

Verification and Certification Report

First periodic verification

Report for:

M/s CLP Wind Farms (Khandke) Private
Limited

Verification of CDM project
**Roaring 40's Wind Farms (Khandke) Private
Limited**
(UNFCCC Ref No: 3142)

Monitoring Period:
14/10/2010 to date 31/12/2011 (both days included)

LRQA Reference	: CDM-MUM-0061833
Version Number	: 02.3
Date	: 28/01/2013
Work carried out by	: Archak Pattanaik B.Rampradap Arnab Deb
Work verified by	: Ketan Deshmukh Imran Ustad Javier Vallejo Drehs



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1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by M/s CLP Wind Farms (Khandke) Private Limited (formerly known as M/s Roaring 40s Wind Farms (Khandke) Pvt. Limited), representing the project participant (PP), to undertake the (first periodic) verification of the registered project activity "Roaring 40's Wind Farms (Khandke) Private Limited" project reference number (3142) covering the monitoring period from 14/10/2010 to date 31/12/2011 (both days included). The verification has been performed by document review based on the Monitoring Report Version 4.2 dated 30/01/2013, on-site assessment and interviews with the stakeholders, resolution of outstanding issues and issuance of the verification report.

The project intends to reduce greenhouse gas (GHG) emissions by utilising the wind resource to generate electricity in the state of Gujarat, India by the installation of 21 Wind Energy Convertors (WECs) of total generating capacity of 16.8 MW in Maharashtra. The electricity generated by the project activity is being supplied to NEWNE Grid of India. It reduces the impact of power generation from the conventional fossil fuel based power plants, thereby leading to reduction of GHG emissions.

The fulfilment of the requirements as set forth in the Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC), the modalities and procedures for a CDM 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) has been evaluated and the conformance to the verification requirements were confirmed based on the given information. A risk based approach was taken to conduct the verification, and corrective action requests (CARs), clarifications (CLs) and forward action requests (FARs) were issued for relevant actions by the PP.

The verification team identified, through the verification process 4 CARs and 4 CLs. The PP has taken actions and submitted to LRQA the revised monitoring report and supporting evidence. The verification team, through the verification process, confirmed that the emission reductions achieved by the project activity during the monitoring period are correctly calculated in the monitoring report Version 04.2 dated 30/01/2013 based on the approved monitoring methodology and the monitoring plan of the registered PDD. Therefore LRQA certifies the emission reductions amounting to 37,117 tCO₂e and requests the CDM-EB to issue the CERs.

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Abbreviations

CARs	Corrective action requests
CDM	Clean Development Mechanism
CDM-EB	Executive Board of Clean Development Mechanism
CDM M&P	Modalities and procedures for a Clean Development Mechanism
CER	Certified Emission Reduction
CEA	Central Electricity Authority
CLs	Clarifications
CLPWFK	CLP Wind Farms (Khandke) Pvt. Ltd
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
COD	Commercial Operation Date
EIL	Enercon India Limited
ERs	Emission reductions
FARs	Forward action requests
GHG	Greenhouse gas
JMR	Joint Meter Reading
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
kW	Kilowatt
kWh	Kilowatt hour
km	Kilometre
KVA	Kilo Volt Amperes
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
LCS	Local Control System
MW	Megawatt
MWh	Megawatt hour
MP	Monitoring Plan
MR	Monitoring Report
MSETCL	Maharashtra State Electricity Transmission Corporation Ltd.
MSEDCL	Maharashtra State Electricity Distribution Corporation Ltd.
NEWNE	Northern, Eastern, Western, and North-Eastern regional grid
O&M	Operation and Maintenance
PDD	Project design document
PP	Project participant
PPA	Power Purchase Agreement
PLF	Plant Load Factor
tCO ₂ e	Ton of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
WEC	Wind Energy Converter



2 Introduction

The project participant (PP) represented by CLP Wind Farms (Khandke) Private Limited (CLPWFK) has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake the verification of the proposed project activity "Roaring 40's Wind Farms (Khandke) Private Limited" covering the monitoring period from 14/10/2010 to 31/12/2011. This report summarises the findings through the verification process that has been conducted on the verification requirements of the CDM.

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

Archak Pattanaik	LRQA Ltd. India	Team Leader, CDM Verifier, Sector Expert
B. Rampradap	LRQA Ltd. India	Team Member, CDM Verifier, Sector Expert
Arnab Deb	LRQA Ltd. India	Team Member, CDM Verifier
Ketan Deshmukh	LRQA Ltd. Asia	Technical Reviewer, CDM Verifier
Imran Ustad	LRQA Ltd. India	Sector Expert to Technical Reviewer
Javier Vallejo Drehs	LRQA Ltd.	Decision Maker

Personnel being engaged in CDM project verification are qualified based on the established procedures of LRQA to assure the resource requirements that satisfy all the requirements of competence criteria of the CDM accreditation standard for operational entities. LRQA is designated as an operational entity and holds the full responsibility on decision-making regarding the verification in accordance with the accreditation requirements of the CDM-EB. The certificate of appointment of the team personnel is attached to this report.

2.1 Objective

Through the verification activities, the verification team was to confirm that:

- 1) the project activity has been implemented and operated as described in the validated and registered PDD and that all physical features of the project activity are in place
- 2) the monitoring report (MR) and other supporting documents provided are complete and verifiable, and in accordance with applicable CDM requirements
- 3) actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan (MP) and the approved methodology; and
- 4) the data is recorded and stored as per the monitoring methodology.

The verification followed the requirements of the current version of the CDM Validation and Verification Manual (CDM VVM) to ensure the quality and consistency of the verification work and the report.

2.2 Scope

The scope of verification was an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the CDM M&P. LRQA followed a risk-based approach in the verification, focusing on the identification



of significant risks for implementation of the registered monitoring plan and the resultant emission reductions. The verification statement shall become final after final review by the decision maker of LRQA Ltd.

2.3 GHG Project Description

Project title	Roaring 40's Wind Farms (Khandke) Private Limited
CDM reference	3142
Date of registration	14/10/2010
Applied methodology	ACM0002, Version 10
Crediting period	14/10/2010 to 13/10/2020
Project location	Khandke Taluk, Ahmednagar District, Maharashtra
Project participants	CLP Wind Farms (Khandke) Private Limited (formerly known as Roaring 40s wind Farms (Khandke) Pvt. Limited)
Monitoring period	14/10/2010 to 31/12/2011 (Both days included)

3 Methodology

3.1 Verification approach

LRQA's verification of the project documentation provided by the project participant was based on both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to LRQA. Qualitative information is made up of the information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emission reports, and review and internal audit of calculations.

As well as the monitoring documentation provided by the project participants, LRQA also reviewed:

- a) the registered PDD, including the monitoring plan and the corresponding validation report
- b) previous verification reports, if any
- c) the applied monitoring methodology
- d) relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board
- e) any other information and references relevant to the project's resulting emissions reductions.

LRQA also confirmed that there are no outstanding FARs from validation.

3.2 Desk review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- 1) a review of data and information presented to verify their completeness



- 2) a review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- 3) an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report version 1.1 dated 16/01/2012 was initially reviewed and LRQA requested the PP to present the supporting information and documents and such additional information and documents that were also reviewed by LRQA. The documents reviewed by LRQA are listed in Appendix A.

Through the process of the verification, the revised monitoring report and the supporting documents 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 A. LRQA reviewed the final version of the monitoring report Version 4.2 dated 30/01/2013 to confirm that all changes agreed had been incorporated.

