



VERIFICATION AND CERTIFICATION REPORT

- 3RD PERIODIC –

ENERCON (INDIA) LIMITED

TUNGABHADRA WIND POWER PROJECT IN KARNATAKA

UNFCCC REF. No. :1268

Monitoring Period: 2011-09-01 to 2012-08-31
(incl. both days)

Report No: 8109474588– 12-533

Date: 2013-01-30

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Verification Report:	Report No.	Rev. No.	Date of 1st issue:	Date of this rev.
	8109474588– 12-533	0	2013-01-30	2013-01-30
Project:	Title:	Registration date:		
	Tungabhadra Wind Power Project in Karnataka	2008-10-27		
		UNFCCC-No.:		
		1268		
	Crediting period:	Verification No.:		
	<input type="checkbox"/> Renewable (7y) <input checked="" type="checkbox"/> Fixed (10y)	3rd Periodic verification		
Project Scale:	From:	To:		
<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale	2008-10-27	2018-10-26		
Project Participant(s):	Client:			
	Enercon (India) Limited			
	Non Annex 1 country:	Annex 1 country:		
	India	-		
	PP from non Annex 1 country:	PP from Annex 1 country:		
	Enercon (India) Limited	-		
Applied methodology/ies:	Title:	No.:	Scope(s) / TA(s)	
	Consolidated monitoring methodology for grid-connected electricity generation from renewable sources	ACM0002 ver.6	01/1.2	
Monitoring period and monitoring report	Monitoring period (MP):			Monitoring Report:
	From:	To:	No. of days:	Draft version:
	2011-09-01	2012-08-31	366	Version 01: 2012-10-15
				Final version:
				Version 3: 2012-12-14
Verification team / Technical Review and Final Approval:	Verification Team:			Technical review:
	Mr. Jimmy Sah (TL/TE) Ms. Richa Thakur (OT)			Dr. Tahsin Choudhury Mr. Stefan Winter
Key dates of verification:	Publication of MR :			On-site (to):
	2012-10-15			2012-11-02
Summary of Verification opinion	DVerR issued:			On-site (from):
	2012-11-13			2012-11-02
<p>Enercon (India) Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 3rd periodic verification of the project: "Tungabhadra Wind Power Project in Karnataka", with regard to the relevant requirements for CDM project activities.</p> <p>As a result of this verification, the verifier confirms that:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> all operations of the project are implemented and installed as planned and described in the validated project design document, <input checked="" type="checkbox"/> the monitoring plan is in accordance with the applied approved CDM methodology, <input checked="" type="checkbox"/> the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately, however in case of delay procedure as per VVS version 2.0 Para 238 (a) has been applied appropriately. <input checked="" type="checkbox"/> the monitoring system is in place and functional. The project has generated GHG emission reductions, and <input checked="" type="checkbox"/> the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. <p>TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission</p>				

3rd Periodic Verification and Certification Report: Tungabhadra Wind
Power Project in Karnataka

TÜV NORD JI/CDM Certification Program

R-No: 8109474588– 12-533



	reductions in the above mentioned reporting period as listed below (verified amount).		
Emission reductions: [t CO _{2e}]	Verified amount	As per draft MR:	As per PDD:
	52,708	52,607	49,466
Document information:	Filename:		No. of pages:
	2013-01-30_FVR_Tungabhadra_VVS_clean		84

Abbreviations:

MESCOM	Mangalore Electricity supply company Ltd.
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
DISCOM	Distribution Company
DVerR	Draft Verification Report
EIL	Enercon India Limited
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
HESCOM	Hubli Electricity supply company Ltd.
JMR	Joint Meter Reading
KPTCL	Karnataka Power Transmission Corporation Limited
MP	Monitoring Plan
MR	Monitoring Report
MESCL	Mangalore Electricity Supply Company Limited
PA	Project Activity
PDD	Project Design Document
PPA	Power Purchase Agreement
PLF	Plant Load Factor
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
WEC	Wind Energy Converter
XLS	Emission Reduction Calculation Spread Sheet

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1. INTRODUCTION

Enercon (India) Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 3rd periodic verification of the project

“Tungabhadra Wind Power Project in Karnataka”

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered CDM project.

GHG data for the monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard ^{/VVS/} of the UNFCCC.

This report summarizes the findings and conclusions of this 3rd periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved methodology and the provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document ^{/PDD/}, the monitoring report ^{/MR/}, emission reduction calculation spreadsheet ^{/XLS/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol ^{/KP/},
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 ^{/MA/}, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,



- CDM Validation and Verification Standard ^{/VVS/}
- monitoring plan as given in the registered PDD ^{/PDD/},
- Approved CDM Methodology.

2. GHG PROJECT DESCRIPTION

2.1. Technical Project Description

The objective of this 22.8 MW wind power project is to reduce GHG emissions by replacing electricity of the southern Grid of India which predominantly uses fossil fuels. The project introduces wind power generation of capacity of 22.8 MW which consists of 38 Wind Energy converters of 600 kW each in the state of at village Singatalur, Koralahalli and Hammigi at Mundargi in Gadag district in the state of Karnataka, India.

The project activity includes windmills installed at the project site of Enercon make (600 kW E-40) with internal electrical lines connecting the Project with local evacuation facility. The WECs generates 3-phase power at 400V, which is stepped up to 33 KV. The Project can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V \pm 12.5%. All WECs are operated and maintained by Enercon India Limited which is also the technology and equipment supplier.

At the 33 kV metering points there are provision for main and check meters for the measurement of electricity export and import. The electricity generated from the project activity is being exporting to (MESCOM) Mangalore Electricity Supply Company Limited.

As the Wind Energy is a carbon neutral fuel, the project reduces CO₂ emissions to the extent of equivalent net electricity generated by mostly fossil fuel based power plants connected to the southern regional grid of India which is now a part of Southern grid.

The net electricity supplied by the project activity in the monitoring period is 56557.781MWh which leads to emission reductions of 52,708 tCO₂ in the monitoring period.

The other salient features of the state-of-art technology are:

- Gearless Construction - Rotor & Generator Mounted on same shaft eliminating the Gearbox.
- Variable speed function – has the speed range of 18 to 33 RPM thereby ensuring optimum efficiency at all times.
- Variable Pitch functions ensuring maximum energy capture.
- Near Unity Power Factor at all times
- Minimum drawl (less than 1% of kWh generated) of Reactive Power from the grid.
- No voltage peaks at any time.
- Operating range of the WEC with voltage fluctuation of -20 to +20%.
- Less Wear & Tear since the system eliminates mechanical brake, which are not needed due to low speed generator which runs at maximum speed of 33 rpm and uses Air Brakes.
- Three Independent Braking Systems.

- Generator achieving rated output at only 33 rpm.
- Starts generation of power at wind speed of 3 m/s.

The technical details of the project are given in Table 2-1:

Table 2-1: Technical data of the project activity

Parameter	Unit	Value
Model		E 40/6.48
No of Blades	Nos	3
Rated Power	kW	600
Hub Height	m	74.85
Rotor diameter	m	48
Cut in wind speed	m/s	2.5
Cut out wind speed	m/s	28-34
Rated wind speed	m/s	12
Operating range rot. Speed	RPM	18-33
Rated rotational speed	RPM	32
Gear Type		Gearless horizontal axis with variable rotor speed.
Output Voltage	V	400
Number of units	-	38
Total installed capacity	MW	22.8

2.2. Project Location

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

Table 2-2: Project Location

No.	Project Location
Host Country	India
Region:	Gadag District in the state of Karnataka.
Project location address:	The project is located at village Singatalur, Koralahalli and Hammigi at Mundargi of Gadag District in the state of Karnataka.
Latitude:	15° 3' 0.6" to 15° 5' 58.1" The details of individual WECs are provided below

Longitude:	75° 50' 0.7" to 75° 52' 58.9" The details of individual WECs are provided below
------------	--

The details about the latitude, longitude and the location numbers are as follows:

Unique Identification Number	Loc. No.	Latitude			Longitude		
		Degree	Minutes	Seconds	Degree	Minutes	Seconds
EILKGS 1	1	15	3	27.4	75	52	4.0
EILKGS 2	2	15	3	30.0	75	52	2.0
EILKGS 3	3	15	3	29.9	75	51	57.9
EILKGS 4	4	15	3	32.4	75	51	51.3
EILKGS 5	5	15	3	36.1	75	51	43.0
EILKGS 6	6	15	3	37.3	75	51	39.6
EILKGS 7	7	15	3	38.3	75	51	34.1
EILKGS 8	8	15	3	45.3	75	51	40.0
EILKGS 9	9	15	3	49.2	75	51	39.1
EILKGS 10	10	15	3	52.2	75	51	36.7
EILKGS 11	11	15	3	54.1	75	51	32.7
EILKGS 12	12	15	3	54.3	75	51	16.4
EILKGS 13	13	15	3	58.1	75	51	15.3
EILKGS 14	14	15	4	4.2	75	51	17.2
EILKGS 15	15	15	4	7.5	75	51	14.4
EILKGS 16	16	15	4	5.7	75	51	4.8
EILKGS 17	17	15	4	9.5	75	51	1.6
EILKGS 18	18	15	4	20.9	75	51	0.7
EILKGS 19	19	15	4	23.2	75	50	58.1
EILKGS 20	20	15	4	27.2	75	50	54.0
EILKGS 21	21	15	4	34.3	75	51	5.4
EILKGS 22	22	15	4	36.7	75	50	58.9
EILKGS 23	23	15	4	38.9	75	50	51.6
EILKGS 24	24	15	4	38.1	75	50	40.6
EILKGS 25	25	15	4	37.1	75	50	30.2
EILKGS 26	26	15	4	42.4	75	50	38.5
EILKGS 27	27	15	4	45.6	75	50	35.0
EILKGS 28	28	15	4	48.0	75	50	30.7
EILKGS 29	29	15	4	51.0	75	50	26.8
EILKGS 30	30	15	4	54.5	75	50	22.4
EILKGS 31	31	15	4	57.0	75	50	19.9
EILKGS 32	32	15	5	0.6	75	50	16.6
EILKGS 33	33	15	4	16.5	75	51	3.5
EILKGS 34	34	15	5	4.8	75	50	33.7
EILKGS 35	35	15	5	8.0	75	50	30.8
EILKGS 36	36	15	5	11.5	75	50	26.1

Unique Identification Number	Loc. No.	Latitude			Longitude		
		Degree	Minutes	Seconds	Degree	Minutes	Seconds
EILKGS 37	37	15	5	12.7	75	50	19.3
EILKGS 38	38	15	5	15.5	75	50	16.3

2.3. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-3.

Table 2-3: Status of previous Monitoring Periods

#	Item	Time	Status
1	1 st Monitoring period	2008-10-27 to 2009-11-30	Issued
2	Request for revision of / deviation from the monitoring plan	2011-02-18	Approved
3	2 nd Monitoring period	2009-12-01 to 2011-08-31	Issued
4	3 rd Monitoring period	2011-09-01 to 2012-08-31	Awaiting Issuance Request

An overview of all Post Registration Changes is given in the following table.

