validation of plant load factors".

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 India as a default geographical region for carrying out common practice analysis.

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 Jan 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 PPs 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 PPs invited Local Stakeholders to comment on the proposed project activity on the 01/02/2010 before the publication of the PDD on the UNFCCC website. The local stakeholder consultation meeting was held on 19/02/2010 at Mouli Bunglow, Hotel Sheetal, Vadgaon-Urse Phata, Vadgaon, Pune and the following persons and entities attended this meeting[3].

1. Marale S.S Local Villager

[3] In all there were more than 54 local villagers and other concerned people who attended the local stakeholder meeting. A few names of local villagers have been presented in the validation report.

2. Tamboli G.V Local Villager
3. Govind R Khollam Local Villager
4. Mormare B.K Village Srapanch
5. Santosh D. Shinde Villager
6. Jay P Japatak local People
7. Ankush Patil Local People
8. Pappu Gaikwad Local Villager
9. Peyush Tandon CLP representative
10. Uma Shankar EIL Employee

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 Environmental Impact Assessment (EIA) to be conducted.

For details about the document review and determination of whether the PPs have undertaken the analysis of environmental impacts, 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 08/09/2011 was modified and several changes occurred due to the result of validation process. The PDD Version 07.1 dated 24/09/2012 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 version of the applied methodology and tool (ACM0002 version 12.3.0 and Additionality tool version 06.0.0 now applied) (CAR 04)
2. Change in project cost (Refer Closure of CAR06)
3. Change in IRR value, Change in PLF, Change in Benchmark and ex-ante ER value(Refer Closure of CAR06)
4. Change in monitoring plan (refer closure of CL 05)

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 10/09/2011 to 09/10/2011 as per http://cdm.unfccc.int/Projects/Validation/DB/G5NA1EZLT0Y7A2D3THOIH5RQ1Q8MMV/view.html

Comments were received during the period and the comments were made publicly available as per http://cdm.unfccc.int/Projects/Validation/DB/G5NA1EZLT0Y7A2D3THOIH5RQ1Q8MMV/view.html

The comments received have been taken into consideration as detailed in Appendix D of this report.

6 Validation Opinion

LRQA has undertaken the validation of the proposed project Wind power project in Maharashtra, India – Andhra Lake Phase – II 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 proposed project activity involves setting up of Sixty Three (63) Wind Turbine Generators (WTGs), each of 800 KW capacity with an aggregated installed capacity of 50.4 MW at Khed and Maval taluk of Pune district in Maharashtra. The generated electricity will be exported to the NEWNE grid of India. This project is intended to reduce Green House Gas (GHG) emissions to the extent of electricity displaced from the regional grid.
PP plans to eventually establish 113.6 MW wind farm in the same location in three phases. Currently the phase –I of 56.0 MW capacity and Phase-II of 50.4 MW capacity has been commissioned. Phase-III of 7.2 MW is under development. The proposed project activity refers to development of 50.4 MW (Andhra Lake Phase - II).

The fulfillment 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 06 CARs and 06 CLs. The PP has taken actions and submitted to LRQA revised PDD and supporting. The validation team is of the opinion that the proposed project activity as described in the project design document Version 07.1 dated 24/09/2012 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 of 76,015 tCO_{2e} and contribute to the sustainable development of the host country. LRQA therefore requests the registration of "Wind power project in Maharashtra, India – Andhra Lake Phase – II" to the CDM Executive Board as a CDM project activity.

Decision Maker

Ketan S. Deshmukh

Date: 26 September 2012

7 Appendices

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

Letter of Approval from Ministry of Environment & Forests (MoEF), Government of India vide reference number 4/2/2012-CCC dated 25/07/2012.

7.2 Appendix B: List of documents reviewed

Category A documents (documents prepared by the PP)

1. Project Design Document Version 01 dated 08/09/2011, Version 02 dated 20/04/2012, Version 03 dated 04/05/2012, Version 04 dated 15/06/2012, Version 05 dated 13/08/2012, Version 06 dated 23/08/2012, Version 07 dated 12/09/2012 and Version 07.1 dated 24/09/2012.
2. Emission Reduction, Investment Analysis & Benchmark sheet calculation spreadsheet Version 01 dated 08/09/2011, Version 02 dated 20/04/2012, Version 03 dated 04/05/2012, Version 04 dated 15/06/2012 and Version 05 dated 13/08/2012.
3. Certificate of Incorporation dated 29/07/2008
4. Copy of technical Specifications for E 53 800 kW type WTG
5. Facilitation Agreement between CLPWF and Enercon India Limited dated 29/09/2008
6. Amendment to Facilitation Agreement between CLPWF and Enercon India Limited dated 29/02/2011
7. Warranty Operation & Maintenance Agreement between CLPWF and Enercon India Limited dated 29/09/2008
8. Lease deed between Enercon India Limited & Conservator of Forest, Pune Forest division, Pune, DY Conservator of Forest, Junnar Forest Division, Junnar dated 19/04/2010
9. Diversion of Forest Land of 196.4 ha of forest land for Andhra Lake Wind Power Project in favour of M/s Enercon India Limited dated 19/03/2009
10. Diversion of Forest Land of 196.4 ha of forest land for Andhra Lake Wind Power Project in favour of M/s Enercon India Limited dated 10/12/2009
11. Geology & Mining Permission for M/s Enercon India Limited for Andhra Lake Wind Power Project dated 17/05/2010
12. No ODA declaration from Director of CLP wind farm private limited dated 02/09/2011
13. CDM Engagement letter with Ernst & Young dated 14/05/2009
14. MERC Tariff order on Renewable projects dated 2003
15. Terms and condition for determination of renewable energy tariff dated 2011
16. Infrastructure clearance for setting up for 16 MW Wind Power Project from MEDA dated 16/03/2011
17. Infrastructure clearance for setting up for 5.6 MW Wind Power Project from MEDA dated 08/04/2011
18. Infrastructure clearance for setting up for 28.8 MW Wind Power Project from MEDA dated 08/04/2011
19. Long Term Annual Energy Output Estimate for Andhra Lake by Hydro Tasmania Consultancy dated September 2008 for E-48 & E-53 EIL WTG.
20. Long Term Annual Energy Output Estimate for Andhra Lake by Hydro Tasmania Consultancy dated April 2010 for E-53 EIL WTG.
21. Tata AIG General Insurance company Ltd Premium amount for Roaring 40s Wind Farms (Khandke) Pvt Ltd dated 15/06/2007
22. Letter from MSEDCL Commissioning letter for 133 WTG in Andhra lake for CLP wind farm private ltd dated 28/07/2011.

23. Application letter from CLP wind farms private limited to IREDA for GBI benefit dated 28/03/2012.
24. Letter from technology supplier Enercon India Limited certifying the location of each WTG of Andhra Lake project dated 29/07/2011.
25. Offer letter from Enercon India Limited to CLP power India limited dated 15/07/2008.
26. Demonstration programme on GBI for grid interactive power projects dated 23/07/2008
27. Power Purchase Agreement between CLPWF and Maharashtra State Electricity Distribution Company Limited dated 24/09/2011
28. Supporting for MAT Rate as per the Income Tax India 2009-10
29. Board meeting resolution dated 26/09/2008
30. Notice to proceed (NTP) from CLP to Enercon India Limited dated 16/09/2009
31. Wind Zone Certificate 70.40 MW wind power project into wind zone class dated 24/04/2012
32. Wind Zone Certificate 16.8 MW wind power project into wind zone class dated 24/04/2012
33. Wind Zone Certificate 19.2 MW wind power project into wind zone class dated 24/04/2012
34. Energy invoices from CLPWF to MSEDCL for Feeder 1 for month of 26/04/2012
35. Invitation letter for the Local Stakeholders Consultation meeting dated 01/02/2010
36. Attendance Sheet for the Local Stakeholders Consultation dated 19/02/2010
37. Minutes of Meeting & Photographs of Local Stakeholder Consultation meeting dated 19/02/2010
38. Bank Sanction Letter from IDFC to CLP Wind Farms India Pvt Ltd dated 08/06/2011
39. Mail from CLPWF to UNFCCC giving the prior consideration notification for 113.6 MW dated 25/08/2009
40. Acknowledgement mail from UNFCCC dated 28/08/2009
41. Mail from CLPWF to Host country DNA dated 25/08/2009
42. Revised Mail from CLPWF to UNFCCC giving the prior consideration notification for 50.4 MW Andhra Lake -1 dated 09/02/2012
43. Acknowledgement mail from UNFCCC for Revised Prior consideration dated 13/02/2012
44. Acknowledgement mail from Host country DNA for Revised Prior consideration dated 15/02/2012
45. Modalities of communication (MoC) dated 14/06/2012
46. Letter from bank declaring the Annual generation dated 13/09/2011
47. Internal Presentation to Investment committee dated 16/09/2008
48. Appendix 1 of Facilitation Agreement dated 29/09/2008
49. Letter from EIL to CLP regarding downsizing of number of WTGs dated 25/08/2011

Category B documents (other documents referenced)

1 ACM 0002-"Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.3.0)

- "Tool to calculate the emission factor for an electricity system" Version 02.2.1
- CO2 Baseline Database for the Indian Power Sector, User Guide Version 6.0
- Tool for demonstration and assessment of additionality (Version 5.2, EB 39)
- Tool for demonstration and assessment of additionality (Version 6.0.0)
- User guide version 6.0 CO2 baseline database for Indian power sector. http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
- Clean Development Mechanism Project design document form (CDM- PDD)
- Guidelines for completing the Project Design Document (CDM-PDD) and the Form for proposed new small scale methodologies (CDM-NM) Version 07
- Guidelines on the Assessment of Investment Analysis version 05 (Annex 5 to the report of 62nd meeting of the CDM-EB)

- Guidelines on the Demonstration and Assessment of prior consideration of the CDM (Version 04)
- Guideline for the reporting and validation of plant load factors (Version 01)
- Clean Development Mechanism Validation and Verification Manual version 1.2 (Annex 01, EB 55)
- Eligibility Criteria for Host Country Approval, National CDM Authority, Ministry of Environment & Forests
- Notification by Ministry of Environment & Forests dated 01/12/2009
- IT depreciation rates as published by income tax India website.
- Tariff order for Maharashtra Electricity Regulatory Commission dated 2003
- Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006
- CEA data base for power plants (http://www.cea.nic.in/)
- MW size Grid Solar Power Plants in India - http://www.renewablemarketsindia.com/attachments/4490_MNRE_List%20of%20MW-size-Grid-Solar-Power-Plants-in-India.pdf
- Biomass based power projects from the following publicly available sources:
    1. http://www.nedcap.gov.in/Biomass_Energy.aspx?ID=31
    2. http://www.credacg.org/bpg_projects_commissioned.htm
    3. http://www.kredltest.in/Bioreport.aspx
    4. http://www.kredltest.in/cogenreportallnew.aspx
    5. http://peda.gov.in/eng/cogeneration.html
    6. http://www.teda.in/index.php?r=site/index&id=2O8i9U4E3U
    7. http://neda.up.nic.in/PRAGATI/08-09/PRAGATI-08-09.HTM
    8. http://neda.up.nic.in/PRAGATI/09-10/PRAGATI-09-10.HTM
    9. http://neda.up.nic.in/PRAGATI/10-11/PR-10-11-P1-11.pdf
- Biomass based power projects details not available in public documents but collaborated from different power company websites:
    1. Details of Commissioned Biomass Power Projects (as on 31.12.2011) in Rajasthan (KalpaTaru Power Transmission Ltd., Surya Chambal Power Ltd., Amrit Envi. Tech. (P) Ltd., Birla Corporation Ltd.(Captive), S.M.Environmental Technologies Pvt. Ltd. (Formerly Kalpataru Energy Venture Pvt. Ltd.)., Sambhav Energy Ltd., Transtech Green Power Ltd., Sathyam Power Pvt Ltd., Sanjog Sugar & Eco Power Pvt. Ltd.)
    2. Biomass Power Projects commissioned in Maharashtra as on 31.12.2011
    3. Non fossil fuel based cogeneration projects (co-operative sugar mills) commissioned in Masharashtra
- Wind power Directory commissioned in India 2011

7.3 Appendix C: List of persons interviewed

CLP wind Farms India Private Limited

Peyush Tandon	(DGM)
Satish R Vayachal	(Manager)

Enercon India Limited

Sumeet Raval	(Senior Engineer)
Kishore B Ahire	(Manager)

MSEDCL

Rahul Pawde	(Substation Engineer)

Local Villagers

Mr. Khomne	(Villager)
Mr. Hulge	(Farmer)
Mr Matkar	(Farmer)

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 of 10/09/2011 to 09/10/2011 as per http://cdm.unfccc.int/Projects/Validation/DB/G5NA1EZLT0Y7A2D3THOIH5RQ1Q8MMV/view.html.

Comments were received during the period and the comments were made publicly available as per http://cdm.unfccc.int/Projects/Validation/DB/G5NA1EZLT0Y7A2D3THOIH5RQ1Q8MMV/view.html . Comments received have been taken into consideration as follows:

GSC Comment No. 1	**Response from PP**	**Evaluation of response and conclusion**
As per section C.1 of the PDD the life time of the project is 20 years and how there can be renewable crediting period for 21 years?	The expected operational life time of the project activity is 20 years. This is based on the design life of the WTG's installed.	CERs will be available to the project till 20 years only as the project lifetime is 20 years as confirmed from technical specification provided by technology supplier. PP has provided a statement in the PDD regarding the length of crediting period as the crediting period is renewable.
Submitted By : Dwarakaa		
GSC Comment No. 2	**Response from PP**	**Evaluation of response and conclusion**
The consultant has adopted Equity IRR for additionality demonstration. PDD states, "The PP has chosen Equity IRR as the financial indicator since the Project is financed by both debt and equity. Further, equity IRR has been a well-known financial indicator for evaluation of power projects in the country". When the project is financed by	The PP is allowed to choose Equity IRR or Project IRR as the financial indicator to establish additionality as per "Guidelines on the Assessment of Investment Analysis' Version 05, EB 62. The project proponent has chosen Equity IRR as the financial indicator to prove additionality. All the calculations have been carried out using standard accounting practices and are complying with the "Guidelines on the Assessment of Investment Analysis' Version 05, EB 62, Annex 5".	The financial indicator chosen by the PP is as per the Guidelines on Assessment of investment analysis Version 05. Refer section 6c of the protocol for the detailed validation opinion on the investment analysis section.