3.3 On-site assessment

An on-site assessment was conducted as a part of verification activity and involved:

- 1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD
- 2) a review of information flows for generating, aggregating and reporting of the monitoring parameters
- 3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP
- 4) a cross-check between information provided in the MR and data from other sources
- 5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology
- 6) A review of calculations and assumptions made in determining the GHG data and ERs, and
- 7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

The detail of the on-site assessment is as follows:

Date	Location	Subjects covered	Persons interviewed
			(name / position / department / organisation)
02/02/2012	Ahmednagar District of Maharashtra state in India	1. Site layout 2. Project implementation, operation, boundary issues 3. Confirmation of technical specifications 4. Performance of project activity - Power generation, grid availability, transmission loss and	Amit Gandhi, Asst. Manager, CLPWFK A.S.Kuzle, Junior technician, MSETCL Prashaul Patil, Deputy manager, EIL Rajendra Kedar, Master Mechanic, EIL Shivaji Chale, Asst. Manager, EIL



		<p>auxiliary consumption</p> <p>5. Data management and reporting, QA/QC systems</p> <p>6. Electricity Monitoring / measuring systems & Data verification</p> <p>7. Record keeping – daily production report, breakdown / maintenance log</p> <p>8. Metering guidelines , Meter specifications – Accuracy, make</p> <p>9. Calibration requirements – procedure, frequency/schedule, records</p> <p>10. Emergency procedures – Change / failure in meters</p> <p>11. Provisions for internal audits</p> <p>12. Staff Competency and training</p> <p>13. Compliance to regulatory requirements</p> <p>14. Environmental and social issues</p> <p>15. Projects contribution to sustainable development</p> <p>16. Issues with local stakeholders</p> <p>17. Project implementation, operation, boundary issues</p> <p>18. Confirmation of technical specifications</p> <p>19. Performance of project activity - Power generation, grid availability, transmission loss and auxiliary consumption</p> <p>20. Data management and reporting, QA/QC systems</p> <p>21. Electricity Monitoring / measuring systems & Data verification</p> <p>22. Record keeping – daily production report, breakdown / maintenance log</p> <p>23. Metering guidelines , Meter specifications –</p>	<p>Dipjay Sanchania, Deputy Manager, CLPWFK Ankit Gupta, Consultant, PWC</p>
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		Accuracy, make 24. Calibration requirements – procedure, frequency/schedule, records 25. Emergency procedures – Change / failure in meters 26. Provisions for internal audits 27. Compliance to regulatory requirements	
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For details of all the findings of the desk review and site visit, please refer to the Verification Protocol and Findings Log in Appendix C.

3.4 Quality of evidence

When verifying the report emission reduction, LRQA ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown in Appendix A.

When assessing the audit trails, LRQA also examined:

1. whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. the source and nature of the evidence
3. if comparable information was available from sources other than that used in the monitoring report, LRQA cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix A.

LRQA also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

3.5 Resolution of clarification and corrective action requests

LRQA, during this verification, identified issues related to the monitoring, implementation or operation of the proposed CDM project activity that could impair the capacity of the proposed CDM project to achieve emission reductions or influence the reporting of emission reductions. LRQA has identified, discussed and concluded these issues within the Verification Protocol and Findings – Appendix C.

LRQA has raised a Corrective Action Request (CAR) if one of the following occurred:

1. nonconformities with the monitoring plan or methodology were found in monitoring and reporting, or if the evidence provided to prove conformity was insufficient
2. mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions, and / or
3. issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.



LRQA has raised a Clarification Request (CL) if information was insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

All CARs and CLs raised by LRQA during this verification have been resolved. If this was not completed, the ERs cannot be certified and recommended for issuance to the CDM Executive Board.

LRQA has raised a Forward Action Request (FAR) during this verification for actions where the monitoring and reporting require attention and / or adjustment for the next verification period. FARs do not relate to CDM requirements for issuance of ERs achieved during the subject monitoring period.

3.6 Internal quality control

The technical review by a qualified person independent from the verification team, and a review by an authorised decision maker are conducted before the submission of the verification report to the PP and before requesting the issuance of the verified ERs.

4 Verification protocol and conclusions

LRQA has undertaken this verification in accordance with the verification protocol (which is based on the Clean Development Mechanism Validation and Verification Manual Version 01.2). This section provides an overview of the verification activities and general conclusions. Further details in relation to each element of the protocol and to each finding are shown in Verification Protocol and Findings – Appendix C.

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

- project implementation in accordance with the registered project design document
- compliance of the monitoring plan with the monitoring methodology
- compliance of monitoring with the monitoring plan
- assessment of data and calculation of greenhouse gas emission reductions.

4.1 Project implementation in accordance with the registered project design document

LRQA has, by means of a desk review and an on-site visit, assessed that all physical features of the proposed CDM project activity proposed in the registered PDD are in place, and that the project participants have operated the proposed CDM project activity as per the registered PDD.

For details of the implementation status of the project, the actual operation of the proposed CDM project activity, any information provided in the monitoring report that is different from that stated in the registered PDD¹, and any approvals of the necessary request of notification or request for approval of changes, please refer to the Verification Protocol in Appendix C.

4.2 Compliance of the monitoring plan with the monitoring methodology

LRQA has verified that the validated monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

For details relating to this section, please refer to the Verification Protocol in Appendix C.

¹ And has caused an increase in estimates of the emission reductions in the current monitoring period or is highly likely to increase the estimates of emission reductions in future monitoring periods



LRQA confirms that the monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

4.3 Compliance of monitoring with the monitoring plan

LRQA has confirmed that:

1. the monitoring plan and the applied methodology have been properly implemented and followed by the project participants
2. all parameters stated in the monitoring plan, the applied methodology and relevant CDM Executive Board decisions, have been sufficiently monitored and updated as applicable, including:
 - a. project emission parameters
 - b. baseline emission parameters
 - c. leakage parameters
 - d. management and operational system
3. the accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan
 - a. monitoring results are consistently recorded as per approved frequency
 - b. quality assurance and quality control procedures have been applied in accordance with the monitoring plan.

For details relating to this section, please refer to the Verification Protocol in Appendix C.

LRQA confirms that monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

The list in the Verification Protocol – Appendix C shows each parameter required by the monitoring plan, and clearly states how LRQA has verified the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters, including the values in the monitoring report.

4.4 Assessment of data and calculation of greenhouse gas emission reductions

LRQA has determined whether:

1. a complete set of data for the specified monitoring period is available
2. information provided in the monitoring report has been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis
3. calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document
4. any assumptions used in emission calculations have been justified
5. appropriate emission factors, IPCC default values and other reference values have been correctly applied.



For details of whether data was not available because activity levels or non-activity parameters were not monitored in accordance with the registered monitoring plan, a description of LRQA cross-checked reported data, please refer to the Verification Protocol in Appendix C.

LRQA confirms that appropriate methods and formulae for calculating baseline emissions, projects emissions and leakage have been followed.

LRQA is of the opinion that all assumptions, emissions factors and default values that were applied in calculations have been justified.



5 Making the monitoring report publicly available

In accordance with the "Procedures for making the monitoring report available to the public in accordance with paragraph 62 of the modalities and procedures for the CDM", the monitoring report Version 1.1 dated 16/01/2012 was made publicly available on the CDM website on 19/01/2012 at:

<http://cdm.unfccc.int/filestorage/W/9/Z/W9ZPS45XE30VGMTNDB6CA2ROILHYFU/PD.D.pdf?t=elh8bWNnNmtsfdBkpsgl8MS7rNcVWt78nHV>



6 Certification report

LRQA has undertaken the (first periodic) verification of the proposed project activity “Roaring 40’s Wind Farms (Khandke) Private Limited” covering the monitoring period from 14/10/2010 to 31/12/2011 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.