Table 2-3: Overview Post Registration Changes

#	Applicable from – to / as of	MP	Type of post registration change ¹⁾	Description	Status ²⁾ / Date
4	(Applicable from 2 nd Verification onwards) 2009/12/01	From 2 nd Monit oring Perio d	PCfrMP	<p>Revision 1: The monitoring plan in the registered PDD does not make a mention of the adjustment of transmission loss in the meter readings taken at 33 kV and the 110 kV substations for the project activity. However, this procedure is mentioned under articles of the PPA. The electricity supplied to the grid is calculated based upon meter reading taken at the Enercon substation at 110 kV metering point. The meter reading for the project activity is taken at 33 kV metering point (one main and one check meter). Therefore, the transmission loss between the metering points at 33 kV and the metering point at 110 kV has to be adjusted in the meter reading taken at 33 kV metering points.</p> <p>Revision 2: The calibration frequency is not mentioned in the registered PDD. Annual calibration frequency has been mentioned in the revised monitoring plan, which is in line with the PPA and standard host country practices.</p>	Approved by EB on 2011- 02-18

PCfrMP : Permanent changes from registered Monitoring Plan

²⁾ Approval (by EB) or Acceptance (by DOE)

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report^{/MR/} submitted by the client and additional supporting documents with the use of customised verification protocol^{/CPM/} according to the Validation and Verification Standard^{/VVS/},
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

3.2. Contract review

To assure that

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

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

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consisting of one team leader and 0 additional team members, was appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the Table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence ³⁾	Technical competence ⁴⁾	Verification competence ⁵⁾	Host country Competence	On-site visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Jimmy Sah	TUV India Pvt. Ltd.	TL/TE ^{A)}	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Richa Thakur	TUV India Pvt. Ltd.	OT ^{B)}	T	<input type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Tahsin Choudhury	-	ETE	-	<input type="checkbox"/>	1.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Stefan Winter	TN Cert	TR/FA ^{B)}	SA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

²⁾ GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

³⁾ GHG auditor status (at least Assessor)

⁴⁾ As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

⁵⁾ In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

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

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

In order to qualify further personnel the project team was accompanied by observers and/or trainees as indicated in the table above. They are usually not considered as team members.

Statements of competence for the above mentioned team members are enclosed in annex 2 of this report.

3.4. Publication of the Monitoring Report

In accordance with the CDM M&P (§ 62) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC

CDM website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in Table 3-2below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<p>The following potential risks were identified and divided and structured according to the possible areas of occurrence.</p>	<p>The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks.</p> <p>The following measures are implemented:</p>	<p>Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.</p>	<p>The additional verification testing performed is described. Testing may include:</p> <ul style="list-style-type: none"> - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of calibration and maintenance records for key equipment - Check sampling analysis results <p>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</p>	<p>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</p>

The completed table A-1 is enclosed in Annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in Table 3-3.

Table 3-3: Table A-2; Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	Reference	Verification Team Comments	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-2 are linked to the various requirements the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVS shall be covered in this section.</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verification stage.</i>	<i>In case of a corrective action or a clarification the final assessment at the final verification stage is given.</i>

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in Annex 1 (table A-2) to this report.

3.6. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD/},
- the last revision of the validation report^{/VAL/},
- documentation of previous verifications^{/VER/}
- the monitoring report, including the claimed emission reductions for the project^{/MR/},
- the emission reduction calculation spreadsheet^{/XLS/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of Enercon (India) Limited and including the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel- /IM01/	<ul style="list-style-type: none">- General aspects of the project- Technical equipment and operation- Changes since validation / previous verification- Monitoring and measurement equipment- Remaining issues from validation/ previous verification- Calibration procedures- Quality management system- Involved personnel and responsibilities- Training and practice of the operational personnel- Implementation of the monitoring plan- Monitoring data management- Data uncertainty and residual risks- GHG emission reduction calculation- Procedural aspects of the verification- Maintenance- Environmental aspects

The list of interviewees is included in chapter 7.4.

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings from the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.9. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfillment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;

- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is issued if:

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

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

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

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

3.12. Final approval

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

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report^{/MR/}, the calculation spreadsheet^{/XLS/}, PDD^{/PDD/}, the Validation Report^{/VAL/} and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Description of project activity	1	0	0
B – Implementation of project activity	1	0	0
C – Description of monitoring system	1	0	0
D – Data and parameters	1	0	0
E - Calculation of Emission Reductions	2	0	0
SUM	06	0	0

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

Finding	A1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>During desk review, verification team found following inconsistencies in the webhosted MR:</p> <ol style="list-style-type: none"> 1. Description of duration of the monitoring period is not in line with the Annex 20 of EB 66 as the MR does not provide the information if the first and last days are included or not. 2. The value of the estimated amount of GHG emission reductions is not correct for this monitoring period i.e. 366 		



Finding	A1
	days. Appropriate corrections are sought in this context.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The duration of the monitoring period has been revised and the first and last days are included in the MR. 2. The value of the estimated amount of CERs has been corrected.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. The duration of the monitoring period is now corrected and is in line with the Annex 20 of EB 66. 2. The estimated amount of CERs has now been calculated based on the monitoring period of 366 days and is correct. CAR is closed. Hence the CAR is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	B1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the onsite visit and discussion with PP, it was found that there were no significant downtime occurred for this monitoring period except for the scheduled maintenance and operational breakdowns. However, section B.1 of the MR does not provide the details of breakdown occurred during the monitoring period. Appropriate correction is sought.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP has submitted the separate excel sheet for the shutdowns occurred for the project.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The excel sheet for the shutdowns occurred for the project for this monitoring period has been checked. Moreover, the information regarding breakdown for the 2 nd monitoring period of the project activity has been incorporated in the MR version 02. Hence the CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed



Finding	C1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The actual dates of calibration conducted for the year of 2012 has not been mentioned in the MR. However, the calculation of Emission reduction applies error factor for the period from July-august 2012. Moreover it was also found that the calibration for main and check meter have been delayed 2 months i.e. October and November 2011 whereas the error factor has not been applied in the ER sheet and MR as well. Thus the procedure applied is not in compliance to VVS version 2.0 para 238 (a). Appropriate corrections are required.</p> <p>During the document review and the site visit, it was found that the latest calibration for the bulk meters I and II have been done on 22/10/2012 and 25/09/2012 respectively, however the calibration reports shall be submitted.</p>		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP has submitted the calibration report for the bulk meters I and II dated 22/10/2012 and 25/09/2012. The error factors applied accordingly.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i>	<p>The calibration certificates for the bulk meters I and II dated 22/10/2012 and 25/09/2012 have been checked by the team and found that the meters are working within the permissible limits. However due to delay in calibration, an error factor has been applied by adding 0.2% in transmission loss as the bulk meters are only used for calculation of the transmission loss. The same is in line with VVS version 2.0 Para 238 (a) Nevertheless, error factor for the months of October and November 2011 has not been applied yet. Hence the CAR is open.</p>		
Corrective Action #2	The error factors for both the months have been applied accordingly.		
DOE Assessment #2	<p>The error factor for October 2011 and November 2011 has been applied due to delayed calibration in main and check meter of the project activity. The revised ER sheet has been checked and found correct; also the MR has also been corrected accordingly.</p> <p>Thus the calibration of the meters under the project activity is assessed to be appropriate and complies to VVS version 2.0 Para 238 (a) and this leads to the closure of the CAR.</p>		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

Finding	D1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding	During desk review, the following inconsistencies were found in the		

Finding	D1
Describe the finding in unambiguous style; address the context (e.g. section)	<p>section D of the webhosted MR:</p> <ol style="list-style-type: none"> 1. Row for “Source of data” in D.1 of the MR is not in line with the MR Template 2. The value for parameter “Operating Margin Emission Factor” of Southern Grid is not provided in section D.1. 3. The numbering for sections (D and E) is not in line with the MR template i.e. EB 66 annex 20. <p>Appropriate corrections are required.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. Section D.1 of the MR has been revised as per the MR template. 2. The value for parameter “Operating Margin Emission Factor” of Southern Grid has been incorporated. 3. The numbering for section D and E has been corrected in the MR.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The revised MR version 2 has been checked by the verification team and found in compliance with the MR template i.e. EB 66 annex 20. Further the value for parameter “Operating Margin Emission Factor” of Southern Grid has been incorporated.</p> <p>Thus the CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	E1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The comparison of actual emission reductions with estimates in registered PDD is not correct. The estimated ER is not correctly calculated as per the monitoring period i.e. 366 days.</p> <p>Necessary corrections are required wherever applicable.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The comparison of actual emission reductions with estimates in registered PDD is corrected as per the monitoring period i.e. 366 days.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The comparison of CERs is revised to consider monitoring period of 366 days. Thus CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed



Finding	E2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The actual value of emission reductions achieved during this monitoring period is higher than the estimated value in the PDD. The justification provided in the MR section E.6 is inappropriate.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>As per the last two CDM verifications, the actual generations were less than the estimated generation.. Only for this monitoring period PLF has crossed the sensitivity range.</p> <p>During this monitoring period wind availability was good due to high rainfall throughout the country. Hence the PLF was high. Hence, we can confirm that this is not the permanent scenario where the PLF has crossed the sensitivity range mentioned in the registered PDD.</p>		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>During the background review assessment team observed that the PLF of the 1st and 2nd monitoring period was 26.4% and 25.31% resp which were less than base PLF (26.5%). However, the PLF for the present monitoring period is higher than the base PLF. This can be attributed to the fact that PLF is not in the control of project participant and thus with one year data it cannot be considered as the permanent change to the operation of the project activity.</p> <p>Moreover, the increase in the PLF for the present verification does not alter the additionality of the project as the additionality of the project is reached with a PLF value of 60% which has not been achieved yet. Hence, the justification is acceptable to the assessment team and thus the CAR is closed.</p>		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CRs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity.

Table 5-1: Project Parties and project participants

Characteristic	Party	Project Participant
Non-Annex 1	India	Enercon (India) Limited
Annex 1	-	-

5.2. Implementation of the project

During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD and the monitoring is in accordance to the revised approved monitoring plan^{/RFR/}.

5.3. Project history

During validation, the validating DOE has not raised any FAR. Hence no remaining issues are pending in the validation report. As this is the 3rd periodic verification, there was no pending issues from former verifications which are to be considered.

5.4. Post registration changes

No post registration changes applicable for this monitoring period have been observed during the monitoring period.

5.5. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered revised monitoring plan^{/RFR/}.

5.6. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology “*Consolidated methodology for grid-connected electricity generation from renewable sources*”, ACM0002 Version 6.

All other requirements of the applied methodology are met. Furthermore, the default parameters applied in project activity are used for the calculation of grid emission factor (OM, BM and CM) the values are fixed ex ante (0.932 tCO₂/MWh) as per the registered PDD^{/PDD/} and correctly applied.

5.7. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in chapter B.7.1 of the PDD and the revised approved monitoring plan^{/RFR/}) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures.

As per the registered PDD^{/PDD/} and the revised approved monitoring plan^{/RFR/}, the electricity exported to the grid is monitored based on which the net electricity exported values are arrived after deducting the electricity imported by the project activity and transmission loss value.

There is one main and check meter dedicated to project activity at 33 kV metering point for the project activity. In addition to this there are two main and check meters (bulk meters) at 110 kV metering point at the Enercon substation and are connected to the machines of the project activity and the machines commissioned by the other project developers. Therefore in order to determine the electricity supplied to the grid by the project at 110 kV at the Bannikoppa substation, the state utility applies the transmission loss to the meter reading recorded at the 33 kV metering point. The transmission loss calculated by the state utility is endorsed/confirmed jointly by the representatives of Enercon and the state utility. The transmission loss applied to the project activity by the state utility is reflected in the JMR (Form B) recorded at 33kV metering point. Electricity supplied to the grid is calculated by applying transmission loss to the meter readings taken at 33 kV metering location of the project activity.

The monthly Joint meter reading noted at 33 kV metering location contains the following data:

- Electricity Export (EG_{export})
- Electricity Import (EG_{import})

- Transmission Loss (TE) between 33 kV metering point and 110 kV metering point (two bulk meters) at Enercon substation
- Net Electricity supplied to the Grid [$EG_{\text{export}} - 115\% * EG_{\text{import}} - TE$]

The meter readings (both export and import), transmission loss and electricity supplied to the grid are recorded in the JMR (33 kV metering point). Hence all these values have been reproduced from the JMR for calculation of emission reductions.

All main and check energy meters installed at the Project are of 0.2% accuracy class.

All main and check meters are tested for accuracy with reference to a portable standard meter. The portable standard meters is owned by state utility and are calibrated by the State Electricity officials. During testing and calibration, the main and check meters are deemed to be working satisfactorily if the errors are within specifications for meters of 0.2 accuracy class. The consumption registered by the main meters alone holds good for the purpose of metering electricity supplied to the grid as long as the error in the main meters is within the permissible limits.