both debt and equity whether project should be used or equity IRR should be used? Are the projects financed by both debt and equity evaluated by project IRR or equity IRR? PP/consultant has got everything wrong. It appears that equity IRR has been chosen because the project will prove non-additional if project IRR is adopted. Use of equity IRR for this project is incorrect and it should be evaluated based on project IRR only.		
PDD states, "The Beta value taken for this analysis is based on the beta values of the listed power companies engaged in similar business at the time of investment decision estimated by regressing monthly returns on stock against local index BSE Sensex for a period of 5 years or from the date of listing if the listing happened at a later date". What is the logic of taking five years or BSE sensex as the representative of market return? PDD also reveals that the beta of varying durations is combined to calculate industry beta. No wonder the asset beta is as high as 1.03, when the	The project activity has considered Equity IRR as the financial indicator and hence Return on Equity (RoE) has been chosen as the appropriate benchmark. The benchmark applied for the project activity is expected returns on equity which is calculated based on Capital Asset Pricing Model (CAPM) approach. CAPM is a model based on the proposition that any stock's required rate of return is equal to the risk-free rate of return plus a risk premium that reflects only the risk remaining after diversification. The PP has calculated the equity benchmark (required/expected return on equity) by adding a risk premium over government bond rates based on the publicly available stock market data. The benchmark based on CAPM has been compared with equity IRR (chosen financial indicator) which is in accordance with the guidance 12 of the "Guidelines on the assessment of investment analysis" Version 05. The CAPM assumes that investors hold fully diversified portfolios. This	PP has calculated the RoE as per the internationally accepted accounting & financial standards using CAPM. Refer section 6c of the protocol for the detailed validation opinion on the investment analysis section. The beta calculation is done for 5 years for most of the companies barring 2 companies whose existence in the market is for more than 3 years but less than 5 years, but as per published journal on "*Corporate Finance by Aswath Damodaran*" beta calculation for more than 2 years gives a

beta of power sector is less than 1. PDD does not disclose the cut-off date. The cut-off date largely determines the beta. The expected return on equity at >18% is very high compared to 16% recommended by MERC.	means that investors are assumed by the CAPM to want a return on an investment based on its systematic risk alone, rather than on its total risk The measure of risk used in the CAPM, which is called 'Beta', is therefore a measure of systematic risk. Hence, Beta is the measure of the risk of a specific sector/company. In order to quantify the risk related to this project, the PP had taken the Beta values of the similar power generating companies (also called proxy companies) listed on the BSE website. A 5 year period for beta calculation is appropriate as this is a common accounting practice in the host country. Furthermore, the article "Estimating Risk Parameters, Aswath Damodaran Stern School of Business". by Aswath Damodaran states the following: "*Risk and return models are silent on how long a time period one needs to use to estimate betas. Services use periods ranging from two years to five years for beta estimates, with varying results*". Further, the Beta calculation is in line with the "Guidelines on the Assessment of Investment Analysis" version 05, which stipulates that risk premiums applied in the determination of required returns on equity shall reflect the risk profile of the project activity being assessed. The benchmark has been calculated using publicly available information and is representative of a typical benchmark for an investor in a similar project in the country. It is not an internal benchmark. The cut-off date for determining beta has now been mentioned in the PDD section B.5. The expected RoE has been	fair judgment of the individual company against market sensitivity. The validation team confirmed the same based on internationally accepted Finance principles.

	estimated using Capital Asset Pricing Model (CAPM) using parameters that are standard in the market.	
PP/Consultant has tried all the possible means to make the project additional, like -Assuming PLF of 16. 76% (as against the MERC recommended PLF of 20% of Wind I zone) -One time bullet escalation in O&M cost by 15% without any basis as the PDD does not give the source; -O&M contingency at 10% from 3rd to 20th year once again without any basis; -De-escalation in O&M contingency cost by 5% from 3rd to 20th year for reasons not clear and explained; and -Above all Asset manager's cost of Rs.15 lakhs with 5% escalation per annum -Annual Trustee and security fee of Rs.1 lakh	PP has excluded all the project specific parameters like One time bullet escalation in O&M, O&M contingency at 10% from 3rd to 20th year, De-escalation in O&M contingency cost by 5% from 3rd to 20th year, Asset manager's cost of Rs.15 lakhs with 5% escalation per annum and Annual Trustee and security fee of Rs.1 lakh from the equity IRR calculations. Hence these comments are not relevant anymore.	All the parameters such as One time bullet escalation in O&M, O&M contingency at 10% from 3rd to 20th year, De-escalation in O&M contingency cost by 5% from 3rd to 20th year, Asset manager's cost of Rs.15 lakhs with 5% escalation per annum and Annual Trustee and security fee of Rs.1 lakh has been removed for equity IRR calculations which leads to a conservative assumption. CAR & CL were raised against all input parameters. Refer 6c of the report for details.
With such assumptions no project will be non-additional. Paragraph 5 of Sub-step 2(b) of Additionality Tool states, "When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific	The Net PLF has been estimated based on a Long Term Annual Energy Output Estimate (LTAEOE) study conducted by a reputed third party agency (Hydro Tasmania Consulting). This is in line 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).	PLF assessment was done by an independent third party Hydro Tasmania Consulting (HTC) and is line with Guidelines for the reporting and validation of plant load factors EB 48. .

characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered". Are these assumptions standard in the market? These are all based on subjective profitability expectation of the project developer. While PLF less than 20% (which is standard for Maharashtra wind power projects) should not be considered, none of the expenditures other than O&M cost and insurance should be taken into account in additionality demonstration.		CAR & CL were raised against all input parameters. Refer 6c of the report for details.
Even accepting the given expected return on equity and MAT, the WACC should be around 13%. At the revised tariff of Rs.5.37/kWh and PLF of 20%, if all 'non-market standard' expenditures are removed, the project IRR would be more	The project activity has considered Equity IRR as the financial indicator and hence Return on Equity (RoE) has been chosen as the appropriate benchmark. The benchmark applied for the project activity is expected returns on equity which is calculated based on Capital Asset Pricing Model (CAPM) approach. CAPM is a model based on the proposition that any stock's required rate of return is equal to the risk-free rate of return plus a risk premium that reflects only	PP has calculated the RoE as per the internationally accepted accounting & financial standards using CAPM. Refer section 6c of the protocol for the detailed validation opinion on the investment analysis section.

than 13%.	the risk remaining after diversification.	CAR & CL were raised against all input parameters. Refer 6c of the report for details.
Submitted by Kartikeyan		

7.5 Appendix E: Certificate of Appointment

Validation of "Wind power project in Maharashtra, India – Andhra Lake Phase – II"

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
Archak Pattanaik	Team Leader, Sector Expert
Shubha Shanbhag	Team Member, Sector Expert
Arnab Deb	Team Member
Prabodha C Acharya	Technical Reviewer, Sector Expert
Ketan S Deshmukh	Decision Maker

Signed by
Decision Maker

Ketan S. Deshmukh

Date: 26 September 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☐ [4] CAR01 was raised to confirm the availability of LoA. The LoA was issued vide reference number 4/2/2012-CCC dated 25/07/2012. After verifying the approval letter the finding was closed.	~~CAR 01~~ 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 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?click=dna_forum. The LoA is issued and valid for the proposed project activity.	~~CAR 01~~ OK
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 made available by the PP. The LoA was also compared with those of other approval cases issued by the DNA. The team confirmed the authenticity of the letter issued.	~~CAR 01~~ OK

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

	Validated situation	Conclusion
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 project activity as indicated in the PDD.	~~CAR 01~~ OK
5. Is the letter of approval unconditional with respect of (a) to (d) above?	Yes ☒ No ☐ NA☐	~~CAR 01~~ 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, 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.	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☒ Not Applicable, 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.	NA

	Validated situation	Conclusion
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, 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.	NA
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☒ Not Applicable, 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.	NA
11. Is the letter of approval unconditional with respect of (a) to (c) above?	Yes ☐ No ☐ NA☒ Not Applicable, 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.	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 numbers of the PDD or validation report.	OK

		Validated situation		Conclusion
SECTION 2. Participation				
1	Confirm that the PPs are listed in a tabular form in section A.3 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.3	CLP Wind Farms India Private Limited	OK
		Host Party PP name in PDD/ Annex 1	CLP Wind Farms India Private Limited	
		Host Party PP name in MoC	CLP Wind Farms India Private Limited	
		Annex 1 Party PP name in PDD/ A.3	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. 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.		OK
3	Confirm that no entities other than those approved as PPs are included in section A.3 of PDD.	Yes ☒ No ☐ NA☐ CLP Wind Farms India 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.	Approval of participation has been issued from the host country DNA, the same has been confirmed after comparing the other projects same host country LoA certificates.		~~CAR 01~~ OK

	Validated situation	Conclusion
5 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 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.	Yes ☐ No ☐ NA☐ MoC dated 14/06/2012 was submitted by the PP. • CLP Wind Farms India Private Limited is the sole focal point and the information is filled 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 specified • Title of project and names of project participant and focal point is consistent with other project documents shared/submitted by PP The information is filled in accordance with the MoC form F-CDM-MOC and the requirements of the procedures.	OK

	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)	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 ☐ Guideline for completing the project design document (CDM-PDD) Version 07 (EB41, Annex 12 and template of CDM-PDD Version 03 (EB25, Annex 15), which are the current versions as applicable and available in UNFCCC website are used.	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.	CLP Wind Farms India Private Limited (CLPWF) has implemented a wind power project of capacity 50.4 MW comprising of 63 numbers of Wind Turbine Generators (WTGs), each with rated capacity of 800 kW. The project area is spread across 2 taluks – Khed & Maval of Pune District in the State of Maharashtra. The electricity generated from the project activity is sold to the local electricity distribution company in the state. The proposed project activity is contributing towards reduction of the Green House Gas (GHG) emissions by supplying the generated electricity to the NEWNE Grid, which is mainly dominated by fossil fuel based power. 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, date of commissioning, arrangements for O&M and necessary clearances for setting the project activity. The list of documents reviewed during the course of the validation is presented under Appendix B. The technical details with respect of the WTG provided in the PDD were confirmed with technical brochures from EIL. 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 E-53 of EIL has been listed by 'Centre for Wind Energy Technology', Govt. of India[5] which confirms the approval/certification of the model type The expected net PLF from the project activity is 18.15% as presented in the Long Term Annual Energy Output Assessment (LTAEOA), a third party PLF assessment study conducted by Hydro Tasmania Consulting, the same PLF i.e. 18.15% was also considered by the bank while financing the project as confirmed from the Infrastructure Development Finance Company Limited (IDFC)	OK ~~CL 01~~ ~~CAR 03~~

[5] http://www.cwet.tn.nic.in/html/information_ml.html

	Validated situation	Conclusion
	bank letter. This is in line 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). The description of the project activity has been confirmed through on site assessment, interviews and review of documents. The technical specifications of the project provided in the PDD were confirmed during the site survey and also from the technical specifications provided by the WTG supplier. The PP had also presented approvals for the installation of WTG, commissioning certificates, purchase orders and power purchase agreements (PPAs) (Refer Appendix B of the validation report). The accuracy and completeness of the project description was validated by document review including offer letter from the technology supplier, purchase orders, tariff order, commissioning certificates, PPAs, interview, and field survey. The validation team confirmed that the capacity 50.4 MW (63 X 0.8 MW) provided in appendix 2 of PDD as a part of the total project capacity of 113.6 MW (142 X 0.8 MW) based on the WTG location number provided in the Long Term Annual Energy Output Estimate (LTAEOE) by Hydro Tasmania Consulting for third party PLF assessment conducted on September 2008 prior to investment decision for all 142 WTG location, the same is also confirmed from the MEDA wind zone certificate for 113.6 MW (142 X 0.8 MW) dated 24/04/2012. However following CAR/CL were raised during validation and successfully closed by the PP. CAR 03 was raised as complete technical details were not provided in the PDD, the name of the project participant in PDD is stated as CLPWF, however in section B.7. the same is stated as CLPWF. The findings were closed after technical details were provided along with product brochure and facilitation agreement; also the name of the PP was made consistent in the PDD. CL 01 was raised on Long Term Annual Energy Output Estimate by Hydro Tasmania Consulting. The proposed project activity involves installation of E53 type of turbines, whereas the study involves power curve of E48 type turbines as	

<table>
<tr><th></th><th>Validated situation</th><th>Conclusion</th></tr>
<tr><td></td><td>well. For details please refer to the finding log. The finding was closed after the appropriation of PLF study was justified for the concerned project activity,</td><td></td></tr>
<tr><td>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 latitude N or S and Longitude E or W)
Please include here the Geographical coordinates:</td><td>The validation team conducted site visit and confirmed 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 WTGs were supplied by EIL.

The details on the location of the project activity WTGs were confirmed as Khed & Maval Taluk, Pune District, Maharashtra, India as given in the section A.4.1.4 of the PDD. The geographic coordinates of the project activity as stated under section A.4.1.4 were confirmed by the validation team by checking the coordinates in the Google Earth and also from the letter provided by technology supplier.

The validation team confirmed the appropriateness of the project description in the PDD by reviewing project documentation and conducting the site assessment.

Also the PP provided a letter from the technology supplier confirming the above given geographical coordinates.

CAR 02 was raised as details of physical location, including information allowing the unique identification of the project activity (WTG-wise details as confirmed during the site visit) were not available in section A.4.1.4. Further PDD Version 1 was referring to Appendix 2 for the details, whereas there was no Appendix 2. The CAR is appropriately closed during the validation.

<table>
<tr><th rowspan="2">Serial No.</th><th rowspan="2">WTG Loc. No.</th><th colspan="3">Latitude (North)</th><th colspan="3">Longitude (East)</th></tr>
<tr><th>Degrees</th><th>Minutes</th><th>Seconds</th><th>Degrees</th><th>Minutes</th><th>Seconds</th></tr>
<tr><td>1</td><td>19</td><td>18</td><td>51</td><td>3.1</td><td>73</td><td>38</td><td>32</td></tr>
<tr><td>2</td><td>20</td><td>18</td><td>51</td><td>12.8</td><td>73</td><td>38</td><td>32.3</td></tr>
<tr><td>3</td><td>21</td><td>18</td><td>51</td><td>17.5</td><td>73</td><td>38</td><td>29.6</td></tr>
<tr><td>4</td><td>22</td><td>18</td><td>51</td><td>23</td><td>73</td><td>38</td><td>33.7</td></tr>
</table>
</td><td>OK
~~CAR 02~~</td></tr>
</table>

	Validated situation								Conclusion
	5	23	18	51	22.8	73	38	22.5	
	6	24	18	51	29	73	38	22.3	
	7	25	18	51	33.6	73	38	22	
	8	26	18	51	41.4	73	38	28.7	
	9	27	18	51	45.9	73	38	27.7	
	10	28	18	51	53.6	73	38	30.6	
	11	29	18	51	59.9	73	38	24.9	
	12	30	18	52	5.1	73	38	21.9	
	13	31	18	52	7.8	73	38	20.3	
	14	32	18	52	15.6	73	38	18.2	
	15	33	18	52	20.8	73	38	16.9	
	16	34	18	52	25.6	73	38	14.5	
	17	35	18	52	32.7	73	38	10.9	
	18	36	18	52	33.6	73	38	1.3	
	19	96	18	58	1.3	73	31	58.1	
	20	97	18	58	7.4	73	31	55.6	
	21	107	18	59	39.2	73	35	7.4	
	22	108	18	59	29	73	35	13.5	
	23	109	18	59	24.1	73	35	17	
	24	110	18	59	20.1	73	35	21.7	
	25	111	18	59	14.1	73	35	25.9	
	26	112	18	59	10.8	73	35	29.5	
	27	113	18	59	7.9	73	35	33.4	
	28	115	18	59	1.5	73	35	47.3	
	29	116	18	58	57.8	73	35	53	
	30	117	18	58	51.7	73	36	1.2	
	31	118	18	58	47.8	73	36	4.2	
	32	119	18	58	43	73	36	8.1	
	33	120	18	58	37.9	73	36	10	
	34	121	18	58	34.2	73	36	13.9	
	35	122	18	58	29	73	36	19.1	