Through the verification process, the verification team identified 4 CARs, 4 CLs. The PP has taken actions to address the CARs and CLs and submitted to LRQA the revised monitoring report Version 04.2 dated 30/01/2013 and the other supporting evidence. All CARs and CLs have been appropriately closed before the issuance of the verification report.

The verification team is of the opinion that the proposed project activity has been implemented in accordance with the registered PDD, the MP with validated revision complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct. Therefore LRQA hereby certifies, and requests the issuance of, the reported ERs of “Roaring 40’s Wind Farms (Khandke) Private Limited” during the monitoring period of 14/10/2010 to 31/12/2011 amounting to 37,117 tCO₂e to the CDM Executive Board.

Decision Maker

Date: 30/01/2013

Javier Vallejo Drehs

CDM Quality Manager



7 Appendices

7.1 Appendix A: List of documents reviewed

Category A documents (documents from the PP)

1. Monitoring Report Version 1.1 and Date 16/01/2012 (webhosted), Version 02 dated 09/02/2012, version 03 dated 15/03/2012, version 04.1 dated 28/09/2012 and version 04.2 dated 30/01/2013
2. Spreadsheet on Emission Reduction calculation 1.1 and Date 16/01/2012 (webhosted), Version 02 dated 09/02/2012, version 03 dated 15/03/2012 and version 04.1 dated 28/09/2012
3. Records of periodic calibration of energy meters with meter no. 4880814 (feeder No. 2) & 4880816 (Feeder No.3) at the substation during the monitoring period:
 - Test report dated 14/7/2010 valid upto 13/7/2011
 - Test report dated 2/9/2011 valid upto 1/9/2012
4. Daily generation reports for WEC/s for the month October 2010
5. Joint Meter Reading reports for all WECs for the monitoring period
6. Invoices raised by for the monitoring period by Roaring 40's by on MSEDCL
7. MSEDCL commissioning certificate for all WECs
8. Power purchase agreements with MSEDCL dated 24 September 2007
9. Single line diagram for the Khandke site including Mahekari substation
10. Clearance from the electrical inspector dated 30 July 2009 and 10 August 2009
11. Breakdown records (major) for the project WECs during the monitoring period
12. Declaration from Enercon regarding calibration of LCS meter dated 02/05/2012
13. Revised Letter of approval dated 11 January 2012
14. Communication of PP with UNFCCC regarding change in name dated 17/10/2011

Category B documents (other documents referenced)

1. Consolidated methodology for grid-connected electricity generation from renewable sources, ACM0002 Version 10
2. CO2 Baseline Database for the Indian Power Sector, User Guide Version 1.0
3. Registered PDD version 06 dated 24/09/2010
4. CDM Validation report dated report no. 2007-1077 revision no.: 03 dated 11/10/2011
5. Clean Development Mechanism Validation and Verification Manual Version 01.2
6. Guidelines on assessment of different types of changes from the project activity as described in the registered PDD
7. Procedures for making the monitoring report available to the public in accordance with paragraph 62 of the modalities and procedures for the CDM (Version 01)



8. Procedures relating to verification report and certification report/request for issuance of CERs (version 01.1)
9. Procedures for modalities of communication between project participants and the executive board Version 01
10. Guidelines on completeness check of requests for issuance
11. Procedures for Requests of Issuance of CERs version 01
12. Guidelines for Completing the Monitoring Report Form (CDM-MR) (Version 01)
13. Guidelines for assessing compliance with the calibration frequency requirements (Version 01)



7.2 Appendix B: Certificate of Appointment

Verification of "Roaring 40's Wind Farms (Khandke) Private Limited"

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

Name of Person

Archak Pattanaik
B.Rampradap

Arnab Deb
Ketan Deshmukh
Imran Ustad
Javier Vallejo Drehs

Assigned Roles

Team Leader Sector Expert
Team Member
Sector Expert
Team Member
Technical Reviewer
Sector Expert to Technical Reviewer
Decision Maker

Signed by

Decision Maker

Date: 30/01/2013

Javier Vallejo Drehs

CDM Quality Manager

7.3 Appendix C: Verification Protocol and Findings

	Verified situation	Conclusion
SECTION 1. Project implementation in accordance with the registered PDD		
General description of the project		
1.1. Does the MR provide general information of the project and is it as registered by CDM-EB?	<p>Yes. The project description/ general description provided in the MR are consistent with the registered PDD.</p> <p>The project activity involves installation of 21 Wind Energy Convertor (WEC) of capacity of 800kW each having a total generating capacity of 16.8 MW.</p> <p>The general information provided in the MR like WEC model, capacity, total capacity and implementation schedule was cross-checked by the verification team through the review of the following documents:</p> <ol style="list-style-type: none"> 1. Technical specifications of WEC model 2. Commissioning certificates issued by MSEDCL 3. Physical verification of the WECs at site 	OK
1.2. Is there any open issue in the validation / previous verification including FARs? (CDM VVM para. 183)	The verification team has reviewed the validation report of the registered CDM Project and confirms that there is no open issue in the previous validation and that this is the first periodic verification.	OK
Implementation status of the project activity		
1.3. Is the project location indicated as the same as the registered PDD? Confirm geographical coordinates	<p>Yes the project locations are indicated inline with the registered PDD.</p> <p>The project is located in the villages Ranjani, Ratadgaon, Agadgaon and Bardari Khandke Taluka of Ahmednagar District of Maharashtra state in India.</p>	OK

Verified situation					Conclusion
Name of Village	Location No.	Date Commissioning	Unique Identification of WECs		
Ranjani	83	27-Jun-07	R 40s K-01		
	84	27-Jun-07	R 40s K-02		
	85	27-Jun-07	R 40s K-03		
	86	27-Jun-07	R 40s K-04		
	87	27-Jun-07	R 40s K-05		
	88	27-Jun-07	R 40s K-06		
	89	27-Jun-07	R 40s K-07		
	90	27-Jun-07	R 40s K-08		
	91	27-Jun-07	R 40s K-09		
	17	30-Jun-07	R 40s K-10		
	18	30-Jun-07	R 40s K-11		
	19	30-Jun-07	R 40s K-12		
	20	22-Aug-07	R 40s K-13		
	112	22-Aug-07	R 40s K-14		
	113	22-Aug-07	R 40s K-15		
	115	19-Dec-07	R 40s K-16		
	92	27-Sep-07	R 40s K-17		
	93	27-Sep-07	R 40s K-18		
	99	1-Oct-07	R 40s K-19		
	15	12-Oct-07	R 40s K-20		
	16	12-Oct-07	R 40s K-21		

	Verified situation	Conclusion
	<p>The above locations were confirmed during the onsite assessment. The information provided matches with that provided in the registered PDD.</p> <p>The WEC location provided in the monitoring report is same as provided in the registered PDD. The same was also confirmed from the commissioning certificates, Tax Invoice letter from Roaring 40's to MSEDCL.</p>	
1.4. Is the project boundary described in the same way as the registered PDD? Please confirm each component based on the applied methodology.	<p>Yes. The project boundary includes the physical, geographical site of the renewable generation source, i.e. wind turbine. The project boundary also includes the transmission lines for electricity evacuation to the grid. The diagram for the project boundary is as follows:</p> <p>The project boundary provided is in accordance with the registered PDD and in accordance with the applied methodology ACM0002, Version 10.</p>	OK
1.5. Has on-site fossil fuel consumption, if any, been monitored? Is any emission source missed? Check the site lay-out and confirm through site tour.	<p>The registered PDD and MR do not include any on-site fossil fuel consumptions and this was confirmed during the physical inspection at site.</p> <p>During the onsite assessment, it was also confirmed that there is no other emission source for the project activity.</p>	OK
1.6. Confirm contractors for equipment and installation works	The WECs are supplied by Enercon and was also responsible for the installation of the WECs. This was confirmed during the onsite assessment and the interviews with the PP & the project personnel working at the project site. This is consistent with the information provided in the registered PDD.	