As per revised Monitoring plan, the meters shall be tested for accuracy once annually. However it can be observed from the below table that the consecutive calibrations for the bulk meter (at 110 KV) are not performed annually. Therefore in accordance with VVS version 2.0 Para 238 (a) where calibration is not carried out in line with the frequency mentioned in the revised registered monitoring plan and the latest calibration reports confirms that the meters are operating within their accuracy class i.e. 0.2%. Further bulk meter readings are considered only for estimation of Transmission loss, which is provided directly form the Form B by the HESCOM. The bulk meter records the value for the entire substation based on which the transmission loss value is arrived. However the export values from the sub-station is with the HESCOM and only the transmission loss values are mentioned in the Form B. Thus error factor has been directly applied on the parameter of transmission loss considering 0.2% loss (maximum error possible) the same is appropriate. This leads to increase in the transmission loss of the project activity thereby leading to lower emission reductions. The calculations are traceable and confirmed in the emission reduction sheet.

Further, the delay in the metering at 33 KV was also observed (readings from which are considered for export and import). The delayed calibration certificates were checked to confirm that meters were functioning satisfactorily, thus for the delay period an error factor of 0.2% has been applied on the deduction of 0.2% of export and by considering an Import of 0.2% higher. The same is in compliance to para 4 (a) of VVS version 2.0 Para 238 (a). The calculations are traceable in the emission reduction sheet and has been confirmed by the DOE.

The details of the meters and calibration are as follows:

Table 5.6.1:

Meter description	Serial No.	Accuracy class	Metering point	Calibration for 2010	Calibration for 2011	Calibration for 2012*
Main meter (Bulk Meter I)	6607369	0.2	Bannikoppa S/s 110 KV	25-May-10	14-Jul-11	22-Oct-12
Check meter (Bulk Meter I)	6606801	0.2	Bannikoppa S/s 110 KV	25-May-10	14-Jul-11	22-Oct-12
Main meter (Bulk Meter II)	6605135	0.2	Bannikoppa S/s 110 KV	25-May-10	14-Jul-11	25-Sep-12
Check meter (Bulk Meter II)	6607373	0.2	Bannikoppa S/s 110 KV	25-May-10	14-Jul-11	25-Sep-12
Main meter at 33 KV	6767626	0.2	Kapathgudda South 33KV	5-Oct-10	26-Nov-11	25-Nov-12
Check Meter at 33 KV	6767637	0.2	Kapathgudda South 33KV	5-Oct-10	26-Nov-11	25-Nov-12

The calibrations are valid for a period of 1 year.

Moreover, during the verification CAR C1 was raised as the calibration details were not correctly provided, however based on the revised MR the finding has been closed out. Further CAR D1 was raised as the source of data for the parameters were incorrectly mentioned, the value for Operating margin of the southern regional grid was missing in the MR and the numbering of the sections was incorrect. In response the PP revised the MR to incorporate the changes as detailed under section 4. Thus the finding was closed based on the corrections in the MR.

Thus based on the above assessment, it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

5.8. Monitoring report

A draft monitoring report was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. No comments were received.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and in accordance with the revised approved monitoring plan and other relevant requirements. Further, CAR A1, CAR B1, CAR C1 and CAR D1 were raised and satisfactorily closed by the assessment team. Please refer section 4 of this report for the details of same.

5.9. ER Calculation

During the verification no mistakes were observed in the ER calculation. Thus it is confirmed that the ER calculation is overall correct.

The calculation of emission reductions is estimated as the difference of baseline emissions and the sum of project emissions and leakage emissions.

and

Baseline emission reduction calculation is given as:

$$\begin{array}{lcl} \text{Baseline emissions} & = & \text{Emission coefficient} \times \text{Net electricity exported to the grid} \\ (\text{tCO}_2) & & (\text{tCO}_2/\text{MWh}) \quad (\text{MWh}) \end{array}$$

As per applied methodology, leakage is considered as zero. Thus for the project activity the emission reductions equals to the baseline emissions. The baseline emissions are calculated as the product of net electricity supplied to the grid and the ex-ante fixed emission factor of NEWNE grid.

The electricity exported and electricity imported is directly sourced from the meters installed onsite. The cumulative reading of electricity export and electricity import forms the part of the JMR sheets/FORM B which is checked by the verification team and found correct. The approach adopted to calculate the net electricity exported to the grid is assessed correct by the assessment team as the approach is line with the approved revised monitoring plan. The emission factor was fixed *ex ante* and the value was cross checked from the PDD and found to be correct. The approach to calculate the baseline emission is as per the registered PDD and thus the calculation is considered to be correct. The input values for electricity export and electricity import value in the emission reduction calculation^{/XLS/} sheet is checked from the JMR reports and cross-checked from the sales invoice^{/INV/} thus the calculation of net electricity export is found appropriate.

The calibration for the meters have not been carried out at the annual frequency as mentioned in the approved revised monitoring plan, thus the procedures as per VVS version 2.0 para 238 (a) have been applied, the revised emission reduction calculation sheet transparently presents the calculation which is cross checked by the verification team and found correct. Hence, CAR C1 was closed successfully.

Stepwise approach to estimate the emission reduction is described below:

Baseline Emissions:

The baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO₂e/kWh) calculated in a transparent and conservative manner as the weighted average emissions (in kg CO₂e/kWh) as described in registered PDD.

$$BE_y = EG_y * EF_y$$

Where,

BE is baseline emissions in year y, tCO_{2e}

EG_y is the net electricity supplied to the grid in year y and is applied directly from JMR (Form B) certified by state utility. This value can also be cross checked from the invoice.

EF_y is the CO₂ emission factor of the grid (932.04 tCO_{2e}/GWh fixed ex-ante)

The net electricity supplied to grid by the project activity for this monitoring period is (EG_y) = 56,557,781 kWh

Thus, Baseline emissions (BE_y) = 52,708 tCO_{2e}

Project Emission:

As per the approved methodology ACM0002, Version 06, for most renewable power generation project activities,

Hence, PE_y = 0 tCO_{2e} as this is a wind power and therefore renewable power project.

Leakage:

As per ACM0002 Version.6, no leakage emissions are considered.

Hence, Leakage (LE_y) = 0 tCO_{2e}

Emission reductions calculation

Total emission reductions is done based on following formula:

$$\text{Emission reduction (ER}_y\text{)} = \text{Baseline Emissions (BE}_y\text{)} - \text{Project Emissions (PE}_y\text{)} - \text{Leakage (LE}_y\text{)}$$

$$\text{Total baseline emissions} = 52,708 \quad \text{tCO}_2\text{e}$$

$$\text{Total project emissions} = 0 \quad \text{tCO}_2\text{e}$$

$$\text{Total leakage} = 0 \quad \text{tCO}_2\text{e}$$

$$\text{ER}_y = 52,708 - 0 - 0 \quad \text{tCO}_2\text{e}$$

$$\text{Thus, ER}_y = 52,708 \quad \text{tCO}_2\text{e}$$

During the verification, no mistakes and inconsistencies in the ER calculation were identified, thus it is confirmed that the ER calculation is overall correct.

5.10. Quality Management

Enercon (India) limited is responsible for operation and maintenance activities for this project. Enercon (India) limited operation and maintenance activities are ISO 9001:2008 certified and all the events are recorded in the log book available at the project site. Referring to the data available it can be inferred that there have not been any major special events for any of the WECs that are included in the project activity. As a part of regular maintenance the WECs are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly.

The reading is monitored continuously by the online monitoring station (online monitoring station is located at the project site where all the data [historical and instantaneous] from panel meters of all WECs is retrieved) at the project site. In case of data loss, the data can be archived from this online monitoring system.

The data (electricity supplied to the grid) will be archived on electronic media as well as on paper. The archive will be kept for the period up to two years after the completion of the crediting period.

Enercon (India) Limited has a separate training facility, called Enercon Training Academy, which gives training to the persons who are to be deployed On-Site to take care of all the activities starting from project construction to operation to maintenance. Thus the requirements for training and regular maintenance is taken care by the O&M Contractor.

As per revised Monitoring plan, the meters shall be tested for accuracy once annually. However it was seen that the consecutive calibrations are not done for the bulk meter annually on time. Thus the procedures for delay in calibration as per VVS version 2.0 Para 238 (a) have been applied for calculation of emission reductions.

All internal data are been subjected to QA/QC measures under established management systems by the O&M contractor Enercon.

No significant deviations thereof have been observed during this verification.

5.11. Comparison with ex-ante estimated emission reductions

The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD.

The start date of the monitoring period is 01/09/2011 and the end date is 31/08/2012. PP is claiming emission reduction from 01/09/2011 for 366 days. The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD, however the comparison does not consider the correct number of days, thus CAR E1 has been raised. In reply the PP revised the comparison to consider 366 days under the current monitoring period and the

values were revised accordingly. Thus based on the revised MR, the CAR E1 was closed out.

Values applied in ex-ante calculation of the registered CDM-PDD is 49,466 tCO_{2e} (366 days equivalent of annually 49,331 emission reductions estimated in the registered PDD) and actual values reached during the monitoring period is 52,708 tCO_{2e}.

The calculated value was found to be proportionally higher than the ex-ante determined value. This is due to high PLF (high wind) than anticipated in the registered PDD. The PDD did not provide adequate justification for the higher emission reduction values thus CAR E2 was raised. In reply the PP clarified that higher PLF observed for this monitoring period is a standalone case and the PLF for the project since commissioning is lower than the values as estimated in the PDD.

Based on the above the justification the DOE conducted a background review and observed that the PLF of the 1st and 2nd monitoring period was 26.4% and 25.31% respectively. However, the PLF for the present monitoring period breaches the base PLF estimated in the registered PDD due to higher wind availability. . Moreover, PLF is not in the control of project participant, and with one year data it cannot be considered as a permanent change to the operation of the project activity. Thus the justification for higher PLF value is acceptable.

Moreover, the increase in the PLF for the present verification does not alter the additionality of the project as the additionality is crossed at a PLF of 60%. This high PLF has not been achieved till date for the project activity. Hence, the justification is acceptable to the assessment team and thus the CAR E2 was closed.

5.12. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the UNFCCC criteria and relevant guidance provided by the COP/CMP and the CDM EB (clarifications and/or guidance).

5.13. Hints for next periodic Verification

No FAR has been raised during the course of this 3rd periodic verification.

6. VERIFICATION AND CERTIFICATION STATEMENT

Enercon (India) Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 3rd periodic verification of the project: “Tungabhadra Wind Power Project in Karnataka”, with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to due to generation of electricity from wind energy. This verification covers the period from 2011-09-01 to 2012-08-31(including both days).

In the course of the verification 06 Corrective Action Requests (CAR) and no Clarification Requests (CR) were raised and successfully closed. Furthermore no FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology, i.e., ACM0002 ver.6
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately. In case of delay of calibration the procedures as per VVS version 2.0 Para 238 (a) have been applied appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 3rd periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **52,708** tCO_{2e}

Mumbai, 2013-01-30



Mr. Jimmy Sah

TÜV NORD JI/CDM Certification
Program

Verification Team Leader

Essen, 2013-01-30



Mr. Stefan Winter

TÜV NORD JI/CDM Certification
Program

Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/BR/	Break Down and maintenance Records of the project activity WECs during the monitoring period.
/CAL/	Calibration certificates for the following parameters during the monitoring period: a. Main and Check meter at substation dated 14/07/2011, 25/09/2012 and 22/10/2012 b. bulk meter at 110 kV metering point dated 05/10/2010 and 26/11/2011
/CC/	Commissioning certificate of the WECs involved in the project activity dated 23/04/2007, 12/09/2007 and 31/12/2007 of 10 WEGs, 19 WEGs and remaining 9 WEGs respectively.
/INV/	Invoices raised to (KPTCL) Karnataka Power Transmission Corporation Limited during the monitoring period i.e. 01/09/2011 to 31/08/2012
/ISO/	ISO 9001:2008 of O&M contractor i.e. Enercon (India) Limited dated 08/02/2010 valid till 08/02/2013
/JMR/	Joint meter readings (FORM B) for the monitoring period i.e. from 01/09/2011 to 31/08/2012.
/MR/	Monitoring Report Version 01, dated 15/10/2012 based on which project assessment is carried out. Monitoring Report Version 02, dated 26/11/2012 based on which project assessment is carried out. Monitoring Report Version 03, dated 14/12/2012 based on which project verification opinion is concluded.
/PPA/	Power purchase agreement between the PP and KPTCL dated 2006-08-16 for the 22.8 MW windmill power project at Singatalur, Koralahalli and Hammigi Villages in Mundarsi Taluka, Gadag District.
/TL/	Transmission loss calculation sheet during the monitoring period.