	Validated situation								Conclusion
	36	123	18	58	25.6	73	36	21.7	
	37	124	18	58	21.6	73	36	26.8	
	38	190	18	48	24	73	33	38.2	
	39	191	18	48	28.9	73	33	36.1	
	40	193	18	48	40.6	73	33	42.7	
	41	194	18	48	47.5	73	33	46.3	
	42	195	18	48	48	73	33	35.5	
	43	196	18	48	54.2	73	33	34.1	
	44	197	18	48	58.5	73	33	31.1	
	45	198	18	49	4.1	73	33	30.6	
	46	199	18	49	8	73	33	27.4	
	47	200	18	49	12.9	73	33	26.3	
	48	201	18	49	17.8	73	33	27.2	
	49	202	18	49	24.1	73	33	26.8	
	50	203	18	49	29.2	73	33	24.9	
	51	204	18	49	31.5	73	33	16.4	
	52	205	18	49	36.5	73	33	14.4	
	53	206	18	49	41.8	73	33	16.2	
	54	207	18	49	48.1	73	33	16.8	
	55	208	18	49	52.8	73	33	16.1	
	56	209	18	49	58.3	73	33	16.4	
	57	210	18	50	4	73	33	14.1	
	58	211	18	50	6.4	73	33	9.2	
	59	212	18	50	9.9	73	33	4.4	
	60	213	18	50	14.7	73	32	58.2	
	61	214	18	50	20.2	73	32	52.8	
	62	500	18	50	54.4	73	38	29.4	
	63	511	18	59	33.3	73	35	10.3	

	Validated situation		Conclusion
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 on site assessment. During the site visit validation team has visited the project site (i.e. location of WTGs, local villages, Substation and state utilities office.)		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)	Site visit was conducted on 13/10/2011.		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	OK
	NA The project activity is a Greenfield project	NA	
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 also provided a declaration stating that it has not availed any ODA/public funding for the project, in addition the PP also provided its Annual report to confirm no diversion of ODA or public funding to the project activity.		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.	NA		NA

	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 was 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 Jan 2013 23:59:59 GMT. The methodology refers to the following methodological tools: • Tool for the demonstration and assessment of Additionality Version 6.0.0 • Tool to calculate the emission factor for an electricity system 02.2.1 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 ~~CAR 04~~
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.	NA	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.	NA	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. Steps taken to assess the applicability of the methodology is detailed below:	OK

No.	Applicability conditions in the ACM0002 "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 involves installation of wind power project 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 involves the installation of new wind power plant/unit. LRQA has confirmed this through the site visit, review of agreements (supply agreement, service & availability, erection and commissioning agreement, development & facilitation agreement) signed between the project participant and the technology provider, and commissioning reports of the WTGs.	OK
2.	The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The Project activity involves the installation of a wind power 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 agreements (supply agreement, service & availability, erection and commissioning agreement, development & facilitation agreement) signed between the project participant and the technology provider, and commissioning reports of the WTGs.	OK
3.	In the case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken	Not applicable to the Project activity as the Project is Greenfield setup and does not involve capacity additions, retrofits or replacements.	The project activity involves installation of new power plant at the site (Greenfield project). LRQA has confirmed this through the site visit, review of agreements (supply agreement, service & availability, erection and commissioning agreement, development & facilitation agreement) signed between the project participant and the technology provider, and commissioning reports of the WTGs.	OK

No.	Applicability conditions in the ACM0002 "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
	between the start of this minimum historical reference period and the implementation of the project activity;			
4.	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 since the project activity involves installations of wind power plant.	The project activity is not a hydro power project	OK
5.	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 than	Not applicable to the Project activity. The Project activity involves installation of a wind power plant.	The project activity is not a hydro power project	OK

No.	Applicability conditions in the ACM0002 "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
	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.			
6.	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; • Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m^2.	The project activity is installation of a wind power plant and does not involve the following- • Switching from fossil fuels to renewable energy sources at the sites. • Biomass fired power plants • Hydro power plants,	The project activity is installation of wind power plants and does not fall in any of the criteria mentioned.	OK
7.	In the case of retrofits, replacements, or	• The project activity does not involve	This is a Greenfield project and not	OK

No.	Applicability conditions in the ACM0002 "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
	capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance.	retrofits, replacements, or capacity additions and hence this criteria is not applicable.	retrofitting or capacity addition is taking place.	
8.	In addition, the applicability conditions included in the tools referred to above apply.	• All the applicability conditions included in the tools referred to above have been applied to and complied with.	All applicability conditions in the tool is applied, complied and is confirmed.	OK
9.	***Applicability condition of "Tool to calculate the emission factor for an electricity system"*** *The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.*		**Applicable** The geographic and system boundaries of the project connected electricity grid (the national grid of India) can be clearly identified. Official information on the characteristics of the grid is also available. Central Electricity Authority, Government of India publishes official information of the national grid system to meet the requirements of the Tool.	OK

	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 were 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.	NA	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.	NA	NA
8. 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 but a determination is made that the approved methodology(ies) is / are applicable to the project activity, provide here information about them in relation to the applicability criteria and justify the determination.	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 77 of CDM VVM (Version 01.2).	OK

	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☐ CL 03 was raised on non inclusion of name of the grid, which was appropriately closed by the PP.	OK ~~CL 03~~
2. Confirm that all sources and GHGs required by the methodology have been included within the project boundary. 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:	All sources and GHGs required by the methodology have been included within the project boundary.	OK

Gases and Sources Included In The Project Boundary						
	Source	**Gas**	**Inc./Exc. Pdd**	**Justification PDD**	**Steps Taken To Assess PDD Justification**	**Conclusion**
BASELINE	Grid connected electricity generation	CO_2	Yes	The Project activity is aimed at displacing the grid power, and thus reducing the CO_2 emissions resulting from the power generation.	The NEWNE grid which controls the supply of electricity is heavily dependent on fossil fuel fired power plant.	OK
		CH_4	No	Minor mission source	The project is a wind power project and no methane emission exist is confirmed during the site visit and professional judgement.	OK
		N_2O	No	Minor mission source	The project is a wind power project and no nitrous oxide emission exists is confirmed during the site visit and professional judgement.	OK
PROJEC	For geothermal Power	CO_2	No	Not applicable for wind projects	The project utilizes the kinetic energy of wind and no emission exists. The same has been confirmed during site visit.	OK

Gases and Sources Included In The Project Boundary						
	Source	**Gas**	**Inc./Exc. Pdd**	**Justification PDD**	**Steps Taken To Assess PDD Justification**	**Conclusion**
	plants, fugitive emissions of CH_4 and CO_2 from non condensable gases contained in geothermal steam.	CH_4	No	Not applicable for wind projects	The project utilizes the kinetic energy of wind and no emission exists. The same has been confirmed during site visit.	OK
		N_2O	No	Not applicable for wind projects.	The project utilizes the kinetic energy of wind and no emission exists. The same has been confirmed during site visit.	OK

	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 absence of the proposed project activity and inline 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☐ According to ACM0002, Version 12.3.0, the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculation described in the "Tool to calculate the emission factor for an electricity system". Since this baseline scenario is prescribed by the approved methodology, this is acceptable in accordance with the requirements of § 105 of CDM VVM version 01.2.	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.)	As confirmed above	OK

	Validated situation	Conclusion
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:	Since this baseline scenario is prescribed by the approved methodology, this is acceptable in accordance with the requirements of § 105 of CDM VVM version 01.2.	OK

Alternative Scenario Ref.	Description in the PDD	Cross-checked with	Validation Opinion
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 § 105 of CDM VVM version 01.2.	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?	The identified baseline scenario is in line with the regulatory / legal requirements as prescribed by the applied methodology.	OK
7. 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		
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.	**Emission reductions** As provided in the methodology, emission reduction is calculated from the equation: $ER_y = BE_y - PE_y$ BE_y: Baseline emissions in the year y (tCO_2e/y) PE_y: Project emissions in the year y (tCO_2e/y) ER_y: Emission Reductions in the year y (tCO_2e/y) **Project emissions (PE_y)** As per the applicable methodology, the project emissions are applicable only for geothermal power plants or hydro power plant hence, the PP has not considered the project emissions and is considered zero, $PE_y = 0$. **Leakage (LE_y)** No leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected. Thus, $ER_y = BE_y - PE_y$ **Baseline emissions** According to the methodology ACM 0002 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. $BEy = EG_{facility, y} \times EF_{grid, CM, y}$ $EG_{facility, y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)	OK ~~CL05~~

	Validated situation	Conclusion
	$EF_{grid, CM, y}$ = Combined margin CO2 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. (tCO2/MWh). $EG_{facility, y} = EG_{export,y} - EG_{import,y}$ Where: $EG_{export,y}$ Quantity of electricity exported by the Project to the grid in year *y* $EG_{import,y}$ Quantity of electricity imported by the Project from the grid in year *y* The above calculation is in line with the applied methodology. 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 source publicly available. 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, 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 6.0 has been applied as it was current at the time of submission of the PDD for validation. The step wise estimation of CM EF 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	

	Validated situation	Conclusion
	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 Western Region, the selection of the NEWNE grid 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. **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 2005-06 to 2009-10.	

Year	Low-cost/must-run resources of net generation
2005-06	18.0%
2006-07	18.5%
2007-08	19.0%
2008-09	17.4%
2009-10	15.9%

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.

	Validated situation	Conclusion

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. In validating Step 3, LRQA confirmed the calculations with respect to the OM emission factor for the NEWNE Grid and arrived at the following summary:

The values determined by LRQA are:

Year	Absolute emissions (including imports) (tCO_2)	Net generation (including imports) (GWh)	Specific emissions (tCO_2/MWh)
2007-08	410,084,551	410,124	0.9999
2008-09	430,502,442	427,700	1.0066
2009-10	453,067,520	463,384	0.9777

EF_{gridOM}=(410,084,551+430,502,442+453,067,520)/ (410,124+427,700+463,384) x1000 = 0.9942 tCO_2/MWh

Step 5 of the *tool* requires calculation of the build margin emission factor.
The CEA database provides a BM value for the NEWNE grid as 0.8123. As part of validation of Step 5 of the tool, LRQA confirmed the BM for the year 2009-10 as per the following summary:

Year	Absolute emissions (tCO_2)	Net Generation (GWh)	Specific emissions (tCO_2/MWh) BM
2009-10	88,593,337	109,064	0.8123

	Validated situation	Conclusion
	Step 6 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 $w_{BM} = 0.25$ have been applied. The baseline grid emission factor has been calculated as; $EF_{CO2,grid,y} = EF_{grid,CM,y} = 0.9487\ tCO_2e/MWh$ Emission factor values calculated are not correct and needs revision. Finding has to be raised. The baseline emissions thus can be estimated as: $BE_y = EG_{BL,y} \times EF_{CO2,grid,y}$ $= 80{,}125\ MWh \times 0.9487\ tCO_2e/MWh$ $= 76{,}015\ tCO_2e$ Annual average baseline emission is estimated to be 76,015 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, 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, $LE_y = 0$	

	Validated situation	Conclusion
	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), i.e; $PE_y = 0$ $LE_y = 0$ **Emission reductions** As provided in the methodology, emission reduction is calculated from the equation: $ER_y = BE_y - PE_y$ 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: $ER_y = BE_y - PE_y$ $ER_y = 76,015 - 0 \quad = 76,015\ tCO_2e$ However CL 05 was raised on inconsistency of equations used for baseline emission calculation for the section B.6.1 & B.6.3, which is appropriately corrected by the PP. For details please refer to the finding list.	
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	<table><tr><th>Data/Parameter title:</th><th>$EF_{grid, CM, y}$</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 tCO_2/MWh</td></tr></table>	OK

	Validated situation		Conclusion
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.	Appropriate description of parameter?	Yes Combined Margin Emission Factor of the NEWNE Grid	
	Source clearly referenced?	Yes CEA CO_2 Baseline Database (Version- 6.0)	
	Value provided is considered reasonable?	Yes	
	Has this value been verified?	Yes	
	Choice of data correctly justified?	Yes Fixed ex-ante	
	Measurement method correctly described?	NA	

Data/Parameter title:	**$EF_{grid, OM, y}$**
Title in line with methodology?	Yes
Fixed throughout the crediting period?	Yes
Data unit correctly expressed?	Yes tCO_2/MWh
Appropriate description of parameter?	Yes Operating Margin Emission Factor of the NEWNE Grid
Source clearly referenced?	Yes CEA CO_2 Baseline Database (Version- 6.0)
Value provided is considered reasonable?	Yes
Has this value been verified?	Yes

	Validated situation	Conclusion

Choice of data correctly justified?	Yes Fixed ex-ante
Measurement method correctly described?	NA

Data/Parameter title:	**$EF_{grid, BM, y}$**
Title in line with methodology?	Yes
Fixed throughout the crediting period?	Yes
Data unit correctly expressed?	Yes tCO_2/MWh
Appropriate description of parameter?	Yes Build Margin Emission Factor of the NEWNE Grid
Source clearly referenced?	Yes CEA CO_2 Baseline Database (Version- 6.0)
Value provided is considered reasonable?	Yes
Has this value been verified?	Yes
Choice of data correctly justified?	Yes Fixed ex-ante
Measurement method correctly described?	NA

Data/Parameter title:	**W_{OM}**
Title in line with methodology?	Yes, In line with “Tool “
Fixed throughout the crediting period?	Yes
Data unit correctly expressed?	Yes %
Appropriate description of parameter?	Yes Weightage of operating margin emissions factor

	Validated situation		Conclusion
	Source clearly referenced?	Yes Default values used as per the “Tool to calculate the emission factor for an electricity system” Version 02.2.1	
	Value provided is considered reasonable?	Yes	
	Has this value been verified?	Yes	
	Choice of data correctly justified?	Yes	
	Measurement method correctly described?	NA	

Data/Parameter title:	W_{BM}
Title in line with methodology?	Yes, In line with “Tool”
Fixed throughout the crediting period?	Yes
Data unit correctly expressed?	Yes %
Appropriate description of parameter?	Yes Weightage of build margin emissions factor
Source clearly referenced?	Yes Default values used as per the “Tool to calculate the emission factor for an electricity system” Version 02.2.1
Value provided is considered reasonable?	Yes
Has this value been verified?	Yes
Choice of data correctly justified?	Yes
Measurement method correctly described?	NA

	Validated situation		Conclusion
	Data/Parameter title:	$EG_{export, i, y}$	
	Title in line with methodology?	Yes	
	Fixed throughout the crediting period?	Monitored	
	Data unit correctly expressed?	Yes MWh/year	
	Appropriate description of parameter?	Yes Quantity of electricity exported by the Project WTGs connected to feeder i to the grid in period y	
	Source clearly referenced?	Yes Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for all the feeders to which WTGs of the project activity are connected. In cases where there are other (non-project) WTGs connected to the same feeder, apportioning mechanism specified in PDD section B.7.2 shall be applied.	
	Value provided is considered reasonable?	Yes	
	Has this value been verified?	Ex-ante values is 80,125 as per PLF study.	
	Choice of data correctly justified?	Yes	
	Measurement method correctly described?	Yes, the measurement will be performed as per the approved methodology and the same was confirmed	

	Validated situation		Conclusion
		during site visit interview with MSEDCL substation person and technology supplier.	

Data/Parameter title:	$EG_{import, i, y}$
Title in line with methodology?	Yes
Fixed throughout the crediting period?	To be monitored
Data unit correctly expressed?	Yes MWh/year
Appropriate description of parameter?	Yes Quantity of electricity imported by the Project WTGs connected to feeder i from the grid in period y.
Source clearly referenced?	Yes Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for all the feeders to which WTGs of the project activity are connected. In cases where there are other (non-project) WTGs connected to the same feeder, apportioning mechanism specified in PDD section B.7.2 shall be applied.
Value provided is considered reasonable?	Yes
Has this value been verified?	Ex-ante values assumed as 0.

	Validated situation		Conclusion
	Choice of data correctly justified?	Yes	
	Measurement method correctly described?	Yes, the measurement will be performed as per the approved methodology and the same was confirmed during site visit interview with MSEDCL substation person and technology supplier.	

