



VERIFICATION REPORT ENERCON (INDIA) LIMITED

VERIFICATION OF THE 20 MW ENERCON WIND FARMS (SAI) PVT. LIMITED IN MAHARASHTRA

REPORT NO.BVC/INDIA -VR/576.49/2013

REVISION No. 01

BUREAU VERITAS CERTIFICATION

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VERIFICATION REPORT

Date of first issue: 24/04/2013	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Enercon (India) Limited	Client ref.: Mr. Yogesh Mehra

Summary:

Bureau Veritas Certification has conducted the 3rd periodic verification of 20 MW Enercon Wind farms (SAI) Pvt. Limited in Maharashtra, CDM Registration Reference Number 3854, owned by Enercon (India) Limited, which is located at Panchpatta site in Ahmednagar district of Maharashtra State in India, and applying the methodology ACM0002 version 11, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.


The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions, and consisted of the following three phases: i) desk review of the project design, the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in the validated and registered project design documents. Installed equipments being essential for generating emission reduction run reliably and are calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

The GHG emission reductions are calculated without material misstatements, and the emission reductions verified totalize 27,554 tons of CO₂e for the monitoring period.

Our opinion relates to the projects' GHG emissions and resulting GHG emission reductions reported and related to the valid and registered project baseline, approved monitoring plan and its associated documents.

Reporting period: 01/04/2012 to 31/12/2012
 Baseline emissions: 27,554 t CO₂ equivalents.
 Project emissions: 0 t CO₂ equivalents.
 Leakage emissions: 0 t CO₂ equivalents.
 Emission Reductions: 27,554 t CO₂ equivalents.

Report No.: BVC-India /VR/576.49/2013	Subject Group: CDM
Project title: 20 MW Enercon Wind farms (SAI) Pvt. Limited in Maharashtra	
Work carried out by: Mr. Anurag Juyal - Team Leader Mr. Pramod Kamble - Team Member	
Internal Technical Review carried out by:  Mr. Sanjay Patankar- Local Product Manager	
Date of this revision: 08/05/2013	Rev. No.: 01
Number of pages: 55	

Indexing terms**Work approved by:**

Mr. Matthieu Martini

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DRR	Daily Reading Record
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Green House Gas(es)
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
MRR	Monthly Reading Record
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
WEC	Wind Energy Converter



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1. INTRODUCTION

Enercon (India) Limited has commissioned Bureau Veritas Certification to verify the emissions reductions of its CDM project “**20 MW Enercon Wind farms (SAI) Pvt. Limited in Maharashtra**” (hereafter called “**the Project**”) at Panchpatta site in Ahmednagar district of Maharashtra State in India.

This report summarizes the findings of the verification of the Project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1. Objective

The objective of CDM verification is to conduct a thorough, independent assessment of the registered project activities.

In carrying out its verification work, the DOE shall ensure that the project activity complies with the requirements of paragraph 62 of the CDM modalities and procedures. In particular, this assessment shall:

- (a) Ensure that the project activity has been implemented and operated as per the registered PDD or any approved revised PDD, and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- (b) Ensure that the monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of CERs, verifiable, and in accordance with applicable CDM requirements;
- (c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan or any revised approved monitoring plan, and the approved methodology including applicable tool(s);
- (d) Evaluate the data recorded and stored as per the monitoring methodology including applicable tool(s).

1.2. Scope

The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions. The verification is based on the validated and registered project design document, the monitoring report, emission reduction calculation spreadsheet, and supporting documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The verification is not meant to provide any consulting service towards the PPs. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.



1.3. GHG Project Description

The Project consists of installation of 25 WECs with a unit installed capacity of 800 kW, providing a total installed capacity of 20 MW. The annual expected electricity supplied to western regional grid is 36,792 MWh (approx) and the annual estimated emission reductions are **33348 tCO₂e**.

Project title:	20 MW Enercon Wind farms (SAI) Pvt. Limited in Maharashtra
UNFCCC ref number:	3854
Registration Date:	14/12/2010
Crediting Period:	14/12/2010 to 13/12/2020 (fixed)
Monitoring Period:	01/04/2012 to 31/12/2012
Project Participants:	Enercon (India) Limited
Methodology used	ACM0002 version 11
Location of the Project:	Panchpatta site in Ahmednagar district of Maharashtra State in India.
UNFCCC view page:	https://cdm.unfccc.int/Projects/DB/DNV-CUK1279516994.31/view

Post registration changes

A request for approval of permanent change from the registered monitoring plan as described in the registered PDD has been submitted prior to the submission of the request for issuance and approved by the Board on 02/01/2013.