	Verified situation	Conclusion
1.7. Confirm conformance with baseline and monitoring methodology - Applicability conditions. Please refer to the complete description of the applicability conditions and confirm that the project activity meets all the requirements.	<p>All the applicability conditions of the applied baseline and monitoring methodology are being met by the project as confirmed from the registered PDD and final validation report downloaded from the UNFCCC web-site.:</p> <p>The project activity meets the applicability criteria of ACM0002, Ver.10 as justified below:</p> <ul style="list-style-type: none"> • The project activity involves an electricity capacity addition from a renewable source (wind based) providing power to the regional grid. • The geographic and system boundaries for the relevant electricity grid have been clearly identified to be the regional electricity grid. • The project activity will displace fossil fuel based electricity that would otherwise be provided by the operation and expansion of the western regional grid and sufficient information on the characteristics of the grid are available. <p>However a CL01 was raised on the inconsistency in the version of the methodology used in the registered PDD and MR, which is successfully closed by the PP. For details; please refer to the findings log towards the end of this protocol.</p>	OK CL01
1.8. Confirm use or not use of public funding and determine if there is no diversion of ODA to the project activity.	The registered PDD and the final validation report of the validated DOE confirmed that the project does not involve any public funding. The verification team further confirms that the project does not involve any public funding from the project website ² which is available in public domain and also after interviewing the PP. The project is funded on a 100% non-recourse finance basis.	

² <https://www.clpindia.in/renewables.html#Khandke>

	Verified situation	Conclusion															
1.9. Check data in the MR and in the PDD. Describe data and variables that are different from that stated in the registered PDD and caused an increase in emission reductions estimations.	<table border="1"> <thead> <tr> <th>Data and Variables</th><th>Registered PDD</th><th>Monitoring Report</th></tr> </thead> <tbody> <tr> <td>Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/ year) (EG, y)</td><td>31.008 GWh</td><td>39.477 GWh</td></tr> <tr> <td>Emission factor for western regional grid (EF_{CO₂})</td><td>0.94022</td><td>0.94022</td></tr> <tr> <td>Total emissions reductions (tCO₂e /annum)</td><td>29,154</td><td>37,117</td></tr> <tr> <td>Period of monitoring</td><td>1 year</td><td>1.2138 years</td></tr> </tbody> </table> <p>The net electricity generation & emission reduction during the monitoring period is high and the monitoring report had referred the increase in wind availability as the reason for the increase in the net electricity generation and the emission reduction.</p> <p>Nevertheless a CL (CL03) was raised on higher generation during period as compared to <i>ex-ante</i> estimation and successfully closed by the PP. For details please refer to the findings log towards the end of this protocol. .</p>	Data and Variables	Registered PDD	Monitoring Report	Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/ year) (EG, y)	31.008 GWh	39.477 GWh	Emission factor for western regional grid (EF _{CO₂})	0.94022	0.94022	Total emissions reductions (tCO ₂ e /annum)	29,154	37,117	Period of monitoring	1 year	1.2138 years	OK CL03
Data and Variables	Registered PDD	Monitoring Report															
Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/ year) (EG, y)	31.008 GWh	39.477 GWh															
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Total emissions reductions (tCO ₂ e /annum)	29,154	37,117															
Period of monitoring	1 year	1.2138 years															
<p>1.10. By means of an on site visit:</p> <p>Is the general information of the project provided in the Monitoring report and is it as registered by CDM-EB?</p> <p>List each technical component and equipment and check design parameters and actual status of installation and / or operation.</p> <p>Please check to ensure that all physical features of the proposed CDM project activity in the registered PDD are in place and the PP has operated the proposed CDM project activity as per the registered PDD.</p> <p>It may include but not limited to:</p>	<p>Yes, the general information provided in the MR is as per the registered PDD, which were confirmed during the site visit/ document review:</p> <ol style="list-style-type: none"> 1. Installed capacities of each WEC and total installed capacity of the project are confirmed during the document review and from the name plate details during the site visit. The capacities and meter details for all the WEC are consistently provided in the registered PDD, monthly electricity generation statements received from MSEDCL confirmed during the document review. 2. The technical specifications of the WEC are consistently mentioned in the registered PDD and the monitoring report. This was also confirmed during the site visit and also verified with technical specification of the WEC model (E-48) available on the Enerocn website. 3. All the WEC are commissioned and in operation as confirmed during the site visit 	OK CL03															

	Verified situation	Conclusion
<ul style="list-style-type: none"> the actual capacity and output plant load factor type of feedstock operation of other components / units within the project boundary which could affect functioning of the project plant. <p>In cases where there are a large number of components and equipment items and the check of all of them is not an available option, then a random sampling check shall be performed. Justify here the sample chosen and describe the results.</p>	<p>and commissioning certificates.</p> <p>4. Actual emissions reduction achieved during the current monitoring period as provided in the monitoring report is slightly higher than the <i>ex-ante</i> estimation in the PDD.</p> <p>It was confirmed through the document review and during the site visit that all the physical features of the project activity in the registered PDD are in place and the PP has operated the proposed CDM project activity as per the registered PDD during the current monitoring period. During the verification, LRQA did not find any other significant changes to the project activity compared with the registered PDD.</p>	
1.11. Have responsibilities for monitoring been described and specified?	The responsibilities for monitoring have been described and specified in the monitoring report.	OK
1.12. Are the responsibilities and authorities for monitoring and reporting in line with those stated in the registered monitoring plan?	<p>Yes,</p> <p>Responsibilities and authorities for monitoring and reporting in the MR are in accordance with those stated in the registered PDD.</p> <p>During the site visit, the shift in-charge and O&M staff were interviewed and the roles and responsibilities as outlined in section C of the MR were confirmed.</p>	OK
<p>1.13. Check QA/QC, management systems. Are procedures described and specified in the MR? Are they consistently applied as described in the MP?</p> <ul style="list-style-type: none"> a. documented instructions, management manual b. documentation c. data archiving d. monitoring report e. cross-checking f. energy balance analysis (as relevant) g. internal audits / verification and management review 	<p>Yes, the QA/QC procedures described and specified in the MR are consistent and are applied in line with the Monitoring Plan (MP) of the registered PDD. This was confirmed during the on site assessment and interviews with project personnel working on site.</p> <ul style="list-style-type: none"> Joint meter reading (JMR) of the main and check meter is carried out on last day of every month in presence of the representatives of the Enercon (the O&M contractor) & MSEDCL (distribution wing of Maharashtra state electricity board). The generation is cross checked against sales invoices raised to state electricity utility by the PP. Electricity meters are being calibrated by MSEDCL (distribution wing of Maharashtra state electricity board) on annual basis. The Monitored data is to be kept for a minimum of two years after the end of the crediting period and archived both electronically and in paper mode. 	OK