Reference	Document
/TR/	Training records of the personal working onsite for the project activity.
/TS/	Technical specifications of the WECs
/XLS/	Emission reduction calculation sheet for the project activity version 1, dated 15/10/2012 on which project assessment is carried out

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM0002/	ACM0002 ver.6, “Consolidated monitoring methodology for grid-connected electricity generation from renewable sources”
/CAL-G/	Guidelines for assessing compliance with the calibration frequency Requirement. EB 52 Annex 60 version 1
/KP/	Kyoto Protocol (1997)
/MRG /	Guidelines for completing the monitoring report form (EB 66 Annex 20)
/MRT/	Monitoring Report Form (F-CDM-MR) Version 2.0
/PDD/	Project Design Document for CDM project: “Tungabhadra Wind Power Project in Karnataka” version 5, dated 2008/10/01
/RFR/	Request for revision in Monitoring Plan (Approved: 18 Feb 11) http://cdm.unfccc.int/filestorage/H/6/8/H68FLYQ524EMJ7ZP91NAX3UCVOBIDW/Tungabhadra%20Revised%20Monitoring%20plan.pdf?t=OWZ8bHJ3djk2fDBt4xk3W5urkF6Dap0Pre4F
/VAL/	Validation Report for CDM project “Tungabhadra Wind Power Project in Karnataka” version 3, dated 2008/10/21.
/VER/	Documents of previous verifications (Monitoring report, verification report, ER calculation sheet)
/VVS/	UNFCCC Validation and Verification Standard (Version 2, EB 65, Annex 4)

Table 7-3: Websites used

Reference	Link	Organisation
/KPTCL/	http://www.kptcl.com/	Karnataka Power Transmission Corporation Limited
/HESCOM/	http://www.hescom.co.in/	Hubli Electricity Supply Company Limited
/MESCOM/	http://www.mescom.co.in/	Mangalore Electricity Supply Company Limited
/unfccc/	http://cdm.unfccc.int	UNFCCC
/IPCC/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Sribalaji Podi	Engineer, Enercon
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Hareeth gowder G. N.	Supervisor, Enercon
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bhupendra Verma	Asst. Manager, CDM, Enercon

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Verification Protocol
- A2:** Statements of Competence of
involved Personnel

ANNEX1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
Raw data generation				
<ul style="list-style-type: none"> • Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of technology 	<ul style="list-style-type: none"> • Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is 	<ul style="list-style-type: none"> • Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures • Insufficient accuracy • Inappropriate QA/QC 	<ul style="list-style-type: none"> • Site – visit • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of CDM management system • Check of CDM related procedures 	<ul style="list-style-type: none"> • See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Accuracy of values supplied by Third Parties 	<ul style="list-style-type: none"> organized Training Internal audit procedures Internal check of QA/QC measures of involved Third Parties 	measures of Third Parties	<ul style="list-style-type: none"> Application of CDM management system procedures Check of trainings Check of responsibilities Check of QA/QC documentation / evidences of involved Third Parties 	
Raw data collection and data aggregation				
<ul style="list-style-type: none"> Wrong data transfer from raw data to daily and monthly aggregated reporting forms IT Systems Spread sheet programming Manual data transmission Data protection Responsibilities 	<ul style="list-style-type: none"> Cross-check of data Plausibility checks of various parameters. Appropriate archiving system Clear allocation of responsibilities Application of CDM Management system procedures Usage of standard software solutions 	<ul style="list-style-type: none"> Unintended usage of old data that has been revised Incomplete documentation Ex-post corrections of records Ambiguous sources of information Non-application of management system procedures Manual data transfer mistakes 	<ul style="list-style-type: none"> Check of data aggregation steps Counter-calculation Data integrity checks by means of graphical data analysis and calculation of specific performance figures Check of management system certification Check of data archiving system 	<ul style="list-style-type: none"> See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
	(Spreadsheets) <ul style="list-style-type: none"> Limited access to IT systems Data protection procedures 	<ul style="list-style-type: none"> Unintended change of spread sheet programming or data base entries Problems caused by updating/upgrading or change of applied software 	<ul style="list-style-type: none"> Check of application of Management system procedures 	
Other calculation parameters				
<ul style="list-style-type: none"> Emission factors, oxidation factors, coefficients 	<ul style="list-style-type: none"> The values and data sources applied are defined in the PDD and monitoring plan 	<ul style="list-style-type: none"> Unintended or intended Modification of calculation parameters Wrong application of values Misinterpretations of the applied methodology and/ or the PDD Missing update of applicable regulatory framework (e.g. IPCC values) 	<ul style="list-style-type: none"> Update-check of regulatory framework Countercheck of the applied MP in the MR against the methodology and the PDD 	<ul style="list-style-type: none"> See Table A-2
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Applied formulae Miscalculation Mistakes in spread-sheet calculation 	<ul style="list-style-type: none"> Advanced calculation and reporting tools A CDM coordinator is in charge of the CDM related calculations Usage of tested / counterchecked Excel spreadsheets Involvement of external consultants 	<ul style="list-style-type: none"> The danger of miscalculation can only be minimized. 	<ul style="list-style-type: none"> Countercheck on the basis of own calculation. Spread sheet walk-through. Plausibility checks Check of plots 	<ul style="list-style-type: none"> See Table A-2
Monitoring reporting				
<ul style="list-style-type: none"> Data transfer to the author of the monitoring report Data transfer to the monitoring report Unintended use of outdated versions 	<ul style="list-style-type: none"> An experienced CDM consultant is responsible for monitoring reporting. CDM QMS procedures are defined 	<ul style="list-style-type: none"> The danger of data transfer mistakes can only be minimized Inappropriate application of QMS procedures 	<ul style="list-style-type: none"> Counter check with evidences provided. Audit of procedure application 	<ul style="list-style-type: none"> See Table A-2