The revision in monitoring plan was done to change the accuracy class of energy meters from 0.5 (as specified in the registered PDD) to 0.2 to make the information consistent as per actual implementation.

The details regarding the post-registration changes can be found in the verification report for the second monitoring period.

Geo coordinates of the WECs are specified in the revised MR. The project activity involves supply, erection, commissioning and operation of 25 WECs of rated capacity 800 kW each. The machines are Enercon E-48 make. The WECs generates 3-phase power at 400V, which is stepped up to 33 KV. The project activity can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V \pm 12.5%. The electricity generated by the project activity is supplied to the Maharashtra State Electricity Distribution Company Limited ("MSEDCL") under a long-term power purchase agreement (PPA).

The verification team confirms that there have been no modifications or alterations to the project activity during this monitoring period.

1.4. Verification Team

The assessment team and internal technical reviewer team consist of the following personnel:

FUNCTION	NAME	TA 1.2	TA X.X	TASK PERFORMED*
Team Leader	Mr. Anurag Juyal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Team Member	Mr. Pramod Kamble	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR



Technical Specialist	N.A.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Internal Technical Reviewer (ITR)	Mr. Sanjay Patankar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input checked="" type="checkbox"/> TR
Specialist supporting ITR	N.A.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input checked="" type="checkbox"/> TR
Report approval	Mr. Matthieu Martini	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI <input type="checkbox"/> TR

*DR = Document Review; SV = Site Visit; RI = Report issuance; TR = Internal Technical Review

2. METHODOLOGY

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a verification protocol was customized for the project, according to the version 03.0 of the Clean Development Mechanism Validation and Verification Standard, issued by CDM Executive Board at its 70th meeting on 23/11/2012. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed verification protocol is enclosed in Appendix A to this report.

2.1. Review of Documents

The assessment of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report (MR) version 06 dated 06/05/2013 and emission reduction calculation spreadsheet. Qualitative information comprises information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.

The monitoring report version 02 submitted by the project participant was also web hosted on the UNFCCC-CDM web site on 13/02/2013 and thus, was available in the public domain.

In addition to the monitoring documentation provided by the project participants, the DOE reviews:

- (a) The registered PDD (/1/) and the monitoring plan and approved revised PDD(/2/)
- (b) The validation report (/3/)
- (c) The verification report of the first monitoring period (/4/)
- (d) The verification report of the second monitoring period (/5/)
- (e) The applied monitoring methodology(/6/)
- (f) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board

- (g) Other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, laboratory analysis or national regulations)

2.2. Follow-up Interviews

On 11/03/2013 and 12/03/2013, Bureau Veritas Certification performed a site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Enercon (India) Limited (Project Owner) were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Enercon (India) Limited (the Project Owner)	<ul style="list-style-type: none"> ➤ Project Design and implementation ➤ Technical equipment, calibration and operation ➤ Monitoring Plan and management procedures ➤ Monitoring data ➤ Data uncertainty and residual risks (QA/QC) ➤ GHG Calculation ➤ Environmental Impacts ➤ Compliance with National Laws and Regulations

2.3. Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to resolve issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions prior to Bureau Veritas Certification's positive conclusion on the GHG emission reduction calculation.

Findings established 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.

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

- (a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- (d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

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



A Forward Action Request (FAR) is raised, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4. Internal Technical Review

The verification report underwent an Internal Technical Review (ITR) before requesting issuance of CERs for the project activity.

The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal Bureau Veritas Certification procedures.

The Team Leader provides a copy of the verification report to the reviewer, including any necessary verification documentation. The reviewer reviews the submitted documentation for conformance with the verification scheme. This will be a comprehensive review of all documentation generated during the verification process.

When performing an Internal Technical Review, the reviewer ensures that:

- The verification activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the verification exercise, review of sample documents.

The reviewer may raise Clarification Requests to the verification team and discusses these matters with Team Leader.

After the agreement of the responses on the Clarification Requests from the verification team as well as the PP(s), the finalized verification report is accepted for further processing such as uploading via the UNFCCC interface.

3. VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in **03 CAR(s), 03 CL(s) and 00 FAR(s)**.



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The CARs, CLs and FARs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the VVS paragraph.

3.1. Remaining issues from validation or previous verification (213)

All CARs and CLs raised were successfully closed during the validation stage and previous verification of the Project, no remaining issues were left.