Data/Parameter title:	$EG_{All\ controller,\ i,\ y}$
Title in line with methodology?	Yes
Fixed throughout the crediting period?	To be monitored
Data unit correctly expressed?	Yes MWh/year
Appropriate description of parameter?	Yes Sum of Electricity generation measured by controllers of project and non project WTGs connected to feeder i during period y
Source clearly referenced?	Yes Controllers meter readings of individual WTGs monitored at the Central Monitoring Station (CMS)
Value provided is considered reasonable?	Yes
Has this value been verified?	Will be verified ex-post
Choice of data correctly justified?	Yes
Measurement method correctly described?	Yes, the measurement will

	Validated situation		Conclusion
		be performed as per the approved methodology and the same was confirmed during site visit interview with MSEDCL substation person and technology supplier.	

Data/Parameter title:	EG $_{WTG\ controller,\ i,\ y}$
Title in line with methodology?	Yes
Fixed throughout the crediting period?	To be monitored
Data unit correctly expressed?	Yes MWh/year
Appropriate description of parameter?	Yes Sum of Electricity generation measured by controllers of all the project WTGs that are connected to feeder i during period y
Source clearly referenced?	Yes Controllers meter readings of project activity WTGs monitored at the Central Monitoring Station (CMS)
Value provided is considered reasonable?	Yes
Has this value been verified?	Will be verified ex-post
Choice of data correctly justified?	Yes
Measurement method correctly described?	Yes, the measurement will be performed as per the approved methodology and the same was confirmed during site visit interview

	Validated situation		Conclusion
		with MSEDCL substation person and technology supplier.	

Data/Parameter title:	$EG_{facility, y}$
Title in line with methodology?	Yes
Fixed throughout the crediting period?	Calculated based on the monitored $EG_{export, i, y}$, $EG_{import, i, y}$, , and in cases where apportioning will be applied $EG_{All_controller, i, y}$ and $EG_{WTG_controller, i, y}$ will also be used along with other two parameters.
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 period y
Source clearly referenced?	Yes This is a calculated parameter.
Value provided is considered reasonable?	Yes, 80,125 MWh as per PLF study
Has this value been verified?	Calculated parameter based on $EG_{facility, y} = (EG_{export, i, y} - EG_{import, i, y})$ Where,

	Validated situation		Conclusion
		$EG_{export,i,y}$ = Quantity of electricity exported by the Project WTGs connected to feeder i to the grid in period *y* $EG_{import,i,y}$ = Quantity of electricity imported by the Project WTGs connected to feeder i from the grid in period *y* In cases where apportioning will be applied then the formula provided in B.7.2 section PDD will be used. The value has been verified based on the generation figure presented by LTAEOE report prepared by HTC.	
	Choice of data correctly justified?	Yes	
	Measurement method correctly described?	Yes, the measurement will be performed as per the approved methodology and the same was confirmed during site visit interview with MSEDCL substation person and technology supplier.	

	Validated situation	Conclusion
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.	All assumptions and data used by the PP have been 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) CAR 05 was raised as in section B.5 of the PDD, the timeline of events and actions which have been taken to achieve CDM registration, with description of the evidence used to support these actions is not provided.	OK ~~CAR 05~~
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

	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 06.0.0	OK

	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 for the Project is 16/09/2009, the date on which Notice to Proceed (NTP) was issued by Project Participant to Enercon India Limited (EIL) and thus made Project Participant financially committed towards the implementation of the project activity. Through the process of validation, LRQA confirms that the considered start date, complies with the requirement of the Glossary of CDM terms (Version 05.0). Please refer to section 4.6 of the report for detailed assessment of start date. Nevertheless, CL 06 was raised, as PP has signed a facilitation agreement dated 29/09/2008 for purchase WTG from technology supplier (EIL) and why it is not considered as start date. The same was successfully closed by the PP.	OK ~~CL 06~~
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 16/09/2009 is after 02/08/2008, in accordance with the "Guidelines on the demonstration and assessment of prior consideration of the CDM" the PP had informed the Host Party DNA and the UNFCCC secretariat the 25/08/2009, on their intention to seek CDM status. The validation team has reviewed the copy of the prior consideration form that has been sent to the UNFCCC and the list of notifications received by the UNFCCC from the UNFCCC website. Also, the notification to host party DNA was confirmed from the email communication dated 25/08/2009. The intimation on to UNFCCC and Host party DNA was for total capacity of 113.6 MW, later on the PP decided to split the project into 3 parts for CDM purpose, Wind power project in Maharashtra, India – Andhra Lake Phase – I (56 MW), Wind power project in Maharashtra, India – Andhra Lake Phase – II (50.4 MW), Wind power project in Maharashtra, India – Andhra Lake Phase – III (7.2 MW). Revised intimation were send to both UNFCCC and Host party DNA on 13/02/2012, as confirmed from the email communication and status of project in UNFCCC prior consideration	OK ~~CL 06~~

	Validated situation	Conclusion
	page. The validation team has 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.	
For a project activity with a start date before 02 August 2008		
3. For a project activity with a start date before 02 August 2008, 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. The time gap between the documented evidence of prior CDM consideration and continuing and real actions shall be within the period required by the Guidance on prior consideration of the CDM. If evidence to support the serious prior consideration of the CDM as indicated above that is authentic is not available, determine that the CDM was not considered in the decision to implement the project activity.	Not applicable.	NA

<table>
<tr><th></th><th>Validated situation</th><th>Conclusion</th></tr>
<tr><td colspan="3">SECTION 6b. Identification of alternatives</td></tr>
<tr><td>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.</td><td>The project activity has applied the approved methodology ACM 0002 (Ver. 12.3.0) and the methodology prescribes the baseline scenario. As per §105 of VVM (Ver.1.2) in this case no further analysis on alternatives is required. However, the project participant has identified following two alternatives;

<table>
<tr><th colspan="3">LIST OF ALTERNATIVES</th></tr>
<tr><th>No</th><th>Description in the PDD</th><th>Describe why it is credible and complete</th></tr>
<tr><td>1</td><td>The proposed Project activity not undertaken as a CDM project activity.</td><td>The financial unattractiveness of the project activity not undertaken as a CDM project activity is demonstrated through investment barrier by applying the benchmark analysis. The validation team has validated the investment analysis in the below sections.</td></tr>
<tr><td>2</td><td>No Project activity and equivalent amount of energy would have been produced by the Project grid electricity system through its currently running power plants and by new capacity addition to the grid i.e. Continuation of current situation.</td><td>This is a credible alternative as in absence of the project activity, the grid would have continued with the fossil fuel based power projects and thus there would also have been the associated GHG emissions. Thus continuation of the current situation (electricity generation from the grid) is the most probable baseline alternative for the project.</td></tr>
</table>
Both the alternatives are in compliance with all applicable legal and regulatory requirements as;</td><td>OK</td></tr>
</table>

	Validated situation	Conclusion
	• the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement; and • the Electricity Act 2003 does not restrict or empower any authority to restrict the fuel choice for power generation. The Electricity Act 2003 was a major step by Indian government to bring a new era for the power sector in India. It proposes sweeping changes in Generation and Transmission & Distribution (T&D) laws. It is ambitious in its scope and requires political will to translate tangible benefits for the sector. The PP has demonstrated the financial unattractiveness of the project activity through investment barrier by applying the benchmark analysis. Since the baseline for the project activity is electricity supplied by the grid which is outside the direct control of the project developer, the choice of benchmark approach for demonstration of Additionality is relevant.	

	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 06.0.0. The tool provides 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 below. CAR 04 was issued on application of latest version of "tool for demonstration and assessment of Additionality" in the PDD for Additionality. The same was resolved and detailed in the findings list of the report.	OK ~~CAR 04~~
2. Assess the correctness of computations carried out and documented by the project participants	The validation team has assessed the correctness of the computations that were carried out by the PP. Equity IRR was calculated for a period of 20 years, which reflects the period of expected operation of the underlying project activity (technical lifetime) and hence was found to be appropriate. 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'. Further, LRQA confirms that the tax calculation considers benefit under section 80 IA[6] of the Income Tax Act under which such projects are entitled for tax holiday for 10 consecutive years out of the first 15 years. In accordance with guidance 5 of 'Guidelines on the assessment of investment analysis', LRQA confirms that the depreciation have been added back to net profits for the purpose of calculating the Equity IRR.	OK ~~CAR 06~~

[6] Section 80 IA – Reduction in respect of profits and gains from industrial undertaking or enterprises engaged in infrastructure development etc. under which a deduction of an amount equal to 100% of the profit and gain derived from such business is allowed for any ten consecutive years out of fifteen years beginning from the year in which the undertaking or enterprise generates power or commences transmission or distribution of power.

<table>
<tr><th></th><th>Validated situation</th><th>Conclusion</th></tr>
<tr><td></td><td>The PP had presented the unprotected spreadsheet versions of all investment analysis, having readable formulas. 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.

Also, LRQA confirms that all the input values considered for the investment analysis were applicable at the time of investment decision taken by the project participant and 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 110 & 111 of VVM Version 1.2

The project IRR calculated with the input parameters as provided below work out to 7.89% for the project activity without considering the benefits from the CDM revenue which is less than the benchmark of 18.75%.

A consolidated CAR, CAR 06 was raised on various issues identified on investment analysis presented to the validation team.

All issues were appropriately resolved during validation. For detail please refer to the finding list towards end of the report.</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>Parameters (i) annual generation, (ii) power sale tariff, (iii) O&M cost and (iv) project cost were selected for sensitivity analysis. Validation team confirms the sensitivity analysis as below:

<table>
<tr><th>Parameter</th><th>Variation (+10%)</th><th>Variation (-10%)</th><th>Cross Over Point</th></tr>
<tr><td>Change in net generation</td><td>10.30%</td><td>5.50%</td><td>43.8%</td></tr>
<tr><td>Change in Power Sale tariff</td><td>9.78%</td><td>6.05%</td><td>53.9%</td></tr>
</table>
</td><td>OK
~~CAR 06~~</td></tr>
</table>

	Validated situation	Conclusion

Change in O&M Cost	7.59%	8.19%	-403.0%
Change in Total Project Cost	5.91%	10.37%	-31.8%

Annual generation:

The PP has appointed a third party consultant (HTC) for assessment of the PLF for the WTG location. Since the PP has considered the PLF as per the PLF assessment report, which is site specific the considered value is more appropriate and very unlikely to increase. However, the team checked with MERC tariff order 2003 and 2011 for wind projects where the capacity utilisation factor (CUF)/PLF of 20% is mentioned. The difference between the PLF assessment report and MERC tariff order is 10.20%. Further to it the annual generation was also considered by the proponent while applying for loan from the debt financer as confirmed from the IDFC bank letter, which is consistent and appropriate.

In addition, validation team also calculated the equity IRR based on PLF published by MERC tariff order i.e 20%, as the PLF considered for the project based on third party PLF assessment report by HTC is less than the average PLF in the zone 1 area of the entire Maharashtra provided by MERC tariff order 2003 and 2011. The equity IRR of the project based on PLF published by MERC tariff order i.e. 20% for zone 1 area is 10.35% which is less than the benchmark calculated for the project i.e. 18.75%. The equity IRR of the project crosses the benchmark when PLF reaches 26.1% i.e. the third party estimated PLF value is increased by 43.8%, which is unlikely considering the uncertain wind condition of the new wind farm and existing regulatory guidelines by MERC that considers only 20% as the PLF for tariff determination. It was also confirmed from the zone certificate that the project falls in the Zone 1 area where the PLF is the least in entire state of Maharashtra.

Tariff rate:

As the MERC order dated 24/11/2003 has specified the tariff for the period of 13 years which was available at the decision making time. The tariff considered for investment analysis was found in line with the guidance 6 of “Guidelines on the

	Validated situation	Conclusion
	assessment of investment analysis" Version 05. The actual electricity tariff for the project is fixed at INR 5.37/kWh as confirmed from the actual power purchase agreement (PPA) and latest MERC tariff order 2011 for 13 years. Tariff rate in India has been under government control. Though government varies tariff rates in accordance with the market conditions or other incentives as per national priorities, and further increase of from actual tariff is very unlikely as PPAs for the project activity are already executed with fixed tariff. In the MERC tariff order (available prior to decision making), the tariff rate has been estimated as provided below: **Year** / **Tariff (INR/ kWh)** 1st Year: 3.50 2nd Year: 3.65 3rd Year: 3.80 4th Year: 3.95 5th Year: 4.10 6th Year: 4.25 7th Year: 4.40 8th Year: 4.55 9th Year: 4.70 10th Year: 4.85 11th Year: 5.00 12th Year: 5.15 13th Year: 5.30 Average Tariff for the above 13 years: 4.40 Average Tariff for 20 years: **4.72** Further, the actual tariff rate that the project will be eligible is 5.37 fixed for 13 years. The difference in actual tariff rate and the average tariff rate applicable at the decision making time (calculation carried out for 13 years) is 22.05% which is under	

	Validated situation	Conclusion
	the percentage change (i.e. 53.9%) at which the IRR crosses the benchmark. In addition as the tariff orders 2003 & 2011 and PPA only specifies tariff for 13 years, a comparison between the actual tariff of 5.37 INR/kWh and average tariff of 4.72 INR/kWh for 20 years was carried out. The difference between both the tariff rate is 13.8% which is below the percentage change of (i.e. 53.9%) at which the return crosses the benchmark. Hence the tariff considered at the decision making time can be considered to be appropriate. Equity IRR calculated based on the actual tariff rate that the project is availing is 14.10% which is below the benchmark considered for the project and remains additional. <u>O&M cost:</u> 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. <u>Project cost</u> The IRR is within the benchmark of 18.75% 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 Facilitation Agreement signed on 29/09/2008 between the technology supplier (EIL) and the PP to confirm the actual project cost. The actual cost per WTG is INR 45.4million and for the complete project is INR 2,860.2 million which is higher than the cost considered for the investment analysis calculation (i.e. INR 44 million/WTG & INR 2,772 million for the total project). The project IRR breaches the benchmark at a variation of project cost by -32.89%, which is unlikely to happen since the project is already in operation and the project cost has increased rather than decreasing. 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	

	Validated situation	Conclusion
	and assumptions used in calculating the relevant financial indicator, cross-checks against third party or publicly available sources and correctness of computation carried out, the financial returns of the proposed CDM project activity would be insufficient to justify the required investment. LRQA also confirms from the analysis of the project investment analysis at different project capacity i.e.113.6 MW and 57.6 MW. There is no change in IRR value as all input parameters are same except the project capacity. Therefore it is confirmed that project capacity doesn't influence the project additionality and hence the final capacity of 50.4 MW which is realistic is deemed appropriate. CAR 06 # 11 was issued against applicability of tariff rate as Tariff order dated 29 April 2011 for Wind zone 1 is referred by PP for calculating the tariff for the project activity, which was not available at the time of investment decision. CAR 06 # 2 (c) was also raised against O&M contingency parameter. Same was removed during validation.	