Table A-2:(Project specific) Periodic Verification Checklist

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
A. Description of the project activity				
A.1. Purpose and general description of the project activity (EB 66 Annex 20, A.1) <i>Check if section A.1 of the MR includes the following:</i> <ul style="list-style-type: none"> - Purpose of the PA and the measures taken to reduce GHG emissions - Brief description of the installed technology and equipment - Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc.) - Total emission reductions achieved in this monitoring period 	/MR/ /XLS/ /TS/ /MRG/ /IM01/ /PDD/ /CC/	<p>The verification team has checked section A.1 of the MR and confirms that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Purpose of the PA and the measures taken to reduce GHG emissions <input checked="" type="checkbox"/> Brief description of the installed technology and equipments <input checked="" type="checkbox"/> Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc) <input checked="" type="checkbox"/> Total emission reductions achieved in this monitoring period <p>In this context the following findings have been identified:</p> <p>Further, during assessment of the monitoring report, verification team found that the estimated amount of GHG emission reductions is incorrect for this monitoring period i.e. 366 days as well as monitoring report is not in line with EB 66 annex 20. Hence CAR A1 has been raised.</p>	CAR A1	OK CAR A1 closed
A.2. Location of project activity (EB 66 Annex 20, A.2) <i>Check if section A.2 of the MR reflects correctly the following:</i>	/MR/ /PDD/ /IM01/	<p>The verification team has checked section A.2 of the MR and confirms by means of comparison with the information given in the PDD and information gathered during the site visit that the information provided is complete and correct with regards to the following:</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<ul style="list-style-type: none"> - Host Party(ies) - Region / State / Province etc. - City / Town / Community etc. - Physical / geographical location (e.g. Latitude and Longitude) 		<input checked="" type="checkbox"/> Host Party(ies) <input checked="" type="checkbox"/> Region / State / Province <input checked="" type="checkbox"/> City / Town / Community <input checked="" type="checkbox"/> Physical / Geographical location In this context the following findings have been identified: N/A		
A.3. Parties and Project Participants (EB 66 Annex 20, A.3) Check if section A.3 of the MR includes the following: <ul style="list-style-type: none"> - All PPs as displayed on the UNFCCC website - A correctly filled table as per the MR template 	/MR/ /unfccc/ /PDD/	The verification team has checked section A.3 of the MR as well as the UNFCCC website and confirms that: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> all PPs as displayed on the project related UNFCCC website are correctly listed <input checked="" type="checkbox"/> the table as per the template MR has been correctly filled In this context the following findings have been identified: N/A	OK	OK
A.4. Reference of applied methodology (EB 66 Annex 20, A.4) Check if section A.4 of the MR correctly describes / includes the following: <ul style="list-style-type: none"> - Reference to the applicable version of the methodology - Reference to the applicable version(s) of relevant methodological tools 	/MR/ /PDD/ /unfccc/ /ACM000 2/	The verification team has checked section A.4 of the MR and confirms by means of comparison with the information given in the PDD and displayed on the UNFCCC website that the information provided is complete and correct with regards to the following: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Number, title and version of the applicable CDM Methodology <input checked="" type="checkbox"/> Name and version of applicable CDM methodological tools 	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
- <i>Relevant EB decisions, if applicable</i>		<input checked="" type="checkbox"/> Relevant EB decisions In this context the following findings have been identified: NA		
A.5. Crediting period of project activity (EB 66 Annex 20, A.5) <i>Check if section A.5 of the MR correctly includes the following:</i> <ul style="list-style-type: none"> - <i>Start date of the crediting period. In this context please check, if applicable, whether post registration changes to the start date have been accepted by the EB.</i> - <i>Length and type of the crediting period</i> 	/MR/ /unfccc/ /PDD/	The verification team has checked section A.5 of the MR and confirms by means of comparison with the information displayed on the UNFCCC website that the information provided is complete and correct with regards to the following: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Start date of the crediting period. <input checked="" type="checkbox"/> Type and length of the crediting period In this context the following findings have been identified: NA	OK	OK
A.6. Publication of the Monitoring Report (EB 65 Annex 4, 207) <i>Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.</i> <i>Check if comments have been received and if yes, how they have been addressed.</i>	/unfccc/ /MR/	The verification team has ensured and confirms by means of checking the respective project information on the UNFCCC website that: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The draft monitoring report, as received from the project participants, has been made publicly available prior to the start of the verification activities. <input checked="" type="checkbox"/> No comments have been received. In this context the following findings have been identified: N/A	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
A.7. Compliance with standardized format of the Monitoring Report <i>(EB 65 Annex 4, 212 h)</i> <i>Check (only) if the latest applicable MR template has been used. For compliance assessment with the MR guideline pl. refer to the respective MR sections.</i>	/MR/ /MRG/	<p>The verification team has checked all sections of the MR and confirms by means of comparison with the MR template that:</p> <p><input checked="" type="checkbox"/> the standardized MR template has been used</p> <p>In this context the following findings have been identified: N/A</p>	OK	OK
B. Implementation of project activity				
B.1. Description of implemented registered project activity <i>(EB 66 Annex 20, B.1)</i> <i>Check if section B.1 of the MR correctly describes / includes the following:</i> <ul style="list-style-type: none"> - Implementation status of the PA - Detailed description of installed technology(ies) / technical processes and equipment applied - Diagrams (where appropriate) 	/MR/ /PDD/ /IM01/ /BR/ /TS/	<p>The verification team has checked section B.1 of the MR and confirms by means of comparison with the information given in the PDD, the project standard and information gathered during the site visit that:</p> <p><input checked="" type="checkbox"/> the description of the implementation status of the PA is in line with the applicable provisions of the project standard</p> <p><input checked="" type="checkbox"/> an appropriate description of the installed technology(ies), technical process and equipment incl. diagrams, where applicable, has been included</p> <p>In this context the following findings have been identified: However, section B.1 of the MR does not provide the details of breakdown occurred during the monitoring period. Thus CAR B1 has been raised.</p>	CAR B1	OK CAR B1 closed
B.1.1. Initial project implementation <i>(EB 65 Annex 4; § 225 a, 226)</i> <i>Assess whether the project has been implemented and operated as per the registered PDD and are all</i>	/IM01/ /PDD/ /PPA/ /TS/	<p><i>Description:</i></p> <p>During the onsite visit and subsequent document review it was verified that the project is implemented as well as it is operated as described in the PDD. The project includes 338 WECs and</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>physical features of the project in place?</i></p> <p><i>Further focus on the potential phase wise implementation and check the reporting on the corresponding status and starting dates accordingly.</i></p> <p><i>Check if the project is still in compliance with the applicability conditions of the methodology.</i></p> <p><i>Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p>	/CC/	<p>was commissioned on 23/04/2007, 31/12/2007 and 12/09/2007. All the physical features are implemented as per the registered PDD.</p> <p>Further the project is in compliance with the applicability conditions of the methodology. Moreover there is request for revisions in the monitoring plan from the project activity as described in the registered PDD which was approved by the EB dated 18/02/2011.</p> <p><i>Verifier's action:</i></p> <p>During the site visit and subsequent interview with the client the assessment team found out that the project was implemented as per the registered PDD. Assessment team also checked the technical specification, PPA and commission report.</p> <p><i>Conclusion :</i>Initial project implementation is OK and is as per the registered PDD</p>		
<p>B.1.2. Technical equipment changes (EB 65 Annex 4; § 225 a, 226)</p> <p><i>Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period. Further ensure that consistent notations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied</i></p> <p><i>Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.</i></p>	/IM01/ /TS/ /MR/	<p><i>Description:</i> The project activity consists of 38 WECs of 600 kW capacities each aggregating a total installed capacity of 22.8 MW. Technical equipment of the project activity has not been changed or modified during the monitoring period. With the technical specification it was confirmed that the project technical lifetime is 20 years.</p> <p><i>Verifier's action:</i> Site visit and discussions with the PP has been carried out onsite, further the technical specification has been reviewed.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p> <p><i>In case of post registration changes pl. refer to chapter B.2.</i></p>		<p>Conclusion: The technical equipment in the project have not been changed / replaced.</p>		
<p>B.1.3. Operation of the project activity (EB 65 Annex 4; § 225 a, 226)</p> <p><i>Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.</i></p> <p><i>Consider e.g. interviews with operational personnel, operation log sheets, data management system records.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p> <p><i>In case of post registration changes pl. refer to chapter B.2.</i></p>	<p>/IM01/ /PDD/ /MR/ /CC/</p>	<p>Description: The project activity consists of 38 WECs of 600 kW capacities each, and the operation of the project activity is in line with the monitoring plan in terms of operation. The operation mode of the project have not been changed / replaced during the monitoring period.</p> <p>The data management procedure is as per the procedure mentioned in the CDM manual. Moreover, as the company is ISO certified, hence the management system is as per the ISO requirement. All the QA/QC procedures are as per the monitoring plan of the registered PDD.</p> <p>Verifier's action: During the verification site visit and subsequent interview with the operational Personnel it was verified that no change in the operation of the equipment is observed. Moreover, the features of the technical equipment as mentioned in the registered PDD are same as checked from the technical specifications and commissioning report.</p> <p>Conclusion: All the operation modes are as per the registered PDD. As stated in the interview with the operational personnel no change in the project equipment is observed.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.1.4. Incidents (EB 65 Annex 4; § 225 a, 226) <i>Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?</i> <i>Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.</i>	/IM01/ /MR/ /BR/	<p><i>Description:</i></p> <p>During the onsite visit and discussion with PP, it was found that there were no such significant forced downtime occurred for this monitoring period except for the scheduled maintenance and operational breakdowns.</p> <p>Moreover, section B.1 of the MR does not mention brief description of events or situations during the monitoring period. Thus CAR B1 has been raised.</p> <p><i>Verifier's action:</i> The O&M contractor, Enercon (India) limited maintains the record of the project operation. During the site visit and the MR review the same was checked.</p> <p><i>Conclusion:</i> There were no significant breakdowns observed for the project activity during this monitoring period. However CAR B1 is raised during the verification process.</p>	Pending closure of CAR B1	OK CAR B1 closed
B.1.5. Legislation Find out – esp. in the context of methodological requirements - whether relevant legislation with effect on the project activity in the host country has been changed. Assess, in case of changes, whether consequences for the PA with regard to relevant CDM requirements have been accounted for. In case of changes data sources shall be referenced.	/IM01/ /PPA/ /PDD/	<p><i>Description:</i></p> <p>The legislation has not changed w.r.t projects for which the PPA is already signed and is valid for a period of 20 years from commissioning. No regulation with impact on the project could be identified.</p> <p><i>Verifier's action:</i> The legislation for projects already implemented remains as described in the PPA.</p> <p><i>Conclusion:</i> Relevant legislation associated with this project</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		activity has not changed during this monitoring period.		
B.1.6. Open issues from validation <i>(EB 65 Annex 4; § 213)</i> <i>Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?</i>	/VAL/	<input checked="" type="checkbox"/> There were no open issues addressed in the validation report <input type="checkbox"/> All open issues from the validation have been appropriately addressed. <input type="checkbox"/> The following issues related to the validation have not yet been appropriately addressed: NA	OK	OK
B.1.7. Open issues from previous verification <i>(EB 65 Annex 4; §§ 213; 284 h)</i> <i>Check in case of further periodic verifications whether there are any open issues indicated in previous verification reports (FAR) and take into consideration the guidance as specified in VVS.</i>	/VER/	<input checked="" type="checkbox"/> There were no open issues addressed in the previous verification report <input type="checkbox"/> All open issues from the previous verification have been appropriately addressed. <input type="checkbox"/> The following issues related to the previous verification have not yet been appropriately addressed: NA	OK	OK
B.2. Post registration changes				
B.2.1. Are post registration changes applicable to the proposed project activity?	/IM01/ /PDD/ /MR/ /PPA/ /RFR/	<input type="checkbox"/> No, by means of site visit, document check and interview it could be verified that the project is implemented and operated in line with the registered PDD and the applied methodology. <i>(Please proceed with section C)</i> <input checked="" type="checkbox"/> Yes, post registration changes have been identified and are assessed in detail in the subsequent steps. <i>(Please proceed</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																																														
		with B.2.4.)																																																
<p>B.2.2. Temporary deviations from the registered monitoring plan or applied methodology (TDfrMP; TDfMM) (EB 66 Annex 20, B.2.1; EB 65 Annex 4; §§ 251 - 256))</p> <p><i>Indicate whether any temporary deviations have been applied during this monitoring periods. In cases where approval has been sought from the EB please provide reference. If applied, provide a description of the deviation(s). This should include the reasons for the deviation(s), how it deviates from the monitoring plan and/or applied methodology(ies), the duration for which the deviation(s) is(are) applicable and justification on the conservativeness of the approach. Indicate if the deviation will lead to a reduction in the accuracy and if so, which conservative assumptions and discount factors have been applied. For deviation(s) that require prior approval by the Board, include the date of approval and reference number.</i></p>	/TS/ /unfccc/	<table><tr><td><input checked="" type="checkbox"/></td><td colspan="3">No TDfrMP or TDfMM. have been submitted to the UNFCCC prior to the current monitoring period</td></tr><tr><td><input type="checkbox"/></td><td colspan="3">The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC</td></tr><tr><td rowspan="4">1</td><td>Title</td><td colspan="2"></td></tr><tr><td>Status</td><td colspan="2"><input type="checkbox"/>under approval; <input type="checkbox"/>approved</td></tr><tr><td>Appr.date</td><td colspan="2"></td></tr><tr><td>Ref. No.</td><td colspan="2"></td></tr><tr><td rowspan="4">2</td><td>Title</td><td colspan="2"></td></tr><tr><td>Status</td><td colspan="2"><input type="checkbox"/>under approval; <input type="checkbox"/>approved</td></tr><tr><td>Appr.date</td><td colspan="2"></td></tr><tr><td>Ref. No.</td><td colspan="2"></td></tr><tr><td><input type="checkbox"/></td><td colspan="3">During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA</td></tr><tr><td><input type="checkbox"/></td><td colspan="3">An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.</td></tr><tr><td>1</td><td>Issue:</td><td colspan="2"></td></tr></table>	<input checked="" type="checkbox"/>	No TDfrMP or TDfMM. have been submitted to the UNFCCC prior to the current monitoring period			<input type="checkbox"/>	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC			1	Title			Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved		Appr.date			Ref. No.			2	Title			Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved		Appr.date			Ref. No.			<input type="checkbox"/>	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA			<input type="checkbox"/>	An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.			1	Issue:			NA	NA
<input checked="" type="checkbox"/>	No TDfrMP or TDfMM. have been submitted to the UNFCCC prior to the current monitoring period																																																	
<input type="checkbox"/>	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC																																																	
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1	Issue:																																																	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.														
		<table><tr><td></td><td>2</td><td>Issue:</td><td></td></tr><tr><td rowspan="3"><input type="checkbox"/></td><td colspan="3">The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:</td></tr><tr><td>1</td><td>Issue:</td><td></td></tr><tr><td>2</td><td>Issue:</td><td></td></tr></table> <p><i>In cases of approved TDfrMP or TDfM the EB guidance has been applied as follows:</i></p> <p>NA</p> <p><i>Detailed description and justification each TDfrMP or TDfM for which appendix 1 is applicable:</i></p> <p>NA</p> <p>In this context the following findings have been identified:</p> <p>N/A</p>		2	Issue:		<input type="checkbox"/>	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:			1	Issue:		2	Issue:			
	2	Issue:																
<input type="checkbox"/>	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:																	
	1	Issue:																
	2	Issue:																
B.2.3. Corrections (EB 66 Annex 20, B.2.2) <i>Indicate whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report.</i>	/IM01/ /PDD/ /MR/ /CC/ /PPA/	<table><tr><td><input checked="" type="checkbox"/></td><td colspan="3">During the verification of the current MP no need for corrections has been identified.</td></tr><tr><td><input type="checkbox"/></td><td colspan="3">The following corrections have been applied:</td></tr></table>	<input checked="" type="checkbox"/>	During the verification of the current MP no need for corrections has been identified.			<input type="checkbox"/>	The following corrections have been applied:			NA	NA						
<input checked="" type="checkbox"/>	During the verification of the current MP no need for corrections has been identified.																	
<input type="checkbox"/>	The following corrections have been applied:																	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)				Draft Concl.	Final Concl.																													
<p><i>In cases where the correction(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised PDD.</i></p> <p><i>Please check and report that the corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.</i></p>		<table><tr><td></td><td>1</td><td>Issue:</td><td colspan="2"></td></tr><tr><td></td><td>2</td><td>Issue:</td><td colspan="2"></td></tr></table> <p><i>Detailed description and justification each correction:</i></p> <p>NA</p> <p>In this context the following findings have been identified:</p> <p>N/A</p>					1	Issue:				2	Issue:																							
	1	Issue:																																		
	2	Issue:																																		
<p>B.2.4. Permanent changes from the registered monitoring plan or applied methodology (PCfrMP; PCfMM) (EB 66 Annex 20, B.2.3)</p> <p><i>Indicate whether any permanent changes from the registered monitoring plan or applied methodologies have been approved during this monitoring period or submitted with this monitoring report.</i></p> <p><i>In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised PDD.</i></p>	/PDD/ /IM01/ /MR/ /RFR/ /unfccc/	<table><tr><td><input type="checkbox"/></td><td colspan="5">No PCfrMP or PCfMM. have been submitted to the UNFCCC prior to the current monitoring period</td></tr><tr><td rowspan="5"><input checked="" type="checkbox"/></td><td colspan="5">The following PCfrMP or PCfMM have been approved or are under approval by the UNFCCC</td></tr><tr><td rowspan="4">1</td><td>Title</td><td colspan="3">Tungabhadra wind power project in Karnataka</td></tr><tr><td>Status</td><td colspan="3"><input type="checkbox"/>under approval; <input checked="" type="checkbox"/>approved</td></tr><tr><td>Appr.date</td><td colspan="3">18/02/2011</td></tr><tr><td>Ref. No.</td><td colspan="3"></td></tr></table>				<input type="checkbox"/>	No PCfrMP or PCfMM. have been submitted to the UNFCCC prior to the current monitoring period					<input checked="" type="checkbox"/>	The following PCfrMP or PCfMM have been approved or are under approval by the UNFCCC					1	Title	Tungabhadra wind power project in Karnataka			Status	<input type="checkbox"/> under approval; <input checked="" type="checkbox"/> approved			Appr.date	18/02/2011			Ref. No.				OK	OK
<input type="checkbox"/>	No PCfrMP or PCfMM. have been submitted to the UNFCCC prior to the current monitoring period																																			
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Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<div> <input checked="" type="checkbox"/> During the verification of the current MP no need for a PCfrMP or PCfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA </div> <div> <input type="checkbox"/> An approval of the following PCfrMP or PCfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. <div> <div>1</div> <div>Issue:</div> <div></div> </div> <div> <div>2</div> <div>Issue:</div> <div></div> </div> </div> <div> <input type="checkbox"/> The following PCfrMP or PCfMM for which appendix 1 of the PS is applicable have been applied: <div> <div>1</div> <div>Issue:</div> <div></div> </div> <div> <div>2</div> <div>Issue:</div> <div></div> </div> </div> <p><i>In cases of approved PCfrMP or PCfMM the EB guidance has been applied as follows:</i> NA <i>Detailed description and justification each TDfrMP or TDfM for which appendix 1 is applicable:</i> NA In this context the following findings have been identified: N/A</p>		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																																					
<div>B.2.5. Changes to the project design of the registered project activity (CoPD) <i>(EB 66 Annex 20, B.2.4)</i></div> <div><i>Indicate whether any changes to the project design of the project activity have been approved during this monitoring period or submitted with this monitoring report.</i></div> <div><i>In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised PDD.</i></div>	/PDD/ /IM01/ /MR/	<table><tr><td><input checked="" type="checkbox"/></td><td colspan="3">No CoPD has been submitted to the UNFCCC prior to the current monitoring period</td></tr><tr><td rowspan="8"><input type="checkbox"/></td><td colspan="3">The following CoPD has been approved or are under approval by the UNFCCC</td></tr><tr><td rowspan="4">1</td><td>Title</td><td></td></tr><tr><td>Status</td><td><input type="checkbox"/>under approval;<input type="checkbox"/>approved</td></tr><tr><td>Appr.date</td><td></td></tr><tr><td>Ref. No.</td><td></td></tr><tr><td rowspan="4">2</td><td>Title</td><td></td></tr><tr><td>Status</td><td><input type="checkbox"/>under approval;<input type="checkbox"/>approved</td></tr><tr><td>Appr.date</td><td></td></tr><tr><td>Ref.No.</td><td></td></tr><tr><td><input type="checkbox"/></td><td colspan="3">During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA</td></tr><tr><td rowspan="2"><input type="checkbox"/></td><td colspan="3">An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.</td></tr><tr><td>1</td><td>Issue:</td><td></td></tr></table>	<input checked="" type="checkbox"/>	No CoPD has been submitted to the UNFCCC prior to the current monitoring period			<input type="checkbox"/>	The following CoPD has been approved or are under approval by the UNFCCC			1	Title		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved	Appr.date		Ref. No.		2	Title		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved	Appr.date		Ref.No.		<input type="checkbox"/>	During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA			<input type="checkbox"/>	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.			1	Issue:		NA	NA
<input checked="" type="checkbox"/>	No CoPD has been submitted to the UNFCCC prior to the current monitoring period																																								
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	1	Title																																							
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		Appr.date																																							
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	2	Title																																							
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved																																						
		Appr.date																																							
Ref.No.																																									
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	1	Issue:																																							