	Verified situation	Conclusion
1.14. Have the procedures for emergency and abnormal situations been established?	The service provider Enercon is an ISO 9001:2000 certified quality management system and the procedure for monitoring the operation and maintenance of the WECs are well established.	OK
1.15. Has the system for qualification and training been established as relevant for the monitoring and management activities?	Yes. The registered PDD correctly describes the training procedures. Verification team confirms during the site visit that adequate and relevant training has been provided to the personnel involved in monitoring.	
1.16. Check the environmental report, license, permit and compliance to the local environmental legislation (if relevant).	The registered PDD has indicated that the EIA study of this project is not a regulatory requirement. The verification team confirms that the wind power project does not require any environmental report, license and permit report to be submitted.	
1.17. Check contribution to sustainable development, comparing those expected in PDD and the actual status.	The actual status of the project's contribution to sustainable development, such as employment opportunities to the local population and development of infrastructure facilities, were confirmed during the site visit and discussion with the local people.	OK
1.18. Check issues with local stakeholders, claims, complaints, etc.	During the site visit the verification team has not identified any claims and complaints related to the project implementation.	OK
1.19. If from the above assessment the conclusion is that the implementation or operation of the of the project activity does not conform with the description contained in the registered PDD, please conduct an assessment of the potential impacts of these changes using Part 2 of the Additional Verification activities at the end of this document and form MSBSF43853, Validation opinion changed from PDD. Refer to the corresponding section of the CDM & JI (UNFCCC) Verification and Certification Assessment procedure.		
1.20. If above requirement applies, please check any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD.	Not Applicable	OK

	Verified Situation	Conclusion
SECTION 2. Compliance of the Monitoring Plan with the Monitoring Methodology		
2.1. Is the monitoring plan (registered) in accordance with the applied methodology?	<p>The applied monitoring methodology ACM0002 Version 10 requires monthly recording of the net electricity generation. The monitoring plan provided in the registered PDD is in accordance with the requirement of the monitoring methodology and the MR is in line with registered monitoring plan. This was confirmed during by means of the document review and on site assessment.</p> <p>However CL01 was raised and successfully closed by PP</p>	<p>OK</p> <p>CL01</p>
2.2. If the methodology provides different options (for example, use of default values or on-site measurements), has it specified which option is used?	<p>Yes.</p> <p>The methodology ACM0002 Version 10 refers to latest approved version of the 'Tool to calculate the Emission Factor for an electricity system' provides for ex-ante or ex-post estimation of grid emission factor.</p> <p>The registered PDD has selected ex-ante option and calculation results will be fixed in the first crediting period. The MR has accordingly used the grid emission factor fixed ex-ante. Verification team confirms that grid emission factor used in MR for ER calculation is 0.94022, which is exactly the same as the ex-ante fixed value in the registered PDD.</p>	OK
2.3. Is all data collected and archived according to the tables in the applied Monitoring Methodology and is this included in the Monitoring Plan?	The monitoring methodology includes the metering of the net electricity supplied by the project activity to the grid. Measurement results shall be cross-checked with records for sold electricity. The registered MP includes the above data and is archived in paper and electronic for the crediting period plus two years.	OK
<p>2.4. Check the calculation of emission reductions following the applied methodology:</p> <ul style="list-style-type: none"> • baseline emissions • project emissions • leakage • emission reductions of the project. 	<p>Yes.</p> <p>The baseline emissions are calculated as product of net electricity supplied to the grid and combined margin emission factor of the connected grid system as per the applied methodology.</p> <p>Project emissions and leakage emissions are considered nil as per the applied methodology.</p> <p>However CAR 04 was raised during the verification on inconsistency of electricity export data between JMR and ER calculation spread sheet.</p>	<p>OK</p> <p>CAR-04</p>

	Verified Situation	Conclusion
2.5. List any monitoring aspect that is not specified in the methodology and check its compliance with the Monitoring Plan, for example: <ul style="list-style-type: none"> • additional monitoring parameters • monitoring frequency • calibration frequency. 	No such parameter is listed in the Monitoring Plan	OK
2.6. If, from the above assessment, the conclusion is that Monitoring Plan is not in accordance to the Monitoring Methodology, please conduct an assessment of the potential impacts of these changes using Part 1 of the Additional Verification Activities at the end of this document and form MSBSF43854, Validation opinion Revision of MP form. Refer to the corresponding section of the CDM & JI (UNFCCC) Verification and Certification Assessment procedure: "Request for Revision of the Monitoring Plan".		
2.7. If above requirement applies, please check approval of the necessary request for revision of the Monitoring Plan.	Not applicable	OK

	Verified Situation	Conclusion
SECTION 3. Compliance of Monitoring with the Monitoring Plan		
<p>3-1. Is the Monitored Data included in the Monitoring Report as per the Monitoring Plan?</p> <p>3-2. Has the data been generated at the frequency required by the Monitoring Plan?</p>	<p>The monitoring plan in the registered PDD specifies the $EG_{f2,JMR,export}$ & $EG_{f3,JMR,export}$, $EG_{f2,JMR,import}$ & $EG_{f3,JMR,import}$ as the monitored data and also the monitoring plan specifies that the measured values are not applied directly for the estimation of emission reduction.</p> <p>The monitoring report includes the monitored data as described in the registered monitoring plan.</p> <p>As per the monitoring methodology monthly recording is required the MR mentions the same.</p>	OK
<p>3-3. Has the monitoring been implemented in accordance with the monitoring plan contained in the registered PDD?</p> <p>Confirm that the monitoring and reporting procedures have been implemented as documented and follow by PPs.</p>	<p>The monitoring plan implemented as detailed in the MR is in accordance with the registered PDD.</p> <p>The monitoring and reporting procedures implemented are confirmed during the document review, on site assessment and confirmed by means of interview with the site personnel and PP.</p>	OK
<p>3-4. Have types of measurement instrumentation used been described and specified?</p>	<p>The meters used for measuring electricity export and import on the feeder lines of the substation are bi-directional, tri-vector electricity meter.</p> <p>The verification team confirmed through the on-site assessment and the review of evidence that the installation of the measuring devices has been completed and the equipment has been operated and maintained in a normal operating condition.</p> <p>During this monitoring period, there have been no emergency situations relating to the installed meters that have led to them exceeding the allowable tolerance or otherwise malfunctioning. The appropriateness of the measuring equipment was confirmed with reference to the requirements of the applicable local regulations and by comparison with the application to similar CDM project activities. It was confirmed that the information of the meters was consistent with the description in the MR through physical observation and document review.</p>	

<p>3-5. Is the accuracy of equipment used for monitoring sufficient and regularly controlled and calibrated in line with the registered monitoring plan?</p> <p>Check relevance of maintenance and calibration included in the monitoring plan.</p> <p>Check relevance of laboratory analysis if included in the monitoring plan.</p>	<p>Electrical Energy Meters are electronic tri-vector meters of accuracy class 0.2 at substation (Main & Check meters).used for monitoring the electricity generated by all WECs connected to the substation..</p> <p>The LCS meters are installed at project site for monitoring the electricity generated by individual WECs.</p> <p>.</p> <p>The verification team checked that the energy meters used for monitoring of electrical energy exported to or imported from the grid are regularly calibrated as per manufacturer's recommendation, follow the approved revised MP and satisfy the host country regulations. The main meters are calibrated once in a year as per the section D.3 of the registered PDD/approved revised monitoring plan and in line with the power purchase agreement (PPA). The periodic calibration of the meters of feeder 2 and feeder 3 was not conducted annually; no calibration was done for both the meters during the period 14/07/2011 to 02/09/2011 during the monitoring period. The verification team however confirms that the correction applied due to delay in calibration of the meters is in line with the "Guidelines for assessing compliance with the calibration frequency requirements" version 01.</p> <p>The laboratory is owned by a Government of India organization and acceptable to the costumer of the energy produced, which is again a government agency. Hence the verification team concluded that the calibration agency is qualified to carry out the activity.</p>	<p>OK</p>
<p>3-6. Check that responsibilities and authorities for monitoring and reporting are in line with the monitoring plan.</p> <p>Are the monitoring results consistently recorded, reviewed and approved as stated in the PDD?</p>	<p>The MR (Version 03) clearly describes responsibilities for monitoring. During the site visit, monitoring and reporting procedures were confirmed with the relevant staff and through the document review.</p> <p>Responsibilities and authorities for monitoring and reporting are in line with the monitoring plan of the registered PDD.</p>	<p>OK</p>