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
No. of wind turbines	Nos	63	Internal Assumption based on presentation submitted to Investment committee meeting dated 16/09/2008	The number of WTGs involved in the project has been based on internal assumption of splitting the projects for CDM purpose (phase I & phase II), which was further confirmed based on the review of Offer letter dated 15/07/2008, Facilitation agreement and warranty operation and maintenance agreement dated 29/09/2008 signed by PP with technology supplier for 142 WTGs (70 WTGs + 72 WTGs). Later on the 142 WTGs were split into two phases, phase I for 70 WTGs and phase II for 72 WTGs. 72 WTGs were again split into phase II for 63 WTGs and Phase III for 9 WTGs.	OK
Capacity of each wind turbine	MW	0.8			
Capacity of the project	MW	50.4			

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				Concerned project activity is Phase –II for 63 WTGS which is confirmed based on the Commissioning Reports of the WTGs. (Refer Section 7.2 Appendix B of the report for the list of documents reviewed by the validation team) This was also confirmed during the site visit.	
Net Generation Plant Load Factor	Million units %	80.125 18.15%	Third party Assessment Report, page 25/44, Table 5-6 Calculated	The Net Annual Estimated Generation and PLF are sourced from the Long Term Annual Energy Output Estimate (LTAEO) Report dated 30/04/2010 by a third party i.e. Hydro Tasmania Consulting (HTC) contracted by the PP. PP had considered The Net Annual Estimated Generation and PLF are sourced from the LTAEO Report dated September 2008 by third party for initial web hosting. However, the study conducted on September 2008, before investment decision was no longer relevant as the both type of EIL machines E-48 & E-53 were considered and the project activity comprises of only E-53 machines only, The net generation estimated in September 2008 gives a lower value than April 2010, Whereas, the project activity consists of E-53 EIL machines only. Thus, a fresh study was conducted and the report submitted on 30/04/2010 by the third party and PLF value is based on this study is considered for the investment analysis. As the value is higher and results in higher IRR and can be deemed conservative and appropriate to the present project activity. A CAR was raised for the same and successfully closed. The PLF was sourced from the third party report of	OK ~~CAR 06~~ ~~CL01~~

<table>
<tr><th>Parameter/input</th><th>Symbol/Unit</th><th>Value</th><th>Source</th><th>Means of validation</th><th>Conclusion</th></tr>
<tr><td></td><td></td><td></td><td></td><td>Hydro Tasmania Consulting dated 30/04/2010 and is in accordance with Option 3 b) of the “Guidelines on Reporting and Validation of Plant Load Factors” Version 01.

It was confirmed by the validation team that the third party report dated September 2008 was available to PP during the investment decision however, as the PLF calculated was not appropriate so on a conservative note the PLF was revised to a more recent study dated 30/04/2010 conducted by the PP. The same PLF was also considered by the IDFC bank while financing the project, this was confirmed from the letter provided by the bank, declaring its consideration of the PLF while providing loan to the project.

During the site visit by the validation team to the PP’s corporate office, PP confirmed that the PLF values for WTGs were sourced from the third party report than only to rely on the values provided by the technology suppliers in their offer letters. The third party PLF values are more realistic, since the values are determined after application of loss factors. The losses as mentioned below were reviewed by the validation team to from the energy estimate report and found to be appropriate.

<table>
<tr><td></td><td>Losses</td><td></td></tr>
<tr><td>A</td><td>WAsP Model Correction (Terrain effects)</td><td>98%</td></tr>
<tr><td>B</td><td>Internal wake effects</td><td>96.2%</td></tr>
<tr><td>C</td><td>Other wake effects (existing and future wind farms)</td><td>100%</td></tr>
<tr><td>D</td><td>Power curve performance</td><td>95%</td></tr>
<tr><td>E</td><td>WTG availability</td><td>96.5%</td></tr>
</table>
</td><td></td></tr>
</table>

<table>
<tr><th>Parameter/input</th><th>Symbol/Unit</th><th>Value</th><th>Source</th><th>Means of validation</th><th>Conclusion</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>F</td><td>Electrical connection availability</td><td>98%</td></tr>
<tr><td>G</td><td>Other Environmental Effects (Blade degradation)</td><td>99%</td></tr>
<tr><td>H</td><td>Curtailment</td><td>100%</td></tr>
<tr><td>I</td><td>WTG Transformer</td><td>98.5%</td></tr>
<tr><td>J</td><td>Wind Farm Power Collection System</td><td>98%</td></tr>
<tr><td>K</td><td>Wind Farm Substation Transformer</td><td>NA</td></tr>
<tr><td>L</td><td>Transmission Line</td><td>NA</td></tr>
</table>

Further to confirm the appropriateness of the PLF assumed, the validation team has reviewed the following:

This is also compared with the PLF as specified in the MERC Order dated 24/11/2003 which mentions the PLF of 20%. However, the PLF as indicated in the MERC tariff order is applicable to larger region and not site specific. At this PLF of 20%, the project IRR (without CDM revenues) is 10.35%, which still less than the benchmark.

Hence the considered PLF is accepted by the validation team.</td><td></td></tr>
<tr><td>Project Cost</td><td>INR Millions</td><td>2,772</td><td>EIL Offer letter and other supporting documents</td><td>The project cost of 44.0 INR Million/WTG is sourced from the Offer letter for setting up 113.6 MW wind farm submitted by Enercon India Limited to PP” dated 15/07/2008.

The actual project cost as confirmed from the facilitation agreement signed by PP (details provided in Appendix B, section 7.2) is 45.4 INR Million/ WTG.

In addition, validation team cross checked the project cost with the loan sanction letter dated 08/06/2011</td><td>OK
~~CAR 06~~
~~CL 02~~</td></tr>
</table>

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				which mentions the EPC cost for project as INR 6297 Million for 113.6 MW or 44.34 INR Million/WTG. Hence the project cost as mentioned in the financial offer document is considered reasonable and conservative among the three available documents reviewed and hence accepted by the validation team. However following CAR/CL were raised and successfully closed during the validation. CAR 06#4 was raised as breakup of the project cost was not provided by the PP. CL 02 was raised on non inclusion of infrastructure development cost (approximately INR 2 million/WTG), in the investment analysis.	
Debt Equity	%	70 30	MERC Tariff order published on 24/12/2003.	This has been sourced from the MERC Tariff order published on 24/12/2003. MERC tariff order dated 24/11/2003 specifies 70:30 debt equity ratio. The debt equity ratio was available at the decision making time, it was crosschecked with the loan sanction letter dated 08/06/2011 and the PP's consideration is found to be appropriate and relevant. CL 04 was raised as it is stated in Annex 2 of the PDD that the *"The total investment in the wind farm has been accrued from internal sources"* which is not in line with information provided in table in section B.5 of the PDD.	OK ~~CL 04~~
Interest rate	%	12.50	MERC Tariff order published on 24/12/2003.	The source of Interest rate for the project is MERC Tariff order published on 24/12/2003.. The document was available at the decision making time. This is also compared with the interest rate of 12.33% as specified by the loan sanction letter dated 08/06/2011 and found to be appropriate.	OK

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				The actual interest value was not available with the PP at the time of decision making..	
Debt tenure	years	10	MERC Tariff order published on 24/12/2003.	The source of debt tenure for the project is MERC Tariff order published on 24/12/2003. This is also compared with the debt tenure of 12.5 years as specified in the loan sanction letter dated 08/06/2011 issued by IDFC and found to be appropriate and conservative. The actual Debt Tenure was not known to the PP at the decision making time.	OK
Moratorium	years	1	MERC Tariff order published on 24/12/2003.	The source of moratorium for the project is MERC Tariff order published on 24/12/2003. This was also compared with the loan sanction letter dated 08/06/2011 which specifies a moratorium of 0.5 years. PP's consideration is found to conservative and appropriate.	OK
Operation and Maintenance (first year)	INR Million	0	EIL Offer Letter	This sourced from the offer letter dated 15/07/2008. The same has been verified from MERC tariff order 2003 and O&M charges for fist 3 years is 1.5% of project cost and after 4th year it is 2% of the project cost. Therefore, the PP's assumption can be deemed to appropriate and conservative. Therefore is acceptable	OK
Operation and Maintenance (2nd year onwards)	INR Million/WTG	0.5	EIL Offer Letter	This sourced from the offer letter dated 15/07/2008. The same has been verified from MERC tariff order 2003 and O&M charges for fist 3 years is 1.5% of project cost and after 4th year it is 2% of the project cost. Therefore, the PP's assumption can be deemed to appropriate and conservative. Therefore is acceptable.	OK
Escalation in O & M (5 to 20)	%	5	EIL Offer Letter	The source of 5% was also confirmed from MERC tariff order 2003 which reasons to applicable inflation rate of	OK

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				the host country. The same is accepted as it is appropriate considering the present inflation rate of the host country is comparatively very high.	
Service tax on O & M fees	%	12.36	Finance Bill 2008-09	The PP has considered the service tax based on the host country regulation applicable at the time of investment decision making. Hence, the service tax considered for the project is deemed appropriate.	OK
Insurance cost per turbine	INR Million	0.022	Based on similar projects of PP	Confirmed from the insurance receipt from the insurance provider giving the details of the insurance premium (covering fire insurance and general insurance) assumed for the similar project activity of the same PP dated 15/06/2007. CAR 06 was raised against escalation on insurance premium 1% in every 5 years. PP removed it during validation and also submitted document of reference for Insurance.	OK ~~CAR 06~~
Insurance cost for the project	INR Million	1.389	Based on similar projects of PP	Confirmed from the insurance receipt from the insurance provider giving the details of the insurance premium (covering fire insurance and general insurance) assumed for the similar project activity of the same PP dated 15/06/2007.	OK
Tariff	INR/kWh	3.50	Maharashtra Electricity Regulatory Commission (MERC) tariff order dated 24/11/2003	Validation team confirmed the tariff rate, which was available to the PP at the time of investment decision is 3.50 INR/KWh, with an escalation of 0.15 INR/kWh from 2nd year till 13th years, as specified in the MERC Order dated 24/11/2003. The same is considered for the investment analysis. Further the tariff is kept constant (tariff of 13th year) from 14th to 20th years for the Equity IRR calculation. However tariff rate was revised at the time of signing of PPA in line with MERC order published in 2011. The actual tariff rate applicable to the project at present based on the present tariff order and Power Purchase Agreement is 5.37 INR/kWh fixed for 13 years.	~~CAR 06~~ OK

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				The validation team has made comparison analysis and found that Equity IRR calculated based on the actual tariff rate considered fixed for the 20 years, is 14.10% which is still lower than the benchmark for the project activity i.e. 18.75%. The difference in both the tariff rates i.e. considering tariff rate available at the time of decision making and actual tariff for 20 years is 13.8%. The sensitivity analysis reveals that the equity IRR breaches the benchmark in case the tariff rate is escalated by 53.9%. Further the validation team analysed that, in case a tariff escalation of 5% on actual tariff from 14th year till 20th year, the Equity IRR is 14.72%, which still remains within the calculated benchmark. The PP has considered a tariff rate of INR 3.50/kWh with escalation of 0.15 INR/kWh from 2nd year onwards for the period of 13 years as the following was available to the PP during decision making time and the actual tariff of 5.37 INR/kWh as per the PPA was not available. LRQA reviewed the MERC tariff order dated 24/11/2003. Though the tariff order does not specify the tariff rate from 13th year onwards, it is very likely that the tariff rate will be reduced after 13th year as the PP shall service its debt and interests on term loan before 10 years of WTG operation thus leading to a lower cost of generation. With a lower cost of generation, it is unlikely that the PP would be able to command a tariff higher than 5.37 INR/kWh post 13th year of operation. However, continuing with the same escalation (i.e. INR 0.15/kWh, after 13th year onwards the equity IRR increases to 8.74%, which is still much below the benchmark. Hence, LRQA deems the tariff rate of INR	

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				3.50/kWh with 0.15 INR/kWh escalation till 13th year considered for the financial analysis to be reasonable at the time of investment decision and in accordance with Guidelines for investment analysis, version 5. CAR 06#11 was raised regarding applicability of tariff rate as per Tariff order dated 29 April 2011 for Wind zone 1 as referred by PP for calculating the IRR, which is appropriately corrected.	
Depreciation Rate (Book)	%	5.28	Indian Companies Act	In accordance with the local taxation laws. This is as per the rate specified in Indian Companies Act, Schedule XIV, II Plant & Machinery (b) for continuous process plant. Wind power project is considered to be continuous process plant.	OK
IT Depreciation Rate	%	7.69	Appendix IA of Income Tax (IT) Rules	In accordance with the local taxation laws. CAR 06 #10 was raised seeking justification, for considering depreciation rate at 7.69% on SLM basis instead of WDV basis at 80%.	OK ~~CAR 06~~
Generation Based Incentive (GBI)	INR/kWh	0.5	Ministry of New and Renewable Energy (MNRE)'s Generation Based Incentive (GBI) scheme/ Indian Renewable Energy Development Agency (IREDA)	Confirmed from "Demonstration Programme on Generation Based Incentives for Grid Interactive Wind Power Projects" announced on 23/07/2008. It was confirmed during the meeting held at PP's office that the GBI scheme was available during the decision making of the project and PP had considered GBI during investment decision of the project. GBI application letter to IREDA from CLPWF dated 28/03/2012 was also reviewed to confirm the above. CAR 06# 09 due to lack of evidence to support that GBI was considered during the decision making was not available for validation and closed out by the PP.	OK ~~CAR 06~~
GBI cumulative cap	INR Million per MW	6.20	MNRE GBI scheme/ IREDA	Confirmed from "Demonstration Programme on Generation Based Incentives for Grid Interactive Wind Power Projects" announced on 23/07/2008.	OK ~~CAR 06~~

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				The same is also considered appropriate at present scenario.	
Max. GBI allowed in a year	INR Million per MW	1.55	MNRE GBI scheme/ IREDA	Confirmed from "Demonstration Programme on Generation Based Incentives for Grid Interactive Wind Power Projects" announced on 23/07/2008. The same is also considered appropriate at present scenario.	OK
Max. GBI allowed in a year	INR Million	78.12	MNRE GBI scheme/ IREDA	Confirmed from "Demonstration Programme on Generation Based Incentives for Grid Interactive Wind Power Projects" announced on 23/07/2008. The same is also considered appropriate at present scenario.	OK
GBI cumulative cap	INR Million	312.48	MNRE GBI scheme/ IREDA	Confirmed from "Demonstration Programme on Generation Based Incentives for Grid Interactive Wind Power Projects" announced on 23/07/2008. The same is also considered appropriate at present scenario.	OK
Max duration for GBI	years	10	MNRE GBI scheme/ IREDA	Confirmed from "Demonstration Programme on Generation Based Incentives for Grid Interactive Wind Power Projects" announced on 23/07/2008. The same is also considered appropriate at present scenario.	OK
Income tax rate	%	33.99	IT act	In accordance with the local taxation laws.	OK
MAT rate	%	11.33	IT act	In accordance with the local taxation laws.	OK
Salvage Value	%	10	Assumed	As per sub section 2(b) of section 205 of the Companies Act 1956 Assets can be depreciated up to 95%, hence residual value is considered as 5%[7].	OK

[7] http://www.indiankanoon.org/doc/1422372/

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
				However the PP preferred to keep 10% as salvage value. The same is considered conservative and acceptable to the validation team.	