Checklist Item (incl. guidance for the verification team)	Refe- rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.														
		<table><tr><td></td><td>2</td><td>Issue:</td><td></td></tr><tr><td rowspan="3"><input type="checkbox"/></td><td colspan="3">The following CoPD for which appendix 1 of the PS is applicable have been applied:</td></tr><tr><td>1</td><td>Issue:</td><td></td></tr><tr><td>2</td><td>Issue:</td><td></td></tr></table> <p><i>In cases of approved CoPD the EB guidance has been applied as follows:</i></p> <p>NA</p> <p><i>Detailed description and justification each CoPD for which appendix 1 is applicable:</i></p> <p>NA</p> <p>In this context the following findings have been identified:</p> <p>N/A</p>		2	Issue:		<input type="checkbox"/>	The following CoPD for which appendix 1 of the PS is applicable have been applied:			1	Issue:		2	Issue:			
	2	Issue:																
<input type="checkbox"/>	The following CoPD for which appendix 1 of the PS is applicable have been applied:																	
	1	Issue:																
	2	Issue:																
C. Description of monitoring system																		
C.1. Monitoring Plan – PDD Compliance (EB 65 Annex 1, § 233-236) Check if the monitoring plan is in accordance with the monitoring plan contained in the registered PDD (or	/MR/ /PDD/ /CAL/	By means of comparison of the MR with the registered PDD (or any revisions thereof) the verification team has checked whether the MP is in compliance with the registered PDD. The outcome is as follows:	CAR-C1	OK CAR C1 closed														

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.									
<p><i>any accepted revised MP).</i></p> <p><i>Please check esp. if</i></p> <ul style="list-style-type: none">- <i>all parameters stated in the MP of the registered PDD have been monitored and updated as applicable</i>- <i>the monitoring equipment has been controlled and calibrated as per the MP</i>- <i>the monitoring results are consistently recorded as per the approved frequency</i>- <i>QA/QC procedures have been applied in accordance with the MP</i>		<table><tr><td><input type="checkbox"/></td><td colspan="2">The MP is completely in accordance with the last registered/approved version of the PDD / MP.</td></tr></table> <p>In this context the following findings have been identified:</p> <p>CAR C1 has been raised as the calibration of the Bulk meter (receiving meter of 110 kV) is not in compliance with the calibration frequency requirement specified in the monitoring plan i.e. annually.</p>	<input type="checkbox"/>	The MP is completely in accordance with the last registered/approved version of the PDD / MP.									
<input type="checkbox"/>	The MP is completely in accordance with the last registered/approved version of the PDD / MP.												
<p>C.2. Monitoring Plan – Meth Compliance (EB 65 Annex 4, § 229-232)</p> <p><i>Check if the monitoring plan is in accordance with the applied methodology.</i></p> <p><i>In case the methodology references applicable tools it has to be ensured that the MP is also compliant with those tools.</i></p> <p><i>Also please specify if monitoring aspects have been identified that are not specified in the methodology but may enhance the level of accuracy and completeness of the monitoring plan – this esp. applies for SSC PAs.</i></p>	<p>/MR/ /PDD/ /ACM000 2/</p>	<p>By means of comparison of the MR with the applied CDM methodology and related tools the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology. The outcome is as follows:</p> <table><tr><td><input checked="" type="checkbox"/></td><td colspan="2">The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)</td></tr><tr><td><input checked="" type="checkbox"/></td><td colspan="2">The MP is completely in accordance with the applied tools which the methodology references. A breakdown of the referenced tools is as follows:</td></tr><tr><td>1</td><td>Title (of the tool)</td><td>Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion</td></tr></table>	<input checked="" type="checkbox"/>	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)		<input checked="" type="checkbox"/>	The MP is completely in accordance with the applied tools which the methodology references. A breakdown of the referenced tools is as follows:		1	Title (of the tool)	Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion	OK	OK
<input checked="" type="checkbox"/>	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)												
<input checked="" type="checkbox"/>	The MP is completely in accordance with the applied tools which the methodology references. A breakdown of the referenced tools is as follows:												
1	Title (of the tool)	Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion											

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)		Draft Concl.	Final Concl															
			<table><tr><td></td><td>Version</td><td>2</td></tr><tr><td></td><td>MP compliance</td><td><input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A (for MP)</td></tr><tr><td>2</td><td>Title (of the tool)</td><td>Tool to calculate the emission factor for an electricity system</td></tr><tr><td></td><td>Version</td><td>2.1</td></tr><tr><td></td><td>MP compliance</td><td><input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)</td></tr></table>		Version	2		MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A (for MP)	2	Title (of the tool)	Tool to calculate the emission factor for an electricity system		Version	2.1		MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)		
	Version	2																		
	MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A (for MP)																		
2	Title (of the tool)	Tool to calculate the emission factor for an electricity system																		
	Version	2.1																		
	MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)																		
		In this context the following findings have been identified: Regarding aspects that are not specified in the methodology the following issues have been identified which may enhance the level of accuracy and completeness of the MP: N/A																		
C.3. Management System (EB 65 Annex 4, § 217 (iii)) <i>Check if the GHG data monitoring system can be assessed as appropriate.</i> <i>In case reference is made to a (certified) company quality management system, check if all CDM related monitoring procedures have been fully integrated in</i>	/ISO/ /CAL/ /IM01/ /TR/ /JMR/	<i>Description:</i> Enercon (India) Limited is responsible for maintaining all the monitoring data, recording, reporting, and archiving the data. It is ISO 9001:2008 certified organization and have management structure for managing the monitoring data. The meter reading is being taken jointly by the representatives of Enercon and (MESCOM) Mangalore Electricity Supply Company Limited in the form of JMR. Electricity exported and imported to the grid will be recorded by the meter(s) connecting the 08 machines of the		OK	OK															

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>the project participant's quality management system.</i></p> <p><i>In case of a stand-alone system, check how the GHG management system has been implemented and effectiveness is ensured.</i></p>		<p>project activity feeding the substation of Enercon. The net electricity supplied to the grid is calculated from Energy exported, imported and transmission losses mentioned in Form B.</p> <p><i>Verifier's action:</i> The MR and the PDD have been checked by the team. Further ISO certificate of Enercon (India) Limited is also checked along with the calibration reports, training of the personnel and interview with the O&M officials to confirm that proper Management systems are being followed.</p> <p><i>Conclusion:</i> GHG data monitoring system is appropriate. This management system for the project activity addresses procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel.</p>		
<p>C.4. Metering diagram (EB 66 Annex 20, C; EB 65 Annex 5 §190)</p> <p><i>Check first if the MR includes a metering diagram showing all relevant monitoring points.</i></p> <p><i>Check further if this diagram reflects the actual situation and is in line with the registered PDD and with the requirements of the applied methodology.</i></p>	/IM01/ /MR/ /PDD/	<p><i>Description:</i></p> <p>The Monitoring report includes the metering diagram which reflects the actual situation and also explains the relative monitoring points.</p> <p><i>Verifier's action:</i> The MR along with the registered PDD has been checked. During the site visit and the interviews also for the same.</p> <p><i>Conclusion:</i> The metering diagram mentioned in the MR includes the monitoring parameter.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
C.5. Roles and Responsibilities (EB 66 Annex 20, C; EB 65 Annex 5 §190) <i>Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented as stated in the monitoring plan. Please consider the complete data trail from raw data generation to submission of the final data.</i> <i>Identify, if relevant personnel w.r.t. monitoring has been exchanged?</i> <i>If so, have appropriate training measures been carried out.</i> <i>In case of changes, assure that the implemented monitoring procedures have not been affected.</i>	/TS/ /IM01/ /MR/ /PDD/	<p><i>Description:</i> The organizational structure is given in the monitoring report which describes all the roles and responsibilities of each person in the GHG data management process.</p> <p>Also during the site visit and interviews with the project participant, the relevant roles and positions applicable for the CDM project activity monitoring have been confirmed. Responsibilities for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel have been introduced.</p> <p>No relevant personnel w.r.t. monitoring has been exchanged.</p> <p><i>Verifier's action:</i> Evidence Site visit and Interview with management personals been checked by the assessment team and found correct. The MR and the registered PDD have also been checked.</p> <p><i>Conclusion:</i> Proper roles and responsibilities are defined in the MR which is as per the registered PDD. The management procedure is practised onsite which is checked during the onsite visit.</p>	OK	OK
C.6. Emergency procedures for the monitoring system (EB 54 Annex 34, C; EB 65 Annex 5 §190) <i>Check, as appropriate, whether relevant emergency procedures for the monitoring system have been included in the MR and assess whether these</i>	/IM01/ /PDD/ /MR/	<p><i>Description:</i> The emergency procedures for the monitoring system are addressed in the MR which is in line with the registered PDD.</p> <p><i>Verifier's action:</i> The emergency procedure has been confirmed during the verification site visit and with the interview carried out</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>procedures have been implemented, when required</i>		with the PP. <i>Conclusion:</i> The relevant emergency procedures for the monitoring system have been included in the MR and the same are implemented.		
C.7. Data archive and data protection (EB 65 Annex 5 §56 b) Check whether all records of monitoring parameters are archived according to the monitoring plan. Assess further whether appropriate measures have been taken in order to avoid unintended or intended manipulation or loss of the measured data.	/PDD/ /MR/ /IM01/ /ISO/	<i>Description:</i> The data (electricity supplied to the grid) will be archived on electronic media as well as on paper. The archive will be kept for the period up to two years after the completion of the crediting period. <i>Verifier's action:</i> During the site visit it was observed that the data archiving procedure and data management structure is as per the registered PDD. <i>Conclusion:</i> The records are archived as per the monitoring plan. The Data protection measure is as per the standard ISO procedure.	OK	OK
D. Data and parameters				
D.1. Data and Parameters fixed ex ante				