3-7. Reporting period: Defined? If a monitoring period of a parameter more / less than a year is applied, check if the monitoring is in a complete and consistent manner?	Even though the monitoring period is more than a year all the parameters being monitored are complete, all the values are based on month to month based JMR except for the first month of the monitoring period i.e. 14/10/2010 to 01/11/2012, for which the PP has applied a apportioning approach based on daily generation log report provided by EIL based on which the JMRs are issued by MSEDCL. As the JMR issued by MSEDCL are based on daily generation record provided by EIL, the values can be confirmed to be complete and appropriate. The verification team has confirmed the prorata calculation applied for apportioning to be appropriate and correct. The monitoring is found to be complete and consistent.	
3-8. If the monitoring plan includes the determination of environmental and / or social indicators, have the sustainable development indicators been monitored in accordance with the registered monitoring plan?	Not applicable, as the sustainable development indicator is not a parameter to be monitored, as per registered monitoring plan.	
3-9. Check monitoring of Environmental and Social indicators (if relevant) <ul style="list-style-type: none"> • implementation of measures • monitoring equipment • quality assurance procedures • external data. 	Not applicable	
3-10. If, from the above assessment, the conclusion is that the MR deviated from the MP, please send a request for deviation in the suitable form published by the CDM-EB. Refer to the corresponding section of the CDM & JI (UNFCCC) Verification and Certification Assessment procedure.	A request for deviation is not suitable if any of the following are True. If so, a request for revision of the Monitoring Plan is mandatory, (see 2.6).	
		YES NO
	The monitoring plan is not in accordance with the monitoring methodology applied by the project activity	✓
	The request would result in revisions to the approved methodology	✓
	The request would result in a change in default parameter values other than those given in the approved methodology.	✓

Monitoring Parameters and Calibration Checklist:

Complete the following table for each parameter:

Data / Parameter (as in the MP)		Electricity exported by all the Turbines connected to feeder 2 and feeder 3 (EG _{f2,JMR,export} and EG _{f3,JMR,export})	Electricity imported by all the Turbines connected to feeder 2 and feeder 3 (EG _{f2,JMR,import} and EG _{f3,JMR,import})	Net Electricity supplied to the grid by the WECs of the project activity connected to feeder 2 & feeder 3 (EG _{f2,y} and EG _{f3,y})	Net Electricity supplied to the grid by the WECs of the project activity (EG _y)
Value	Ex ante	Not mentioned in the registered PDD	Not mentioned in registered PDD	Not mentioned in the registered PDD	31.008 GWh (1 year)
	Ex-post	EG _{f2,JMR,export} = 52,689.200 MWh EG _{f3,JMR,export} = 39,755.000 MWh	EG _{f2,JMR,import} = 19.200 MWh EG _{f3,JMR,import} = 22.200 MWh	EG _{f2,y} = 28,889.581 MWh EG _{f3,y} = 10,587.972 MWh	39.477GWh (1.2138)
Measuring frequency		Continuous	Continuous	Continuous	Continuous
Reporting frequency		Monthly	Monthly	Monthly	Monthly
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes, The measuring frequency is continuous and reporting frequency is monthly and is in line with Monitoring plan and monitoring methodology.	Yes, The measuring frequency is continuous and reporting frequency is monthly and is in line with Monitoring plan and monitoring methodology.	Apportioned value certified by MSEDCL	Apportioned value certified by MSEDCL
Recording (Manually / electronically / ...)		Both Manual and electronic	Both Manual and electronic	Both Manual and electronic	Both Manual and electronic
QA/QC How are values verified? (Cross- checked, double-checked,...)		Cross checked with the sales invoice issued to MSEDCL	Cross checked with the sales invoice issued to MSEDCL	Cross checked with the sales invoice issued to MSEDCL	Cross checked with the sales invoice issued to MSEDCL

Data / Parameter (as in the MP)	Electricity exported by all the Turbines connected to feeder 2 and feeder 3 (EG f_{2,JMR,export} and EG f_{3,JMR,export})	Electricity imported by all the Turbines connected to feeder 2 and feeder 3 (EG f_{2,JMR,import} and EG f_{3,JMR,import})	Net Electricity supplied to the grid by the WECs of the project activity connected to feeder 2 & feeder 3 (EG f_{2,y} and EG f_{3,y})	Net Electricity supplied to the grid by the WECs of the project activity (EG_y)
Type of Monitoring Equipment and Identification number or Reference in the PDD	Bi-directional, tri-vector energy meters that records both export and import Feeder No. 2-04880814 Feeder No.3-04880816	Bi-directional, tri-vector energy meters that records both export and import. Feeder No. 2-04880814 Feeder No.3-04880816	Calculated Parameter based on monitored parameter (EG f _{2,JMR,export} and EG f _{3,JMR,export}) and (EG f _{2,JMR,import} and EG f _{3,JMR,import})	calculated parameter based on (EG f _{2,y} and EG f _{3,y})
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?	0.2 Accuracy is stated as per the registered PDD and represent good monitoring practices	0.2 Accuracy is stated as per the registered PDD and represent good monitoring practices	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Period of operating time	Continuously operating during the monitored period	Continuously operating during the monitored period	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Instrument type	Bi-directional tri-vector energy meters	Bi-directional tri-vector energy meters	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Manufacturer, model and serial number	Elster	Elster	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Specific location	Substation	Substation	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter

Data / Parameter (as in the MP)	Electricity exported by all the Turbines connected to feeder 2 and feeder 3 (EG $f_{2,JMR,export}$ and EG $f_{3,JMR,export}$)	Electricity imported by all the Turbines connected to feeder 2 and feeder 3 (EG $f_{2,JMR,import}$ and EG $f_{3,JMR,import}$)	Net Electricity supplied to the grid by the WECs of the project activity connected to feeder 2 & feeder 3 (EG $f_{2,y}$ and EG $f_{3,y}$)	Net Electricity supplied to the grid by the WECs of the project activity (EGy)
Calibration dates	Test -1 Feeder No. 2-04880814 - 14/7/2010 Feeder No.3-04880816- 14/07/2010 Test-2 Feeder No. 2-04880814 - 02/09/2011 Feeder No.3-04880816- 02/09/2011	Test -1 Feeder No. 2-04880814 - 14/7/2010 Feeder No.3-04880816- 14/07/2010 Test-2 Feeder No. 2-04880814 - 02/09/2011 Feeder No.3-04880816- 02/09/2011		
Company performing the calibration	MSEDCL	MSEDCL	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Annual ; yes	Annual ; yes	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter

Data / Parameter (as in the MP)	Electricity exported by all the Turbines connected to feeder 2 and feeder 3 (EG f2,JMR,export and EG f3,JMR,export)	Electricity imported by all the Turbines connected to feeder 2 and feeder 3 (EG f2,JMR,import and EG f3,JMR,import)	Net Electricity supplied to the grid by the WECs of the project activity connected to feeder 2 & feeder 3 (EG f2,y and EG f3,y)	Net Electricity supplied to the grid by the WECs of the project activity (EGy)
Is calibration valid for the whole reporting period?	The monitoring period started from 14th October 2010 to 31st December 2011. The calibration is missing between the period 13/07/2011 to 02/09/2011. However as per Annex 60, EB 52 "Guidelines for Assessing Compliance with the Calibration Frequency Requirements" (Version 01), PP had considered the maximum permissible error for the estimation of the electricity generation and same was applied conservatively for the calculation of emission reductions. The justification provided by the PP for the delayed calibration is appropriate.	The monitoring period started from 14th October 2010 to 31st December 2011. The calibration is missing between the period 13/07/2011 to 02/09/2011. However as per Annex 60, EB 52 "Guidelines for Assessing Compliance with the Calibration Frequency Requirements" (Version 01), PP had considered the maximum permissible error for the estimation of the electricity generation and same was applied conservatively for the calculation of emission reductions. The justification provided by the PP for the delayed calibration is appropriate.	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Maintenance	All the meters are maintained by MSEDCL	All the meters are maintained by MSEDCL	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Data management implemented ensures correct transfer of data and reporting of emission reductions	Data management implemented ensures correct transfer of data and reporting of emission reductions	Not Applicable, Calculated parameter	Not Applicable, Calculated parameter

Data / Parameter (as in the MP)	Electricity exported by all the Turbines connected to feeder 2 and feeder 3 (EG $f_{2,JMR,export}$ and EG $f_{3,JMR,export}$)	Electricity imported by all the Turbines connected to feeder 2 and feeder 3 (EG $f_{2,JMR,import}$ and EG $f_{3,JMR,import}$)	Net Electricity supplied to the grid by the WECs of the project activity connected to feeder 2 & feeder 3 (EG $f_{2,y}$ and EG $f_{3,y}$)	Net Electricity supplied to the grid by the WECs of the project activity (EG_y)
Key reporting risks	Low risk Failure of meters; However, check meters are provided to ensure correct and consistent data transfer and reporting	Low risk Failure of meters; However, check meters are provided to ensure correct and consistent data transfer and reporting	Low Risk Calculation is based on the monitored parameter.	Low risk Calculation is based on the monitored parameter.

	Verified situation	Conclusion
SECTION 4. Assessment of data and calculation of GHG reductions		
4-1. Have calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, been carried out in line with the formulae and methods described in the monitoring plan and the applied methodology document?	<p>The calculations of baseline emissions, project activity emissions and leakage are not carried out in line with the formulae and methods described in the registered PDD.</p> <p>The equation used for BE_y & ER in section E.1 and E.4 are not consistent with the registered PDD. Further the step wise calculation approach is elaborated in this section.</p> <p>Therefore, CAR 02 was raised and successfully closed.</p>	OK CAR02
4-2. Has the calculation tool been correctly documented? Check its consistency and formulae. <ul style="list-style-type: none"> • baseline emissions • project emissions • leakage • emission reductions of the project. 	<p>The methodology refers to the "Tool to calculate the emission factor for an electrical system for calculation of grid emission factor to be used in the baseline emissions calculations. Accordingly the MP and the MR refers to the tool in the calculation of baselines grid emission factor.</p> <p>Microsoft excel spreadsheet is used as a tool for calculation of baseline emissions, project emissions, leakage and emission reductions of the project. Formulae & equations used for the calculation in the ER calculation spreadsheet were found to be consistent with the registered PDD and applied methodology.</p> <p>This apportioning activity is carried out by Enercon, the O&M contractor. Operation and maintenance personnel from Enercon prepare a monthly report on generation and consumption. This report contains details of power exported/imported to/from the grid by each of the wind turbines connected to the feeder.</p> <p>The apportioning procedure for feeder 2 EG_{r2,y} (Net Electricity supplied to the grid by the WECs of the project activity connected to feeder 2) as described in Monitoring Report is provided below:</p> <p>EG_{r2,export} the electricity supplied to the grid by turbines of the project activity connected to feeder 2 is calculated as follows:</p>	OK CAR02 GL02

	Verified situation	Conclusion
	$EG_{f2,export} = \frac{EG_{f2,JMR, export} \times \sum_{y=0}^N EG_{f2,gross, y}}{(\sum_{y=0}^N EG_{f2,gross, y} + \sum_{y=0}^M EG_{f2,gross, y})}$ <p>$EG_{f2,import}$ the electricity drawn from the grid by turbines of the project activity connected to feeder 2 is calculated as follows:</p> $EG_{f2,import} = \frac{EG_{f2,JMR, import} \times \sum_{y=0}^N EG_{f2,gross, y}}{(\sum_{y=0}^N EG_{f2,gross, y} + \sum_{y=0}^M EG_{f2,gross, y})}$ <p>$EG_{f2,y}$, the net electricity supplied to the grid by Turbines of the project activity connected to feeder 2, is calculated as follows:</p> $EG_{f2,y} = EG_{f2,export} - EG_{f2,import}$ <p>Where,</p> <p>Electricity generation from the project during a monitoring period connected to feeder 2 ($EG_{f2,gross, y}$) is noted from central monitoring system database by Enercon as:</p> $\sum_{y=0}^{N_{f2}} EG_{f2,gross,y}$ <p>Where N_{f2} = number of Turbines comprising the Project activity connected to the feeder 2</p> <p>Electricity generation from other Turbines connected to feeder 2 ($EG_{f2,gross, y}$) is noted from central monitoring system database by Enercon as:</p>	

	Verified situation	Conclusion
	M_{f2} $\sum EG_{f2, gross, y}$ $y=0$ <i>Where M_{f2} = number of Turbines that are not part of the project activity but are connected to the feeder 2.</i> $EG_{f2, JMR, export}$ = Electricity exported by all the Turbines connected to feeder 2. $EG_{f2, JMR, import}$ = Electricity imported by all the Turbines connected to feeder 2. Similarly for feeder 3, $EG_{f3, export}$, $EG_{f3, import}$ and $EG_{f3, y}$, is calculated. The verification team confirms the procedure to be appropriate, relevant and is actually being practiced.	
4-3. Is a complete set of data available during the specified monitoring period? If only partial data is available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, opt to either make the most conservative assumption theoretically possible in finalizing the verification report, or raise a request for deviation, if appropriate. Refer to the corresponding section of the CDM & JI (UNFCCC) Verification and Certification Assessment procedure.	<p>The complete data set was presented to the verification team for this monitoring period. The data set submitted by means of a calculation spread sheets are verified from joint meter readings, daily generation records and cross checked with sales invoices.</p> <p>The apportioning method applied by the PP and used in the calculation of monitored data for the specified period is not mentioned in the registered PDD; however the monitoring plan clearly describes the consideration of LCS meter readings for apportioning the MSEDCL electricity generation. The apportioning method found to be appropriate.</p>	OK

	Verified situation	Conclusion
4-4. Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis? Please describe how LRQA has cross-checked reported data.	The net electricity supplied to the grid by the WECs of the project activity connected to feeder 2 & 3 have been sourced from the Energy Break-up report certified by the MSEDCL. However, CAR 04 is raised as the electricity export data for Feeder no.2 for WECs Location no. 83-91, in ER calculation spread sheet for the month of Jun 2011 is not consistent with the corresponding JMR sheet. The value in excel sheet is 3134788 kWh whereas JMR sheet indicates 3134768 kWh.	OK CAR 04
15.1. Have any assumptions used in emission calculations been justified?	Not applicable	OK
15.2. Have appropriate emission factors, IPCC default values, and other reference values been correctly applied?	Grid emission factor calculated in accordance with the Tool to calculate the emission factor for an electrical system is used in the calculation of baseline emissions.	OK