	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 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.	**Appropriateness of the benchmark** The benchmark applied for the project activity is expected returns on equity which is calculated based on Capital Asset Pricing Model (CAPM) approach. CAPM is a model based on the proposition that any stock's required rate of return is equal to the risk-free rate of return plus a risk premium that reflects only the risk remaining after diversification. The benchmark based on the Capital Asset Pricing Model (CAPM) method is calculated with the help of the following formula: $Ri = Rf + \beta \times (Rm - Rf)$ Where, Ri = Rate of return on equity; Rf - Risk free rate of return Rm - Expected market returns ß - Beta or systematic risk for this type of equity investment coefficient reflecting the volatility (risk) of the stock relative to the market (Rm - Rf) - Market risk premium As per the guidance 13 of the 'Guidelines on the assessment of investment analysis' Version 05, for cases where projects could be developed by an entity other than the project participant, the benchmark should be based on parameters that are standard in the market and the DOE shall also include its opinion on whether a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity.	OK ~~CAR 06~~

	Validated situation	Conclusion
	Accordingly, LRQA validated the below components of CAPM: i) Risk Free Rate of Return (Rf), ii) Beta (Average) arrived from the similar power generating companies (β) iii) Expected Market Returns (Rm). The PP has calculated the equity benchmark (required/expected return on equity) by adding risk premium over government bond rates based on the publicly available stock market data. The benchmark based on CAPM has been compared with equity IRR (chosen financial indicator) which is in accordance with the guidance 12 of the "Guidelines on the assessment of investment analysis" Version 05. **Risk free rate of return (Rf):** The risk free rate is the return that is assured on capital investment. Essentially, these are the financial instruments for investment without any default risk. In the case of India, the Government of India bonds or securities are considered as the most suitable representative for calculation of risk free rate in the market. LRQA confirmed that the returns on Central Government securities as verified from the official website of the Reserve Bank of India which was 8.3698%[8] per annum, available at the time of investment decision. The value considered for the risk free rate of return is average for a period of 12 months from August 2007 to July 2008 based on latest data available at the time of decision making i.e. Sep 2008 for 20 years maturity, which is the same as the period considered for financial analysis. Therefore, this is considered appropriate. **Expected market returns (Rm):** The expected rate of return of market portfolio has been calculated by the PP based on the compounded annual growth rate (CAGR) of publicly available BSE-Sensex Index data for a period of 29.42 years from 01/04/1979 – 31/07/2008 . The	

[8] http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/86853.pdf

	Validated situation	Conclusion
	Bombay Stock Exchange Limited constructed an index, christened BSE Sensex, which became the barometer of the country's economy. This Index has been there from 1979 and seen the ups and down of the country's economy, due to this fact all possible error in the economy is also adjusted in the index. As the BSE Sensex is calculated using the "Free-float Market Capitalization" methodology, wherein, the level of index at any point of time reflects the free-float market value of 30 component stocks relative to a base period. The BSE Sensex index started in 01/04/1979, this index has vintage data available since 01/04/1979. PP has considered the BSE Sensex index data from April 1979 (period of inception) to 31/08/2008 (prior to investment decision date), which amounts to 29.42 years. The computation of expected market returns using data for a period of 29.42 years is appropriate and practical considering the fact that Sensex gives the longest vintage period, a prerequisite for calculating Equity Risk Premium (ERP) in a most conservative way. The average market return has been calculated with the help of the Compound Annual Growth Rate (CAGR). The CAGR is a metric that measures the average returns from the stock market investments over a period of time. It is a more accurate measure than simple average of returns and calculated as: CAGR = (index value at end/ index value at beginning) ^ (1 / no. of years) – 1 LRQA verified the values considered for calculating the CAGR from publicly available information and confirms the calculation for market rate of return from the data available during the investment decision as 18.45% **Beta (β)** The CAPM assumes that investors hold fully diversified portfolios. This means that investors are assumed by the CAPM to want a return on an investment based on its systematic risk alone, rather than on its total risk. The measure of risk used in the CAPM, which is called 'Beta', is therefore a measure of systematic risk. Hence,	

	Validated situation	Conclusion
	Beta is the measure of the risk of a specific sector/company. Asset beta is linked to operating leverage and measures the deviation between its future cash flows and those of the market. Asset beta is the beta of a debt-free company. It is also called unlevered beta or beta of assets. Using asset beta allows the evaluation of the volatility of a company's stock without this debt benefit. By reviewing the unlevered beta, you will have a better idea of the market risk of a company's stock. The PP has on this note chosen Asset beta to calculate the sensitivity of the particular sector. In order to quantify the risk related to this project, the PP had taken the Asset Beta values of the eight similar power generating companies listed on the BSE website. The Asset Beta value of the eight similar power generating companies ranges from 0.6 to 1.849. Validation team confirmed a 5 year period for beta calculation is appropriate based on financial expertise. Furthermore, the article "Estimating Risk Parameters, Aswath Damodaran Stern School of Business". by Aswath Damodaran states the following: "*Risk and return models are silent on how long a time period one needs to use to estimate betas. Services use periods ranging from two years to five years for beta estimates, with varying results*". Hence the validation team is of the opinion that consideration of 5 year data (October 2003 –September 2008) for asset beta estimation by PP is very well within the host country accounting practices and hence appropriate. Further LRQA confirms the Asset Beta calculation is in line with the Guidelines on the Assessment of Investment Analysis version 05 which stipulates that risk premiums applied in the determination of required returns on equity shall reflect the risk profile of the project activity being assessed. The Asset Beta values of the eight similar power generating companies has been	

	Validated situation	Conclusion
	calculated based on the standard method β = Covariance of returns of the similar power generating companies with the market / Variance on the market. And, Asset Beta is calculated as β u = β L/(1+ ((1-t)D/E)) Where, β u = Unlevered Beta (Asset Beta) of the company β L = Equity beta of the company t = Tax rate of the company D/E = Debt, Equity ratio of the company The Asset Beta value is calculated based on the above method for the similar power generating companies. The average beta is calculated as 1.030. Thus, the benchmark value of 18.75% calculated for the project activity as considered by the PP at the time of investment decision making is reasonable and acceptable. Further to this, validation team cross checked the benchmark using default values following 'Guidelines on the assessment of the investment analysis' Version 05 as below: The benchmark is calculated by adding inflation rate to the expected Return on Equity values provided for Group 1 type of projects in India (Host Country) as per table in Appendix of Guidance on Assessment of Investment Analysis (Version 05). The inflation rate is taken from the central bank of the host country for the duration of the crediting period.	

	Validated situation	Conclusion
	The inflation forecast data available on the website of Reserve Bank of India (Central Bank of the host country) is for 5 and 10 Year periods respectively. The first crediting period for the project activity is 7 years. The inflation values (median) for 5 and 10 year period are 6% and 5% respectively (Refer table A-7 and A-8 on: http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/86097.pdf) . The inflation forecast for 10 year period which is 5% is taken as it gives a conservative value. This approach will lead to calculation of a conservative benchmark. Thus, the benchmark (Expected Return on Equity) for the project activity is (1+11.75%)*(1+5%)-1= 17.34%[9]. Validation team confirmed that the equity IRR does not cross the lowest possible benchmark calculated based on default value i.e. 17.34% even after conducting sensitivity analysis. In the above context, the benchmark computed by PP is deemed reasonable in context of the latest Guidelines on the assessment of the investment analysis (Version 05, EB 62) and hence acceptable. Nevertheless CAR 06 was raised on; 1. Beta and Market Return calculations were considered the data till August 2008, whereas decision was taken on 26th September 2008. 2. Risk free rate of return is not based on the latest information available at the time of decision making. 3. The choice of index used for calculation of expected market returns was not justified. The above issues were appropriately addressed by the PP	

[9] As per the Fisher equation of calculating Real Return on Equity- http://tfsfrd.tamu.edu/tdss/Basic/rateCalc.asp

	Validated situation	Conclusion
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 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.	NA	NA

Comparison to similar registered project in the region:
As the PP does not rely on values from a Feasibility Study Report (FSR) approved by any national authority, project comparison is not undertaken.

CDM Ref	Investment cost	Tariff	O&M cost	Capacity	Output	Investment cost per output	Load factor	O&M relative to investment	O&M per output
NA									NA
NA									NA
NA									NA
NA									NA

	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.	NA	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	NA				NA
Risks related barriers	NA				NA
Technological	NA				NA
Due to prevailing practice	NA				NA
Other	NA				NA
First of its kind	NA				NA

	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 06.0.0 In accordance with the Para 5 Tool for the demonstration and assessment of additionality Version 06.0.0, the PP had considered the entire host country as default to determine the geographical area. The validation confirms the geographical area determined by the PP is appropriate and in accordance with Para 5 Tool for the demonstration and assessment of additionality Version 06.0.0 and paragraph 120 (a) of the CDM VVM Version 01.2. However, CAR 04 was raised regarding non-usage of latest version of "tool for demonstration and assessment of additionality". Please refer to the finding list of this report.	OK ~~CAR 04~~
2. Determine to what extent similar and operational projects (for example, using similar technology or practice), other than CDM project activities[10]; have been undertaken in the defined region.	In accordance to the Para 47 of the Tool for the demonstration and assessment of additionality Version 06.0.0, the PP had demonstrated the common practice analysis in stepwise manner In Step 1, the PP has correctly stated the projects with similar output, i.e. projects with installed capacity between 25.2MW and 75.2 MW In Step 2, the PP has considered geographical area as the host country. This is the default option prescribed in the paragraph 1 of the guideline and paragraph 120 (a) of the CDM VVM Version 01.2.PP has identified 399 power plants that deliver the same output or capacity projects. Validation team confirms similar project from the review of CO_2 baseline database Version 06, wind power	OK ~~CAR 04~~

[10] 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

	Validated situation	Conclusion
	directory 2011 and publicly available information for nuclear and biomass based power plants. Please refer Appendix B of this report to view the list of documents referred. In Step 3, out of the 399 identified power plants, PP had calculated the N_{diff} as 397 by removing the similar wind projects. The identified power plants with different technology that includes 158 thermal power plants, and 217 hydro power plants and 22 biomass projects. In step 4 PP has calculated F factor which is 0.0050 and N_{all}-N_{diff} = 2. The applied tool specifies in conclusion to paragraph47 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.*" The validation team conclude that the project activity is not a common practice in India based on above discussions. The validation team has cross checked the installed capacity from the archived report publicly available in the CEA website (http://www.cea.nic.in/archives.html), MNRE website and Wind power directory 2011 and confirmed the correctness and appropriateness of the data used by the PP in the common practice analysis.	
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.	This step has been covered in the above step.	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
$EG_{facility,y}$	**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 **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures:** Cross check measurement results with records for sold electricity	**Data unit**: MWh/yr **Description**: Quantity of net electricity generation supplied by the project plant/unit to the grid in period y **Source of data**: This is a calculated parameter. **Measurement procedures (if any):** Net electricity supplied will be calculated as the difference of electricity exported to and imported from the grid measured using the readings taken at the main/check meter installed at the respective feeders. The formula which will be used is as below: $EG_{facility,y}$ =	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 80,125 MWh/year. The net electricity supplied will be calculated based on difference of electricity exported and electricity imported. Joint Meter Reading and generation report issued by MSEDCL on a monthly basis shall be used for calculation Measurement methods: It is a calculated parameter based on measured electricity exported ($EG_{Export, i, y}$) and electricity imported ($_{EG\ Import, i, y}$) by the project activity. In case if there are project and non-project WTGs connected to a particular feeder i, the quantity of net electricity supplied by project WTGs to the grid connected to that particular feeder will be calculated based on the formula specified below: Net electricity supplied by the project WTGs connected to feeder i to the grid in period y	OK ~~CL 05~~

		Validated situation		Conclusion
	Any comment:	$\sum_{i=1}^{N} (EG_{export,i,y} - EG_{import,i,y})$ Note: In cases where there are other (non-project) WTGs connected to the same feeder, appropriate apportioning mechanism specified in PDD section B.7.2 shall be applied. Also for cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL, appropriate apportioning mechanism specified in PDD section B.7.2 shall be applied. . **QA/QC procedures:** The value of this parameter can be cross checked with all the invoices generated for the sold electricity during the year y. **Any comment:** The data will be kept for two years after the end of the crediting period or the last	$EG_{facility,y} = \sum_{i=1}^{N} ((EG_{export,i,y} - EG_{import,i,y}) * (EG_{WTG_controller,i,y} / EG_{All_controller,i,y}))$ Where: Total generation from all project WTG(s) connected to the feeder i in period y = $EG_{WTG_controller,i,y}$ Total generation from all project and non project WTGs connected to the feeder i in period y = $EG_{All_controller,i,y}$ Quantity of electricity exported by all (project and non project) WTGs connected to feeder i to the grid in period *y*= $EG_{export,i,y}$ Quantity of electricity imported by all (project and non project) WTGs connected to feeder i to the grid in period *y* = $EG_{import,i,y}$ N = No. of feeders to which project WTGs are connected to. However apportioning of electricity in case dates of monitoring period do not match with dates of JMR sheets. The sample calculation procedure is: In case the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL), following apportioning procedure will be applied for the first and the last monitoring period within a particular crediting period:	

			Validated situation	Conclusion
		issuance of CERs for this Project activity, whichever occurs later.	Apportioning will be carried out based on ratio of generation data recorded using LCS installed at the WTG. The emission reductions of that particular period (between the start/end date of monitoring period and the end/start of the billing period) will be calculated based on percentage generation of that particular period at WTG using LCS data multiplied with the total units generated in the month as per the Joint Meter Reading Sheets / Generation report issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL). The calculation formula has been furnished below: Generation from all project WTGs for the period y1= $EG_{WTG_controller,y1}$ Generation from all project WTGs for the period y2 = $EG_{WTG_controller,y2}$ Net energy supplied used for calculation of emission reduction for the monitoring period y1 *i.e.* $EG_{facility,y1} = \sum_{i=1}^{N} ((EG_{export,i,y2} - EG_{import,i,y2}) * (EG_{WTG_controller,i,y1} / EG_{WTG_controller,i,y2}))$ **Where:** y1 = No. of days within a billing period up to which generation is considered for emission reduction calculation y2 = No. of days in the billing period N = No. of feeders to which project WTGs are connected to. The apportioning formula is confirmed by the validation team based on site visit interview with MSEDCL & EIL employees.	

			Validated situation	Conclusion
			The QA/QC procedure is described in the PDD in line with the methodology requirement and is appropriate. CL 05 was raised as notation used for the parameters "Quantity of net electricity generation supplied by the project plant" & Baseline emission factor in the PDD are not consistently used. Both clarification requests were adequately addressed by the PP.	
$EG_{export, i, y}$	**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 **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures:** Cross check measurement results with records for sold electricity	**Data unit:** MWh/yr **Description:** Quantity of electricity exported by the Project WTGs connected to feeder i to the grid in period *y* **Source of data:** Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for feeder i to which WTGs of the project activity are connected. $EG_{export, i, y}$ will be summation of readings of individual Joint Meter Reading Sheets. In cases where there are other (non-project) WTGs connected to the same feeder, apportioning mechanism specified in PDD section B.7.2 shall be	Validation team confirms the description of the parameter is in accordance with the methodology i.e. Quantity of net electricity exported 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 80,125 MWh/year. The net electricity exported will be calculated based quantity of electricity exported by the Project to the grid using the sum of readings taken at the main/check meter installed at the respective feeders. Measurement methods: The net electricity exported will be calculated based quantity of electricity exported by the Project to the grid using the sum of readings taken at the main/check meter installed at the respective feeders. Data monitoring would take place at the substation continuous basis and will be recorded on daily basis which is as per the methodology requirement. On the basis of these readings taken, a generation report would also be issued by MSEDCL. The QA/QC procedure is described in the PDD in line with the methodology requirement and is appropriate.	OK

			Validated situation	Conclusion
	Any comment:	applied. Also for cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL, appropriate apportioning mechanism specified in PDD section B.7.2 shall be applied. **Measurement procedures (if any):** The PP shall duly install the approved ABT meters with accuracy class of 0.2 s with online metering features at the metering point (Main Meter). The PP will also install Check meter with separate CT/PT of class 0.2s. Quantity of electricity exported by the Project to the grid would be calculated using the sum of readings taken at the main/check meter installed at the interconnection points. The WTGs of CLPWF would be connected to the main meter of accuracy class	CL 05 was raised against the usage of the equation used in section B.6.1 for calculation of baseline emissions is BEy = $EG_{Facilty, y} * EF_{grid, CM, y}$. However in section B.6.3 the same is stated as $BE_y = EF_y \times EG_y$. Notation used for the parameters “Quantity of net electricity generation supplied by the project plant” & Baseline emission factor in the PDD are not consistent. Please refer findings log for details.	