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>a) Compliance with registered PDD (EB66 Annex 20; D1)</p> <p><i>Check whether the value applied is in compliance with the registered PDD.</i></p>	<p>/PDD/ /MR/</p>	<p><i>Description:</i></p> <p>The ex-ante parameters are Operating Margin Emission Factor ($EF_{OM,y}$), Build Margin Emission Factor ($EF_{BM,y}$) and Combined Margin Emission Factor ($EF_{CM,y}$). The values for the parameters in the MR are in line with the registered PDD.</p> <p>However CAR D1 has been raised as The value for parameter “Operating Margin Emission Factor” of Southern Grid is not provided in section D.1.as well as the numbering for sections (D and E) is not in line with the MR template i.e. EB 66 annex 20.</p> <p><i>Verifier’s action:</i> The registered PDD has been checked and found that the values taken in the MR is in compliance with the registered PDD.</p> <p><i>Conclusion:</i> The ex-ante parameters applied are in compliance with the registered PDD. However CAR D1 has been raised.</p>	<p>CAR D1</p>	<p>OK CAR D1 closed</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
b) Compliance with the applied methodology (EB66 Annex 20; D1) <i>Check whether the value applied is in compliance with the applied methodology or any other tool.</i>	/ACM0002/ /MR/	<p><i>Description:</i> The ex-ante parameter values are in compliance with the applied methodology. However CAR D1 has been raised as The value for parameter “Operating Margin Emission Factor” of Southern Grid is not provided in section D.1.as well as the numbering for sections (D and E) is not in line with the MR template i.e. EB 66 annex 20.</p> <p><i>Verifier’s action:</i> The applied methodology ACM0002 has been checked and found that the values taken in the MR are in compliance with the ACM0002.</p> <p><i>Conclusion:</i> The ex-ante parameter applied is in compliance with the ACM0002. However closure of CAR D1 is pending.</p>	Pending closure of the CAR D1	OK CAR D1 closed
D.2. Data and Parameters monitored				
D.2.1. EGy		Description: Net electricity supplied to the grid by the Project		
a) Measurement / Determination method (EB 65 Annex 4, § 233, 236) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i>	/IM01/ /PDD/ /PPA/ /CAL/ /MR/ /JMR/ /INV/	<p><i>Description:</i> The net electricity from the WECs is calculated based on the export values, import values and the transmission loss. The approach is as per the PPA and in line with the revised approved monitoring plan. The value for net electricity has been confirmed from the JMR sheets and cross-checked with the Invoices raised by PP to MESCOM.</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore</p>	CAR C1 and CAR D1	OK CAR C1 & CAR D1 closed

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>		<p>the CAR C1 has been raised. Moreover, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised.</p> <p><i>Verifier's action:</i></p> <p>The MR, ER sheet has been checked. Further the registered MP and the PPA has been checked to check the approach. The JMR, Invoices and the calibration certificate also have been cross checked.</p> <p><i>Conclusion:</i> CAR C1 and D1 have been raised during the verification of the project activity.</p>		
<p>b) Accuracy and QA/QC Procedure (EB 65 Annex 4, §§ 237-241)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p>	<p>/MR/ /PPA/ /CAL/ /ISO/</p>	<p><i>Description:</i></p> <p>This is a calculated value, thus the calibration procedures are not directly applicable. Calibration of the meter is carried out annually by KPTCL.</p> <p>All the required data is archived by the O&M contractor (Enercon), which is an ISO certified and has proper procedures for data handling and storage.</p> <p>However, the calibration of the bulk meter is not in accordance with the registered MP on which the transmission loss is based, therefore the CAR C1 has been raised.</p> <p><i>Verifier's action:</i> The calibration certificates and PPA has been checked to confirm the requirements of minimum accuracy class of meters required and the meters installed.</p> <p>Enercon is ISO certified and has proper QA/QC procedures</p>	Pending closure of the CAR C1	OK CAR C1 closed

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>established. ISO certificate for Enercon is available and checked.</p> <p><i>Conclusion:</i> Accuracy of the energy meters are in line during the monitoring period. Proper QA/QC procedures are in place and the same is being followed. Pending closure of the CAR C1.</p>		
<p>c) Correctness (EB 65 Annex 4, §§ 233, 236)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>	<p>/MR/ /XLS/ /JMR/ /INV/ /CAL/</p>	<p><input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct (initial assessment)</p> <p><i>Description:</i> The electricity exported is metered and after deducting the imports (metered) and transmission loss the net electricity exported value is calculated. The electricity exported and imported to the grid is sourced from the meter which is as per the registered PDD and the transmission Loss will directly applied from the Form B for the project activity.</p> <p>However, the calibration of the bulk meter is not in accordance with the registered MP on which the transmission loss is based, therefore the CAR C1 has been raised.</p> <p>Moreover, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised.</p> <p><i>Verifier's action:</i> Evidence JMR sheets are authentic and are cross-checked with the sales receipt. Also the MR, ER sheet and the calibration certificates have been checked. However pending closure of the CAR C1 and CAR D1</p> <p><i>Conclusion:</i> The value provided is not correct and pending closure of the CAR C1 and CAR D1.</p>	<p>Pending closure of the CAR C1 and CAR D1</p>	<p>OK</p> <p>CAR C1 & CAR D1 closed</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
D.2.2. E_{JMR Export}		Description: Electricity Export is recorded at the meter(s) connecting 38 machines of the project activity.		
<p>a) Measurement / Determination method (EB 65 Annex 4, § 233, 236)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /JMR/ /INV/ /XLS/ /MR/</p>	<p>Description:</p> <p>The total electricity exported from all the WTGs is recorded by the individual meters (one main & one check meter) at 33 kV point. The monthly monitoring consists of joint monitored in presence of HESCOM and Enercon officials every month. A JMR sheet is prepared every month and is available with the O&M contractor i.e. Enercon (India) Limited for verification for further process (invoice generation).</p> <p>The O&M contractor based on the JMR sheets provides the values to the project proponents which raise a monthly invoice to MESCOM. Thus the values of electricity exported to the grid is confirmed from the invoices and JMR both.</p> <p>However, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p> <p>Verifier's action: The MR and the ER sheet have been checked by the verification team. Further the total electricity exported is confirmed with the JMR sheets and cross-checked with the invoices. However pending CAR D1</p> <p>Conclusion: The approach described in the MR is assessed to be correct and in line with the monitoring plan. However pending CAR D1</p>	Pending closure of the CAR D1	OK CAR D1 closed

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>b) Accuracy and QA/QC Procedure (EB 65 Annex 4, §§ 237-241)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p>	<p>/IM01/ /XLS/ /MR/ /CAL/ /ISO/</p>	<p><i>Description:</i> The total electricity exported from all the WTGs is recorded by the individual meters (one main & one check meter) at 33 kV point at pooling substation. The monthly monitoring consists of joint monitored in presence of and every month. The Joint meter reading report is available with the O&M contractor for verification. The meters are calibrated annually by HESCOM a government body which is the authorized body to carry out the same.</p> <p>The electricity export value is accurately monitored, the meters are of 0.2 accuracy class as confirmed from the calibration certificates, and the PPA requires the metering to be of minimum 0.2 accuracy class. Thus the installation is in line with the PPA for the project activity.</p> <p>QA/QC procedures are under the O&M contractor Enercon which has proper procedures for data handling and storage. Further Enercon India Limited is ISO 9000 certified and the QA/QC procedures are in place.</p> <p>However, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p> <p><i>Verifier's action:</i> The MR and the ER spreadsheet have been checked by the team. The calibration certificates and PPA has been checked to confirm the requirements of minimum accuracy class of meters required and the meters installed. ISO certificate for Enercon is available and checked.</p> <p><i>Conclusion:</i> Accuracy of the energy meters are in line during the monitoring period. Proper QA/QC procedures are in place</p>	<p>Pending closure of the CAR D1.</p>	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		and the same is being followed. Pending closure of the CAR D1.		
c) Correctness (EB 65 Annex 4, §§ 233, 236) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/JMR/ /INV/ /MR/ /XLS/ /CAL/	<input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct (initial assessment) <i>Description:</i> The electricity exported is metered at the 33 kV metering point with provision for main and check meters in the pooling substation and is as per the registered PDD. The values in the CER calculation sheet are confirmed with the JMR sheets, further they have been cross-checked with the invoices (sales receipt) and no inaccuracies are observed. However, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised <i>Verifier's action:</i> Evidence JMR sheets are authentic and are cross-checked with the sales receipt. Also the MR, ER sheet and the calibration certificates have been checked. However pending closure of the CAR D1 <i>Conclusion:</i> The value provided is not correct and pending closure of the CAR D1	Pending closure of the CAR D1	OK CAR D1 closed
D.2.3. EG_{import}		Description: Electricity Imported recorded at the meter(s) connecting 38 machines of the project activity.		
a) Measurement / Determination method (EB 65 Annex 4, § 233, 236) <i>Describe how the monitoring parameter was measured / determined.</i>	/IM01/ /PDD/ /JMR/ /INV/ /XLS/	<i>Description:</i> The total electricity imported by all the WECs is metered. The same is in line with the registered monitoring plan. The total electricity imported is metered and jointly monitored in presence of HESCOM and Enercon officials every month. A JMR sheet is	Pending closure of the CAR D1	OK CAR D1 closed