Findings³

1. Grade / Ref:	CAR 01	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	§ Section A.1 of EB 54 Annex 34				
5. Nature of the Issue Raised:	A statement on continued operations is missing on the web hosted monitoring report, ver.1.1, dated 16/01/2012.				
6. Nature of responses provided by the project participants:	A statement on continued operations has been added in the description provided in Section A.1 of the monitoring report.				
7. Assessment of such responses:	PP as a response included the statement on continued operations in section A.1 of the PDD. The verification team has cross checked the down time reports & monthly generation report and confirmed the continued operations of the project activity. Therefore the finding is closed.				
8. References to resulting changes in the monitoring report or supporting annexes:	Section A.1				

1. Grade / Ref:	CAR 02	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	§ 207 of CDM-VVM, Version 01.2				
5. Nature of the Issue Raised:	The equation used for BE _y & ER in section E.1 and E.4 are not consistent with the registered PDD. Further the step wise calculation approach is elaborated in this section.				
6. Nature of responses provided by the project participants:					

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Explanation of the Findings Log structure:

1. Grading and Sequential Number of the finding Workbook	2. Date of Original Finding	3. New, Open, Closed	4. Requirement (VVM, PDD-CDM, etc)	5. Reference to
6. Details of PP's response	7. Evaluation from the Verification team	8. List of changes made as a result of the finding		

The equation used for BE_y & ER in section E.1 and E.4 have been made consistent with the registered PDD. The step wise calculation approach has also been included in this section.

7. Assessment of such responses:
PP as response had corrected the equations inline with the registered PDD and monitoring methodology. The verification team confirms that the equations used for calculation of emission reduction are now provided in the revised monitoring report. The equations are now provided inline with the registered PDD and applied monitoring methodology. Therefore the finding is closed.

8. References to resulting changes in the monitoring report or supporting annexes:
Section E.1 & E.4

1. Grade / Ref:	CAR 03	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	EB 54 Annex 34				
5. Nature of the Issue Raised:					

The title of the monitoring report indicates the monitoring period as 14/10/2010 to 31/12/2011, however Section C of the monitoring report indicates 14th October 2010 to 31st December 2011 as crediting period.

6. Nature of responses provided by the project participants:

The language written in Section C has been suitably modified to indicate that the period in question is the first monitoring period (14th October 2010 to 31st December 2011) and not the crediting period. Also, the date format for monitoring period under section C has been revised to DD/MM/YYYY to make it consistent with title of the monitoring report.

7. Assessment of such responses:
PP as a response had corrected the sentence in Section C and the same is inline with the monitoring period as mentioned in the title of the MR. Therefore the finding is closed.

8. References to resulting changes in the monitoring report or supporting annexes:
Section C

1. Grade / Ref:	CAR 04	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	§ 190 (b) of CDM-VVM, Version 01.2				
5. Nature of the Issue Raised:					

The electricity export data for Feeder no.2 for WECs Location no. 83-91, in ER calculation spread sheet for the month of Jun 2011 is not consistent with the

corresponding JMR sheet. The value in excel sheet is 3134788 kWh whereas JMR sheet indicates 3134768 kWh.

6. Nature of responses provided by the project participants:

The typographical error has been corrected. Respective changes have been made in the emission reduction calculation sheet and the monitoring report.

7. Assessment of such responses:

The net generation figures for the month of June 2011 are corrected in the ER sheet and MR.

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

Section D.2

1. Grade / Ref:	CL 01	2. Date:	07/02/2012	3. Status:	Closed
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4. Requirement	§ 182 (a & c) of CDM-VVM, Version 01.2
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5. Nature of the Issue Raised:

As per the registered PDD, the applied monitoring methodology version ACM 0002 is Version 10 and the same version is also applied in Monitoring Report. However the validation report and the project page on UNFCCC indicates application of Version 9 of ACM0002. Pl. clarify.

6. Nature of responses provided by the project participants:

The history of the project can be accessed at the following web-link:

<http://cdm.unfccc.int/Projects/DB/DNV-CUK1258623990.3/history>

As can be seen on the above web-page, version 5 dated 05/09/2009 of the PDD was submitted to UNFCCC for registration. The version of the methodology specified in version 5 of the PDD was version 9. During the registration process, the project came under review in April 2010. During resubmission of the PDD (Version 6 dated 24/09/2010) for registration, the version of the methodology was changed to version 10.

The change in the methodology from version 9 to 10, does not impact the project activity in question. The change in version impacts only those project activities that retrofit or replace renewable energy power generation units, to restore the installed power generation capacity to or above its original level. Since our project activity is a green field activity, the change has no bearing on the project.

(refer:http://cdm.unfccc.int/filestorage/N/F/9/NF9EDA0V5K382HW0JR14GS7XYQUMCP/EB47_repan07_ACM0002_ver10.pdf?t=U0R8bHoyN3l3fDCsHOLfa2cWIdqbFyvfgXz9)

The version of the methodology in the revised monitoring report has been changed to version 10 to reflect the version appearing in the registered PDD.

7. Assessment of such responses:	
The verification team confirms that the version no. of the applied methodology is consistent with the registered PDD. Further there is no impact on the ER because of version change from 9 to ver.10	
8. References to resulting changes in the monitoring report or supporting annexes:	
Section A.5, C, D.1, E.1	

1. Grade / Ref:	CL 02	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	§ 178(b) of CDM-VVM, Version 01.2				
5. Nature of the Issue Raised:					
The section D.1, for the parameter EFy or EF CM,y of the web hosted monitoring report refers to section 5.2 of the report. However there is no Section 5.2 in the report. Pl. Clarify.					
6. Nature of responses provided by the project participants:					
The typographical error has been corrected. The reference to section 5.2 has been removed from the revised monitoring report.					
7. Assessment of such responses:					
The statement is now removed in the revised MR.					
8. References to resulting changes in the monitoring report or supporting annexes:					
Section D.1					

1. Grade / Ref:	CL 03	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	§ 198(c) of CDM-VVM, Version 01.2				
5. Nature of the Issue Raised:					
The reason provided for higher CER generation provided in Section E.6 of the web hosted monitoring report is not adequate and actual reason for increase in CER by 4.7 % is not clear. Pl. clarify.					
6. Nature of responses provided by the project participants:					
The explanation provided in section E.5 has been corrected in the revised monitoring report (Version 3). The details are given below:					
There is a change of 4.70 % on the higher side than the expected annual emission reductions. The increase is due to higher than estimated wind availability. The					

PLF for the period considered in this monitoring report i.e. from 14/10/2010 – 31/12/2011 is 22.10 % (Year fraction for monitoring period = 1.2138 years; Achieved PLF for first monitoring period = $39,477,552 / (16.8 \times 24 \times 365 \times 1000) / 1.2138 = 22.10\%$).

The sensitivity on PLF is conducted up to 23.50% in the registered PDD. Therefore, PLF achieved by the project activity during the monitoring period is within the sensitivity range.

7. Assessment of such responses:

The justification provided by the PP is acceptable. The verification team has verified that the increase in PLF is within the sensitivity analysis conducted by the PP at the time of validation of the project.

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

Section E.5

1. Grade / Ref:	CL 04	2. Date:	07/02/2012	3. Status:	Closed
4. Requirement	§ 178 (b) of CDM-VVM, Version 01.2				
5. Nature of the Issue Raised:	Following information and documents has not been presented to the verification team. 1. Revised MOC as per the revised HCA 2. Training records 3. Internal Audit reports				
6. Nature of responses provided by the project participants:	PP has submitted				
Revised MOC, Training records and Internal Audit reports are being submitted along with the responses.					
7. Assessment of such responses:					
PP has submitted the mentioned documents and verification found them to be appropriate					
8. References to resulting changes in the monitoring report or supporting annexes:					
NA					