			Validated situation	Conclusion
		0.2s at the substation. Data monitoring would take place at the substation on continuous basis and will be recorded on at least a monthly basis. On the basis of these readings taken, a generation report would also be issued by MSEDCL. **Monitoring frequency:** The meters installed at the metering point will have 15 minutes block online reading. However, The main/check meter reading at the metering point will be undertaken jointly by the representative of the MSEDCL and authorized officials of the PP on 1st day of every month for the preceding month. **QA/QC procedures:** The readings from main and check meters installed at the interconnection point will be checked every month at the time of metering of electricity generation. In case the meters are found to be operating beyond the permissible limits, it shall		

		Validated situation		Conclusion
		be immediately sent for calibration. The frequency of meter testing will be annual. It would be prudent to note that the meter testing and calibration is not within the control of the Project Proponent. **Any 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.		
$EG_{import, i, y}$	**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 **Monitoring frequency:** Continuous measurement and at least monthly recording	**Data unit:** MWh/yr **Description:** Quantity of electricity imported by the Project WTGs connected to feeder i from the grid in period *y* **Source of data:** Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) feeder i to which WTGs of the project activity are connected. $EG_{import, i, y}$ will be summation of readings of individual Joint Meter Reading Sheets. In cases where there are other (non-	Validation team confirms the description of the parameter is in accordance with the methodology i.e. Quantity of electricity imported by the Project from the grid in year y. The unit is correctly mentioned as MWh/year and the value of data is 0 MWh/year. Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for feeders i to which WTGs of the project activity are connected. $EG_{import, i, y}$ will be summation of readings of individual Joint Meter Reading Sheets. Measurement methods: The net electricity imported will be calculated based quantity of electricity imported by the Project from the grid using the sum of readings taken at the main/check meter installed at the interconnection points. Data monitoring would take place at the substation continuous basis and will be recorded on daily basis, which is as per the methodology	OK

		Validated situation		Conclusion
	QA/QC procedures: Cross check measurement results with records for sold electricity **Any comment:**	project) WTGs connected to the same feeder, apportioning mechanism specified in PDD section B.7.2 shall be applied. Also for cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL, appropriate apportioning mechanism specified in PDD section B.7.2 shall be applied. **Measurement procedures (if any):** The PP shall duly install the approved ABT meters with accuracy class of 0.2 s with online metering features at the metering point (Main Meter). The PP will also install Check meter with separate CT/PT of class 0.2s. Quantity of electricity exported by the Project to the grid would be calculated using the sum of readings taken at the main/check meter installed at the interconnection points. The WTGs of	requirement.. On the basis of these readings taken, a generation report would also be issued by MSEDCL. The QA/QC procedure is described in the PDD in line with the methodology requirement and is appropriate.	

		Validated situation		Conclusion
		CLPWF would be connected to the main meter of accuracy class 0.2s at the substation. Data monitoring would take place at the substation on continuous basis and will be recorded on at least monthly basis. On the basis of these readings taken, a generation report would also be issued by MSEDCL. **Monitoring frequency:** The meters installed at the metering point will have 15 minutes block online reading. However, The main/check meter reading at the metering point will be undertaken jointly by the representative of the MSEDCL and authorized officials of the PP on 1st day of every month for the preceding month. **QA/QC procedures:** The readings from main and check meters installed at the interconnection point will be checked every month at the time of metering of electricity generation. In case the		

			Validated situation	Conclusion
		meters are found to be operating beyond the permissible limits, it shall be immediately sent for calibration. The frequency of meter testing will be annual. It would be prudent to note that the meter testing and calibration is not within the control of the Project Proponent. **Any 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 $_{All_controller, i, y}$	**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 **Monitoring frequency:**	**Data unit**: MWh/yr **Description:** Sum of Electricity generation measured by controllers of project and non project WTGs connected to feeder i during period y **Source of data:** Controllers meter readings of individual WTGs monitored at the Central Monitoring Station (CMS) **Measurement procedures**	The electricity generated by all the WTG's connected to the same feeder is measured with the help of integrated electronic meter. This measurement is undertaken by the O & M contractor with help of the controller meters located at the WTGs in line with the clause 10.05 [c] of the PPA by the project proponent. The monitoring frequency is in line with the approved methodology.	OK

			Validated situation	Conclusion
	Continuous measurement and at least monthly recording **QA/QC procedures:** Cross check measurement results with records for sold electricity **Any comment:**	**(if any):** **Monitoring frequency:** This parameter would be used for calculation of $EG_{facility,y}$ in cases where there are other (non-project) WTGs connected to the same feeder and also in cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL. This parameter is the sum of electricity generated by WTGs connected to a particular feeder i and will be measured by the inbuilt controller meters (also called LCS meters) located in each WTGs on a continuous basis. The readings will be recorded at the Central Monitoring Station (CMS) on a daily basis. O&M contactor will have the responsibility of monitoring this parameter. This value will be used in an appropriate apportioning		

			Validated situation	Conclusion
		formula specified in PDD section B.7.2 **QA/QC procedures:** The LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WECs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report. The project proponent does not have any control over the LCS meter readings of other project developers and therefore the values certified by the MSEDCL will be directly used for the purpose of calculating the electricity exports to the grid. **Any comment:** The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this		

		Validated situation		Conclusion
		Project activity, whichever occurs later.		
EG $_{WTG_controller, i, y}$	**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 **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures:** Cross check measurement results with records for sold electricity **Any comment:**	**Data unit**: MWh/yr **Description:** Sum of Electricity generation measured by controllers of all the project WTGs that are connected to feeder i during period y **Source of data:** Controllers meter readings of project activity WTGs monitored at the Central Monitoring Station (CMS) **Measurement procedures (if any):** This parameter would be used for calculation of $EG_{facility,y}$ in cases where there are other (non-project) WTGs connected to the same feeder and also in cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL. This parameter is the sum of electricity generated by project WTGs connected to	The electricity generated by WTG's of the project participants is measured with the help of integrated electronic meter. This measurement is undertaken by the O & M contractor with help of the controller meters located at the WTGs in line with the clause 10.05 [c] of the PPA by the project proponent. The WTGs are equipped with a micro-processor based Controller known as Local Control System (LCS) specially designed to control the WTG. The primary function of the LCS is to ensure that all the components of the WTG remain fully operational under all conditions. In order to meet this requirement, it is necessary to monitor wind speed, wind direction, temperature, rotational speeds, power, voltage etc. The LCS display and keyboard enable control of all WTG functions. The LCS stores all the data and it is having a software access through which it can be linked with PC to transfer the data. As LCS is the central control unit there is no calibration carried for it and if there is any failure in the internal part of the LCS, the WTG will automatically shut down and will be replaced by a new controller.	OK

			Validated situation	Conclusion
		a particular feeder i and will be measured by the inbuilt controller meters (also called LCS meters) located in each WTGs on a continuous basis. The readings will be recorded at the Central Monitoring Station (CMS) on a daily basis. O&M contactor will have the responsibility of monitoring this parameter. This value will be used in an appropriate apportioning formula specified in PDD section B.7.2 **Monitoring frequency:** Continuous measurement and at least monthly recording **QA/QC procedures:** The LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WECs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the		

			Validated situation	Conclusion
		inverting system; the machine will stop working and generate the error report. The project proponent does not have any control over the LCS meter readings of other project developers and therefore the values certified by the MSEDCL will be directly used for the purpose of calculating the electricity exports to the grid. **Any 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 organisational structure, roles and responsibility, the monitoring instruments, data monitoring procedures, emergency preparedness and the management system. During the site visit, the validation team has confirmed that the monitoring is planned in a reasonable manner and considered feasible to be implemented by the PP.	OK ~~CL 05~~
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			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 ensuring reliable monitoring and reporting of the ERs.	OK ~~CL 05~~

	Validated situation	Conclusion
by / resulting from the proposed CDM project activity can be reported ex post and verified		

	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.	Local stakeholders were invited The PP had conducted the local stakeholders meeting on 19/02/2010. The PP issued open invitation notice inviting stakeholders to participate in the meeting were given on 01/02/2010. In the stakeholders' meeting, discussion was made on the project's potential impact to the local environment, potential adverse effects and the expected benefits to the local community. Justification was given by the PP was presented during the meeting and it is described in the PDD. Review of the Stakeholder meeting minutes shows that people were supportive of the project activity and expressed no negative comment on the project activity. During the site visit, the validation team confirmed with a section of the stakeholders on the meeting conducted by the PP and the mode of invitation extended for the meeting. It was also confirmed that they had no concerns with respect to the project activity. The stakeholders confirmed their presence in the stakeholder meeting held by the PP and that they had no concerns with respect of the project activity. Stakeholders appreciated the opportunity offered to the local villagers as security guards and commented that due to the installation of such wind projects, road conditions in the area have improved. LRQA confirms that the local stakeholder consultations were adequate with respect to identification of local stakeholders, seeking their views and taking due account of any comments and conducted in a transparent manner. The stakeholder consultation process, targeted stakeholders and due actions for concerned issues have been clarified in the PDD.	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 the comments received as provided in the PDD is complete.	OK

	Validated situation	Conclusion
3. Confirm that the project participants have taken due account of any comments received and have described this process in the PDD.	One comment was received during the stakeholder meeting that required further justification by the PP. the comment was raised by Mr. Bhausheb Khomme (Village name Sai) regarding how does the PP compensate the deforestation caused due to their project. The validation team confirmed that as per point. # 5 of the Guidelines for diversion of forest land for non forest purposes (F.No. 8-84/2002-FC), a lease rent of INR30,000 per MW and compensatory afforestation shall be charged from user agency. Further points regarding Afforestation Plantation and payments have been mentioned in the Stage I (dated 19/03/2009) & Stage II (dated 10/12/2009) clearances issued by MoEF to EIL. Lease agreement between EIL and Forest Dept has also been referred to confirm the above said details.	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 Ministry of Environment & Forests (MoEF), Government of India, under Environment Impact Assessment (EIA) notification vide S.O 1533(E) dated 14/09/2006 specified a list of projects/activities in Schedule I of the said notification, which for setting up new projects or modernisation or expansion, would require prior environmental clearance and which may call for an EIA as a part of obtaining environmental clearance. As per the said notification and Schedule 1 of the latest Environmental Impact Assessment (EIA) notification dated 1/12/2009, the proposed project activity does not require any EIA to be conducted.	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.	As above	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[11]

1. Grade / Ref:	CAR 01	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 44 & 51 of VVM Version 01.2			
5. Nature of the Issue Raised:					
The Letter Of Approval (LoA) for this project activity from the host country has not been submitted by PP for validation.					
6. Nature of responses provided by the project participants:					
The Letter Of Approval (LoA) for this project activity has been submitted to DOE					
7. Assessment of such responses:					
The PP has submitted the Letter of Approval(LoA) dated 25/07/2012 with reference No: 4/2/2021-CCC received from the Host Party DNA and the following are confirmed: 1. The Government of India has ratified the Kyoto Protocol in August 2002 2. The approval is for voluntary participation in the proposed CDM project activity. 3. The project contributes to sustainable development in India 4. The project title "Wind power project in Maharashtra, India – Andhra Lake Phase – II" represented in the LoA is matching with the information provided in the section A.1, A.3 and Annex 1 of the PDD.					
8. References to resulting changes in the PDD or supporting annexes:					
NA					

[11] 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

1. Grade / Ref:	CAR 02	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 55 & 58 of the VVM Version 01.2 Guideline for completing the CDM-PDD Version 07			
5. Nature of the Issue Raised:					
Details of physical location, including information allowing the unique identification of the project activity (WTG-wise details as confirmed during the site visit) are not available in section A.4.1.4. PDD refers to Appendix 2 for the details however the PDD does not include any Appendix 2.					
6. Nature of responses provided by the project participants:					
The details of the physical location (Latitude and Longitude) had been provided as an Appendix 2 of the PDD. Further the same were verified by the DOE during the validation site visit. However, as per DOE's request, a letter from EIL (Technology Supplier) is attached for DOE's perusal.					
7. Assessment of such responses:					
The physical location letter has been provided by the technology supplier (EIL) for review and the correction has been made to the PDD, it has been verified by checking the coordinates in Google Earth application and found to be correct, and hence the finding has been closed.					
8. References to resulting changes in the PDD or supporting annexes:					
A.4.1.4 & Appendix 2					

1. Grade / Ref:	CAR 03	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 55 & 58 of the VVM Version 01.2 Guideline for completing the CDM-PDD Version 07			

5. Nature of the Issue Raised:

1. The technology details included in section A.4.3 are not complete.
2. The technical specifications of WTG model for e.g. cut-in, cut-out and rated wind speed etc could not be confirmed from the copy of technical specifications provided for validation
3. The name of the project participant in PDD is stated as CLPWF, however in section B.7. the same is stated as CLPWF
4. The WTG model referred in section A.4.3 is E-53 however section B.5 refers to implementation of E-48 model. Facilitation Agreement I between CLP Wind Farms Pvt Ltd and Enercon India Limited dated 29/09/2008 also states that wind farm projects comprising of E-48 WTGs and E-53 WTGs.

6. Nature of responses provided by the project participants:

1. the age and average lifetime of equipments are now included in section A.4.3
2. The supporting for technical specifications of WTG model is shared with DOE. (Please refer to Annex-5, Appendix-1 of Facilitation Agreement copy) .
3. The changes has been incorporated as appropriate.
4. The revised Long Term Annual Energy Output Estimate by Hydro Tasmania Consulting dated April 2010 is attached which shows the energy estimation of E-53 model.

7. Assessment of such responses:

1. The finding can be closed as,
   - Average age of the WTG as mentioned in the PDD it is confirmed from the Appendix 1 of the facilitation agreement.
   - Monitoring equipments and their location in the systems are confirmed in the section B.3 of the PDD.

2. The technical specifications are confirmed from Appendix-1 of Facilitation Agreement and the manufacturers website at http://www.enerconindia.net/our-product.jsp.

3. The name of the project participant has been changed appropriately CLPWF in the PDD the same is confirmed from section B.7 in the PDD and certificate of incorporation. Hence this finding can be closed.

4. The revised LTAEOE is provided conducted on April 2010, the study is conducted for E-53 machines only and the generation estimated is higher than the LTAEOE study conducted on September 2008 which was conducted for both E 48 & E 53 turbines, the same is considered for investment analysis being conservative and appropriate. Hence the finding is closed.