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>		<p>prepared every month and is available with the O&M contractor for verification. Further the values have been cross-checked with the monthly sales invoice raised by Enercon to MESCOM</p> <p>However, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p> <p><i>Verifier's action:</i> The MR and the ER sheet have been checked by the verification team. Further the total electricity exported is confirmed with the JMR sheets and cross-checked with the invoices. However pending CAR D1</p> <p><i>Conclusion:</i> The approach described in the MR is assessed to be correct and in line with the monitoring plan. However pending CAR D1</p>		
<p>b) Accuracy and QA/QC Procedure (EB 65 Annex 4, §§ 237-241)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line</i></p>	<p>/IM01/ /XLS/ /MR/ /CAL/ /ISO/</p>	<p><i>Description:</i> The total electricity imported from all the WTGs is recorded by the individual meters (one main & one check meter) at 33 kV point at pooling substation. The monthly monitoring consists of joint monitored in presence of and every month. The Joint meter reading report is available with the O&M contractor for verification. The meters are calibrated annually by HESCOM a government body which is the authorized body to carry out the same.</p> <p>The electricity import value is accurately monitored, the meters are of 0.2 accuracy class as confirmed from the calibration certificates, and the PPA requires the metering to be of minimum 0.2 accuracy class. Thus the installation is in line with the PPA for the project activity.</p>	<p>Pending closure of the CAR D1</p>	<p>OK CAR D1 closed</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>with the latest EB guidance.</i>		<p>QA/QC procedures are under the O&M contractor Enercon which has proper procedures for data handling and storage. Further Enercon India Limited is ISO 9000 certified and the QA/QC procedures are in place.</p> <p>However, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p> <p><i>Verifier's action:</i> The MR and the ER spreadsheet have been checked by the team. The calibration certificates and PPA has been checked to confirm the requirements of minimum accuracy class of meters required and the meters installed. ISO certificate for Enercon is available and checked.</p> <p><i>Conclusion:</i> Accuracy of the energy meters are in line during the monitoring period. Proper QA/QC procedures are in place and the same is being followed. Pending closure of the CAR D1.</p>		
<p>c) Correctness (EB 65 Annex 4, §§ 233, 236)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details</i></p>	<p>/JMR/ /INV/ /MR/ /XLS/ /CAL/</p>	<p><input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct (initial assessment)</p> <p><i>Description:</i> The electricity imported is metered at the 33 kV metering point with provision for main and check meters in the pooling substation and is as per the registered PDD. The values in the CER calculation sheet are confirmed with the JMR sheets, further they have been cross-checked with the invoices (sales receipt) and no inaccuracies are observed.</p> <p>However, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR</p>	Pending closure of the CAR D1	OK CAR D1 closed

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>and descriptions of the CARs raised.</i>		<p>Template hence CAR D1 has been raised</p> <p><i>Verifier's action:</i> Evidence JMR sheets are authentic and are cross-checked with the sales receipt. Also the MR, ER sheet and the calibration certificates have been checked. However pending closure of the CAR D1</p> <p><i>Conclusion:</i> The value provided is not correct and pending closure of the CAR D1</p>		
D.2.4. E Controller Export		Description: Transmission loss between the metering point for the project activity and the metering point at Substation where bulk metering is done.		
<p>a) Measurement / Determination method (EB 65 Annex 4, § 233, 236)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /PPA/ /CAL/ /MR/ /JMR/ /INV/</p>	<p><i>Description:</i></p> <p>Transmission loss between metering location at 33 kV and the metering location at 110 kV (bulk meters) at the receiving substation is applied to the meter reading taken at meters connected at 33 kV point for the project activity. The transmission loss is applied by the state utility as reflected in the JMR taken at 33 kV.</p> <p>The measurement method is in line with the registered monitoring plan.</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore the CAR C1 has been raised.</p> <p>Moreover, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p>	Pending closure of the CAR C1 and CAR D1	<p>OK</p> <p>CAR C1 & CAR D1 closed</p>



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p><i>Verifier's action:</i> The MR, ER sheet has been checked. JMR, Invoices and the calibration certificate have also been cross checked. Further the registered MP and the PPA has been checked to check the approach.</p> <p><i>Conclusion:</i> The measurements of the transmission loss are in line with the registered monitoring plan. However pending CAR C1 and CAR D1.</p>		
<p>b) Accuracy and QA/QC Procedure (EB 65 Annex 4, §§ 237-241)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p>	<p>/CAL/ /PPA/ /ISO/ /XLS/ /MR/ /JMR/ /INV/</p>	<p><i>Description:</i> The total transmission loss is calculated based on the metered values of export and import. These readings become the basis of making Form B, which is signed by the representatives of Enercon and State Utility. Transmission loss between metering point for the project activity and the metering point at the Substation at Harthi Village is applied to the meter reading taken at the feeder connecting 08 turbines of the project activity. Thus no inaccuracies were observed.</p> <p>The O&M contractor (Enercon) is ISO certified and has proper QA/QC procedures for data handling and storage. The JMR sheets are prepared jointly by HESCOM and Enercon officials, and further a copy is available with the O&M contractor.</p> <p>The meters (bulk meters) should be calibrated annually by HESCOM which is a Government body and is authorized for the same.</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore the CAR C1 has been raised.</p>	<p>Pending closure of the CAR C1 and CAR D1</p>	<p>OK CAR C1 & CAR D1 closed</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>Moreover, during the desk review it was found that the Row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p> <p><i>Verifier's action:</i> The MR, ER sheet has been checked. JMR, Invoices and the calibration certificate have also been cross checked. Further the ISO certificate, registered MP and the PPA has been checked to check the approach.</p> <p><i>Conclusion:</i> The measurements of the transmission loss are in line with the registered monitoring plan. However pending CAR C1 and CAR D1.</p>		
<p>c) Correctness (EB 65 Annex 4, §§ 233, 236)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>	<p>/CAL/ /XLS/ /MR/ /JMR/ /INV/</p>	<p><input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct (initial assessment)</p> <p><i>Description:</i> The transmission loss is calculated with the procedures as given in the PPA which is in line with revised approved monitoring plan.</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore the CAR C1 has been raised.</p> <p>However, during the desk review it was found that the row for "Source of data" in D.1 of the MR is not in line with the MR Template hence CAR D1 has been raised</p>	<p>Pending closure of the CAR C1 and CAR D1</p>	<p>OK CAR C1 & CAR D1 closed</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p><i>Verifier's action:</i> The MR, ER sheet has been checked. JMR and the calibration certificate have also been cross checked. Further the registered MP and the PPA has been checked to check the approach.</p> <p><i>Conclusion:</i> The measurements of the transmission loss are in line with the registered monitoring plan. However pending CAR C1 and CAR D1.</p>		
E. Calculation of Emission reductions				
<p>E.1. Traceability (EB 65 Annex 4, §§ 212, 214)</p> <p><i>Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spreadsheet shall be used. All applied formulae must be visible.</i></p>	<p>/XLS/ /JMR/ /CAL/ /PDD/</p>	<p><i>Description:</i> The calculation approach is traceable as per the approach in the registered monitoring plan. All the formulae are visible and traceable.</p> <p><i>Verifier's action:</i> The ER sheet has been checked with the JMR and the calibration certificates have also been cross checked. Further the registered MP has been checked to check the approach.</p> <p><i>Conclusion:</i> The values provided for all the parameters in the excel sheet are traceable.</p>	OK	OK
<p>E.2. Parameter consistency (EB 65 Annex 4, § 214)</p> <p><i>Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation</i></p>	<p>/XLS/ /MR/ /PDD/</p>	<p><i>Description:</i> The external parameter used is the grid emission factor which has been fixed ex ante, while the internal parameters are monitored and are applied consistently. Notations for all parameters in the PDD, MR and calculation spreadsheet are</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>spreadsheet?</p> <p>Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). Further ensure the consistency of notations for all parameters in the PDD, MR, calculation spreadsheet.</p>		<p>applied consistently.</p> <p>Verifier's action: The registered PDD, MR and the excel sheet have been checked by the VT.</p> <p>Conclusion: The values used are consistent in the MR and the Emission reduction sheet. The notations used are also consistent.</p>		
<p>E.3. Correctness of calculation (EB 65 Annex 1, §§ 235-236)</p> <p>Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and / or the approved methodology.</p> <p>Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.</p> <p>Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.</p>	<p>/XLS/ /MR/ /PDD/</p>	<p>Description:</p> <p>The applied formulae and methods for calculating baseline emissions are as per the Monitoring plan. Further project emissions and leakage are zero as per the registered PDD.</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore the CAR C1 has been raised.</p> <p>Verifier's action: The registered PDD, MR and the Emission reduction sheet has been checked by the verification team. Further calibration certificates have been checked.</p> <p>Conclusion: The project emissions and leakage are zero in this project activity. However the value for the baseline emission is not correct. Thus CAR C1 has been raised and is pending for the closure.</p>	<p>Pending closure of the CAR C1</p>	<p>OK CAR C1 closed</p>
<p>E.4. Emission reductions table</p>	<p>/MR/</p>	<p><input checked="" type="checkbox"/> The MR includes in section E.4 a summary table of the</p>	<p>Pending closure</p>	<p>OK CAR</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>(EB 66 Annex 20, E.4)</p> <p>Check if the MR includes a summary table of the emission reductions calculation specifying separately</p> <ul style="list-style-type: none"> - Total baseline emissions - Total project emissions: - Total leakage - Total emission reductions. <p>Assess whether the values are correct or need to be revised as a consequence of issues identified above.</p>	/XLS/	<p>emission reductions calculation.</p> <p><input checked="" type="checkbox"/> The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately.</p> <p><input type="checkbox"/> The values as specified in the ER summary table are correct; no issues have been identified during the verification which requires changes in the ER calculation.</p> <p><input checked="" type="checkbox"/> During the verification issues with impact on the ER calculation have been identified. Thus subject to the closure of above listed findings the summary table in E.4 needs to be revised.</p> <p>In this context the following additional findings have been identified:</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore the CAR C1 has been raised.</p>	of the CAR C1	C1 closed
<p>E.5. Comparison with ex-ante determined emission reductions</p> <p>(EB 66 Annex 20, E.5; E.6)</p> <p>Check if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.</p> <p>Check further whether in case of an increase an appropriate explanation is included in the MR.</p>	/XLS/ /MR/ /PDD/	<p><i>Description:</i></p> <p>The MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.</p> <p>However the calibration of the bulk meter is not in accordance with the PDD on which the transmission loss is based, therefore the CAR C1 has been raised.</p> <p>The comparison of actual emission reductions with estimates in registered PDD is not correct. Hence CAR E1 has been raised.</p>	Pending closure of the CAR C1, CAR E1 and E2.	OK CAR C1, CAR E1 & CAR E2 closed

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Assess in case of a significant increase whether this is due to technical or organisational changes within or outside the control of the PP which might require a notification / approval of changes (as per EB 48 Annex 66/67).</i>		<p>Moreover, the actual value of emission reductions achieved during this monitoring period is higher than the estimated value in the PDD. Thus the justification provided in the MR section E.6 is inappropriate.</p> <p><i>Verifier's action:</i></p> <p>The registered PDD, MR and the Emission reduction sheet has been checked by the verification team and found the CAR C1, E1 and CAR E2.</p> <p><i>Conclusion:</i> The actual values achieved during this monitoring period are not correct. Closure of the CAR C1, CAR E1 and CAR E2 are pending.</p>		



ANNEX 2: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL

TÜV NORD
Certification

Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Jimmy Sah

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor	2014-02-03
VCS	Lead Assessor	2014-02-03

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies

091 – Rev. 1, Date: 2011-07-27

091_501-F003_2011-07-27_rev1 501-F003 rev3 / 2010-04-19

TÜV NORD
Certification

Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Ms. Richa Thakur

SCHEME	STATUS	VALID UNTIL
CDM	Trainee	
VCS / ISO 14064-2	Trainee	

273 – Rev. 0, Date: 2012-04-13

273_501-F003_2012-04-13_rev0.doc 501-F003 rev2 / 2012-04-05

TÜV NORD
Certification

Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2014-06-30
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2014-06-30

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal energy generation	
1.2	Renewable Energy	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Total
2.2	Heat distribution	
3.1	Energy demand	
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management
13.2	Animal waste management	
15.2	Animal waste management	

163 – Rev. 2, Date: 2011-08-10

163_501-F003_2011-08-10_rev2 501-F003 rev4 / 2011-08-02



Statement of Competence

Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. Tahsin Choudhury

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable Energies	
8.2	Oil and Gas Industry	
10.2	Oil and Gas Industry	

281 – Rev. 0, Date: 2011-10-10

281_2014-03_2011-10-10_rnd

SDI-F003 rev1 / 2011-08-02