8. References to resulting changes in the PDD or supporting annexes:
A.4.3 of PDD B.5 of PDD B.7 of PDD

1. Grade / Ref:	CAR 04	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 65 of the VVM Version 01.2			
5. Nature of the Issue Raised:					
Latest version of “tool for demonstration and assessment of Additionality” and “Tool to calculate the Emission Factor of an electricity system” and “Consolidated Baseline Methodology for grid-connected electricity generation from renewable sources” ACM0002 is not applied in the PDD.					
6. Nature of responses provided by the project participants:					
Latest version (6.0.0) of “tool for demonstration and assessment of Additionality”, (0.2.2.1) of “Tool to calculate the Emission Factor of an electricity system” and (12.3.0) “Consolidated Baseline Methodology for grid-connected electricity generation from renewable sources” ACM0002 is incorporated and the PDD is updated accordingly.					
7. Assessment of such responses:					
The PDD has been updated with the latest version of “tool for demonstration and assessment of Additionality” Version 6.0.0, “Tool to calculate the Emission Factor of an electricity system” Version 02.2.1 and “Consolidated Baseline Methodology for grid-connected electricity generation from renewable sources” ACM0002 version 12.3.0 which is applicable till 11 Jan 2013 23:59:59 GMT for seeking registration. Finding is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
B.1 of PDD B.4 of PDD B.5 of PDD B.6.1 of PDD					

1. Grade / Ref:	CAR 05	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Guideline for completing the CDM-PDD Version 07			
5. Nature of the Issue Raised:					
In section B.5 of the PDD, the timeline of events and actions which have been taken to achieve CDM registration, with description of the evidence used to support these actions is not provided.					
6. Nature of responses provided by the project participants:					
The timeline of events and actions which have been taken to achieve CDM registration, with description of the evidence used to support these actions is provided and the PDD is updated accordingly.					
7. Assessment of such responses:					
Section B.5 now covers all major milestone of the project activity in a transparent manner .The major milestone documents were also provided for reference, which were found to be correct and consistent with the supporting evidence reviewed during the validation.					
8. References to resulting changes in the PDD or supporting annexes:					
B.5 of PDD					

1. Grade / Ref:	CAR 06	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 108,109 & 110 of the VVM Version 01.2 Guidelines for completing the CDM PDD Version 07			

5. Nature of the Issue Raised:

Related to investment analysis:

1.SI units are not used for all of the input parameters used in investment analysis

2.The investment analysis is not presented in a transparent manner in the PDD, for the below mentioned assumptions the data sources/references are not stated

a. One time bullet escalation to O & M fees in 11th year-15%

b. O & M contingency for years 1and 2 as 0%

c. O & M contingency for years 3 to 20 as 10%

d. De-escalation in O & M contingency for year 3-20 as 5%

e. Asset Manager Costs (first year)-15 Lakhs (INR 1.5 million)

f. Escalation on asset manager costs-5%

g. Escalation on insurance premium 1% in every 5 years

3. The Operation and Maintenance of WTGs, Monitoring & Reporting of daily electricity generation by WTGs has been taken care by the service provider and the same was confirmed by the validation team during site visit. Hence the PP to justify the inclusion of the Asset Manager cost in the investment analysis. The supporting evidence for the same is also not provided for validation.

4. Break up of the project cost is not provided by PP and applied the depreciation rate which is applicable only to the Machinery is applied to the whole project cost. In the sensitivity analysis PP has applied the formula on 'per WTG cost' (cell C20) and hence effect of sensitivity on individual project cost element cannot be validated.

5. PP has not considered 80IA benefit (i.e. no tax liability for 10 consecutive years within first 15 years of operation) correctly. The benefit will be available up to 15th year whereas the PP has considered only up to 10th year.

6. PP has not considered Tax-shield benefit while preparing cash-flow.

7. Credit of the MAT paid is not considered.

8. The investment decision for the project is taken in September 2008 and the GBI scheme is issued on 17th December 2009. Evidence to support that Generation Based Incentive was considered during the decision making is not available for validation.

9. PP has considered depreciation rate for Income Tax calculations at 7.74% on SLM basis. Income Tax Act gives option to the PP to charge depreciation at WDV basis at 80% (as per Rule 5(1) read with Appendix I) or on SLM basis at 7.74% (as per Rule 5(1A) read with Appendix 1A). PP to justify why the selected depreciation at 7.74% is appropriate for the project activity.

10. Tariff order dated 29 April 2011 for Wind zone 1 is referred by PP for calculating the terminal value, sourcing the tariff for the project activity which is not available at the time of investment decision

11. Basis for inclusion of O&M Contingency cost in addition to normal O&M Costs is not provided by PP

Related to benchmark

1. The decision making date for the project activity is mentioned as 26th September, 2008, however for Beta and Market Return calculations the period till August 2008 end is not considered.
2. Risk free rate of return is not based on the latest information available at the time of decision making.
3. The choice of index used for calculation of expected market returns is not justified

6. Nature of responses provided by the project participants:

1. The investment analysis is updated**.**

2. **a.** One time bullet escalation in O & M is excluded from the analysis. The PDD and Financials are updated accordingly

b. O & M Contingency is 0% for year 1 & 2 since the O & M is free for these years. It has been removed from analysis

c. O & M Contingency for Y3 to Y20 is 10%. This is PP's internal assumption. It has been removed from analysis

d. De-escalation for O & M Contingency is removed.

e. The supporting evidence for Asset Manager Cost has been attached. This document specifies the scope of work for Asset Manager and the hiring cost for the same which has been used as an indicator for estimating the total project cost for this project activity. It has been removed from analysis

f. Escalation in Asset Manager Cost is assumed conservatory based on inflation. It has been removed from analysis

g. Escalation in insurance premium is removed from analysis.

3. The supporting evidence for Asset Manager Cost has been attached. This document specifies the scope of work for Asset Manager and the hiring cost for the same which has been used as an indicator for estimating the total project cost for this project activity. It has been removed from analysis

4. The project cost is taken from the EIL offer letter (15 July 2008). Please refer to clause 7 of the document. Facilitation Agreement is provided for further evidence

5. 80 I A benefit is considered up to 15th year.

6. Since the project is under Generation Based Incentive scheme of Ministry of New and Renewable Energy (MNRE), it cannot apply accelerated depreciation @80% and hence the tax shield will not be applicable for the same.

7. MAT Credit has now been accounted for. **8.** The GBI scheme was introduced by MNRE publicly during July 2007. The reference document is attached.

9. Since the PP has considered GBI for the project activity, the acceleration depreciation is not considered in the analysis. (Refer the GBI document)

10. The PP has now considered the wind power tariff order published by MERC on 24 November 2003. The analysis is updated according to the tariff mentioned in the order. The terminal value is assumed to be 5% as per best industry practice.

11. The PP has considered O & M contingency based on internal assumption. It has been removed from analysis

Related to benchmark

1. Market Return calculations the period till August 2008 end is considered.

2. Risk free return rate is mentioned in the sheet available at the time of decision making.
3. Sensex has been chosen as index for calculation of expected market returns since it is the oldest index in the host country and data available for more number of years.

7. Assessment of such responses:

1. The SI units of the sheet have been revised and the finding is closed.
2. PP has removed all the cost related to Asset Manager, O&M contingency and insurance escalation etc. to arrive at a conservative estimate of IRR. The finding was closed accordingly.
3. Asset Manger cost has been removed from the investment analysis and therefore the finding is closed
4. The project cost break up is not provided in both Offer letter and Facilitation Agreement (FA). Technology Supplier (EIL) provides complete project cost on a turnkey basis, from erection to commissioning. The project cost as per FA covers :
    - Taxes
    - All material and construction facility
    - Transmission works
    - Land acquisition cost
    - Labour Charges
    - Licence cost
    - Overhead expenses
    - EPC Charges

    Since the PP has considered the total WEC cost based on Offer letter from Technology Supplier dated 15/07/2008 (without any break up of project cost) which is less than total cost considered in Facilitation Agreement dated 29/08/2008, the cost considered can be deemed to be conservative. PP has also provided the amendment to the Facilitation Agreement dated 26/02/2011, which mentions no change in Project cost, even though the WTG type E-48 is completely replaced by E-53. The finding has been closed after reviewing the Offer letter, Facilitation Agreement and amendment to Facilitation Agreement as the project cost considered is conservative, and the line work covered in the Facilitation Agreement.
5. PP has now correctly applied the 80 IA benefit. The finding is closed.
6. PP is applying for GBI benefits for 113.6 MW evident from the letter of application to IREDA on 28/03/2012, out of this 58.4 MW are presently being applied for GBI benefits and hence cannot avail Accelerated depreciation Benefit. As per the GBI requirements published by Ministry of Non conventional & Renewable Energy (MNRE) 23/07/2008 the above statement can be confirmed. This has been verified and crosschecked with the Audited annual reports and letter of application to IREDA. Hence the finding is closed.
7. Finding is closed as the correction was made

8. Reference to GBI scheme available to the PP at decision making time has been provided. The finding was closed
9. PP is applying for GBI benefits for 113.6 MW evident from the letter of application to IREDA on 28/03/2012, out of this 58.4 MW are presently being applied for GBI benefits and hence cannot avail Accelerated depreciation Benefit. As per the GBI requirements published by Ministry of Non conventional & Renewable Energy (MNRE) 23/07/2008 the above statement can be confirmed. This has been verified and crosschecked with the Audited annual reports and letter of application to IREDA. Hence the finding is closed.
10. PP has revised investment analysis as per the tariff order available at decision making time. The finding is closed
11. O&M contingency is removed from the analysis. The finding is therefore closed

Related to benchmark 1. Calculation has been corrected as appropriate to decision making. The finding is closed 2. Calculation has been corrected as appropriate to decision making. The finding is closed 3. Calculation has been corrected as appropriate to decision making. The finding is closed
8. References to resulting changes in the PDD or supporting annexes:
Section B.5 of PDD

1. Grade / Ref:	CL 01	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 58 of the VVM Version 01.2			

5. Nature of the Issue Raised:

1. Section A.2 of the PDD, indicates that the PP plans to eventually establish a total of 113.6 MW wind farm in two phases. The total capacity referred is 113.6 MW which involves first phase of 56 MW however the second phase capacity referred is 50.4 MW instead of 57.6 MW. Please clarify

2. From the review of PDD, it is noted that E-53 model WTG is installed in the project activity. However the Long Term Annual Energy Output Estimate by Hydro Tasmania Consulting dated September 2008 refers to installation of E48 machines. It also states that wind assessment is done using power curve of E48 machines as well. Please clarify

6. Nature of responses provided by the project participants:

1. The total project capacity is 113.6. there are 3 phases of the project

   Phase-I : 56 MW

   Phase-II: 50.4 MW

   Phase-III: 7.2 MW

   Out of these 3 phases, Phase-I and Phase-II are already commissioned. Phase-III is under development.

2. Initially at the time of decision making, it was planned to install E-48 model WTG at the site. But subsequently with the introduction of new E-53 model, PP decided to install the same. Hence another Long Term Annual Energy Output Estimate was conducted by Hydro Tasmania Consulting during April 2010. The same has been attached which shows the energy estimation of E-53 model. Please refer to the same.

   The IRR has now been calculated with the generation estimate for the E-53 model which is higher than that estimated for E-48 model.

7. Assessment of such responses:

1. PP has provided the revised intimation to UNFCCC and MoEF for development of the project in 3 phases due to regulatory hurdle. The finding is closed

2. PLF has been confirmed from amendment to facilitation agreement on 26/02/2011. As per the latest Hydro Tasmania consulting report April 2010, the generation will increase for E-53 models, which can be deemed to be conservative and therefore the finding is closed.

8. References to resulting changes in the PDD or supporting annexes:

Section B.5 of PDD

1. Grade / Ref:	CL 02	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		§ 108,109 & 110 of the VVM Version 01.2			
5. Nature of the Issue Raised:					
Offer for project of 113.6 MW at Andhra Lake in Maharashtra from Enercon India Limited to M/s Roaring 40's Wind Farms Pvt Ltd dated 15/07/2008 refers to refundable infrastructure development cost of approximately 20 lacs (INR 2 million) /WTG, however the same is not considered in the investment analysis. Please clarify					
6. Nature of responses provided by the project participants:					
Since infrastructure development cost of approximately 20 lacs (INR 2 million) /WTG is refundable, the same was excluded from the total project cost computation.					
7. Assessment of such responses:					
The offer letter from EIL dated 15/07/2008 was issued to M/s Roaring 40's Wind Farms Pvt Ltd. **and** the CLP Power India Limited which is a sister concern of the CLP Wind Farms India Private Ltd (CLPWF), as CLPWF was not incorporated at that time. During July 2008, the CLP group was in the process of formulating a separate company for investing in wind power projects in India. As the process for incorporation of the new company was underway, EIL had issued this proposal in the name PP's sister concern company. CLPWF was later incorporated on 29/07/2008 and the same offer was used for investment decision. It is confirmed that, it is conservative for not considering the infrastructure development cost of approx. 20 lacs(INR 2 million) /WTG and hence the finding is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
Section B.5 of PDD					

1. Grade / Ref:	CL 03	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 78 of the VVM Version 01.2 Guideline for completing the CDM-PDD Version 07			
5. Nature of the Issue Raised:					
Name of regional grid to which project electricity would be supplied is not included in the project boundary diagram in section B.3 of the PDD					
6. Nature of responses provided by the project participants:					
Name of regional grid is added in the project boundary diagram in section B.3 of the PDD.					
7. Assessment of such responses:					
Correction to name of the regional grid has been made. Finding is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
Section B.3of PDD Section B.6 of PDD					

1. Grade / Ref:	CL 04	**2. Date:**	27/01/2012	**3. Status:**	Closed
4. Requirement:		Guideline for completing the CDM-PDD Version 07			
5. Nature of the Issue Raised:					
It is stated in Annex 2 of the PDD that the “The total investment in the wind farm has been accrued from internal sources” which is not in line with information provided in table in section B.5 of the PDD.					
6. Nature of responses provided by the project participants:					
The statement in Annex 2 is corrected & removed.					
7. Assessment of such responses:					
The correction has been made. Finding is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
Annex 2 of PDD					

1. Grade / Ref:	CL 05	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		§ 67 & 89 of the VVM Version 01.2 Guideline for completing the CDM-PDD Version 07			
5. Nature of the Issue Raised:					
The equation used in section B.6.1 for calculation of baseline emissions is BEy = $E_{Facility, y}$ * $EF_{grid, CM, y}$. However in section B.6.3 the same is stated as BE_y = EF_y x EG_y. Notation used for the parameters “Quantity of net electricity generation supplied by the project plant” & Baseline emission factor in the PDD are not consistent					
6. Nature of responses provided by the project participants:					
The corrections in Section B.6.1 and B.6.3 are done and the PDD is updated accordingly.					
7. Assessment of such responses:					
The corrections have been made. Finding is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
Section B.6.3 & B.6.1 of the PDD					

1. Grade / Ref:	CL 06	2. Date:	27/01/2012	3. Status:	Closed
4. Requirement:		Paragraph 98 of the VVM Version 01.2 Glossary of CDM terms			
5. Nature of the Issue Raised:					
It was noted that PP have signed a facilitation agreement dated 29/09/2008 where in the PP is purchasing WTG from technology supplier (EIL), however the PP have considered Notice to proceed (NTP) on 16/09/2009 as a start date. PP to clarify					
6. Nature of responses provided by the project participants:					
The PP had taken an investment decision on 26/09/2008 and signed a Facilitation Agreement with the technology supplier on 29/09/2008. As per the one of the conditions precedent (Clause 2.3 (c)) of the facilitation agreement, the technology supplier shall not commence the works for the project until the Company (i.e. PP) has issued a Notice To Proceed (NTP). On failing to issue a NTP, the Facilitation Agreement shall terminate automatically and the technology supplier. In such cases, Facilitation Agreement is a non-binding to supplier as well as to the project proponent and it does not create any financial or any other type of commitment or obligation to PP. PP's commitment for the Project Activity starts after issuance of NTP also their expenditure related to construction of project activity starts after issuance of NTP. The PP had issued a Notice to Proceed to the technology supplier on 16/09/2009. As per the "Glossary of CDM terms", the start date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins. Thus, the date of issue of NTP has been considered as start date for the project activity and not the date of signing of facilitation agreement with the technology supplier.					
7. Assessment of such responses:					
The Start date as speculated has been found to be correct as no cost was committed at the time of Facilitation Agreement as per the clause regarding NTP. NTP can be considered as the Start date, as the major cost is incurred at that point of time. The finding is closed.					
8. References to resulting changes in the PDD or supporting annexes:					
Section B.5 of the PDD					