3.2. Compliance of the project implementation with the registered project design document (228)

From the site visit performed, the verification team is able to conclude that all the twenty five Wind Energy Convertors (WECs) each of capacity 800 kW as stated in the registered PDD have been commissioned and are in operation. The WECs are located at Panchpatta site in Ahmednagar district of Maharashtra State in India. The total installed capacity of the project activity is 20 MW (25 nos. × 800 kW). All the equipments as described in the registered PDD (/1/) have been installed at the project site and the project activity does not involve any phase wise implementation. The electricity exported to the grid is recorded through controller meters installed at each WEC.

Apart from the recording at the WEC end, electricity export and import from all the WECs in the wind farm (including non-PP WECs) is also recorded at the grid-interconnection point or Enercon substation¹ for the purpose of calculation of transmission loss.

The WEC location nos., Unique Identification nos. (UID) and the commissioning dates are tabulated below:

Sr. No.	Location nos.	Unique Identification nos.	Capacity (MW)	DOC
1	523	EWFSPL -01	0.8	17/03/2009
2	524	EWFSPL -02	0.8	26/02/2009
3	525	EWFSPL -03	0.8	26/02/2009
4	526	EWFSPL -04	0.8	11/02/2009
5	527	EWFSPL -05	0.8	11/02/2009
6	79	EWFSPL -06	0.8	22/05/2008
7	529	EWFSPL -07	0.8	26/02/2009
8	530	EWFSPL -08	0.8	17/03/2009
9	504	EWFSPL -09	0.8	17/03/2009
10	506	EWFSPL -10	0.8	26/02/2009

¹ This metering happens at 33 kV at the Enercon substation and is referred further in the report as metering at substation. The WECs owned by the PP are connected to four different feeders and therefore the substation metering for the project activity happens at four sets of main and check meters installed at the substation. The details are provided in Appendix 1 of MR.



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11	507	EWFSPL -11	0.8	11/02/2009
12	521	EWFSPL -12	0.8	4/12/2008
13	510	EWFSPL -13	0.8	4/12/2008
14	512	EWFSPL -14	0.8	4/12/2008
15	513	EWFSPL -15	0.8	13/09/2008
16	514	EWFSPL -16	0.8	13/09/2008
17	35	EWFSPL -17	0.8	28/02/2007
18	36	EWFSPL -18	0.8	28/02/2007
19	37	EWFSPL -19	0.8	28/02/2007
20	38	EWFSPL -20	0.8	28/02/2007
21	39	EWFSPL -21	0.8	28/02/2007
22	516	EWFSPL -22	0.8	13/09/2008
23	517	EWFSPL -23	0.8	24/09/2008
24	518	EWFSPL -24	0.8	4/12/2008
25	519	EWFSPL -25	0.8	4/12/2008

The verification team based on the physical verification of site and documentary evidence is able to confirm and conclude that:

- There is no change in the effective output capacity due to increased installed capacity or increased number of units, or installation of units with lower capacity or units with a technology which is less advanced than that described in the PDD.
- There is no addition of component or extension of technology.
- There is no removal or addition of one (or more) site of a project activity registered with multiple-sites.

The verification team also confirms that there has not been any change in the values of the actual operational parameters during the current monitoring period.

The meter numbers and the calibration details are crosschecked by the calibration certificates submitted to the DOE (/7/).

The details of controller meters installed at each WEC are as follows:-

Sr. No	Meter Serial No.	Make	Calibration entity	Last dates of calibration before monitoring period	Latest calibration date	Due Date of Calibration
1	01183959	ELSTER	YMPL	22/10/2011	22/02/2013	21/02/2014
2	01215610	ELSTER	YMPL	22/10/2011	22/02/2013	21/02/2014
3	475537	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
4	475553	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
5	475728	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
6	475533	NZR	YMPL	21/10/2011	21/02/2013	20/02/2014
7	01184004	ELSTER	YMPL	22/10/2011	22/02/2013	21/02/2014



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8	01215541	ELSTER	YMPL	22/10/2011	22/02/2013	21/02/2014
9	01215571	ELSTER	YMPL	22/10/2011	22/02/2013	21/02/2014
10	01215575	ELSTER	YMPL	22/10/2011	22/02/2013	21/02/2014
11	475489	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
12	475521	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
13	475523	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
14	475541	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
15	475750	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
16	475543	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
17	475519	NZR	YMPL	21/10/2011	21/02/2013	20/02/2014
18	475094	NZR	YMPL	21/10/2011	21/02/2013	20/02/2014
19	475558	NZR	YMPL	21/10/2011	21/02/2013	20/02/2014
20	475560	NZR	YMPL	21/10/2011	21/02/2013	20/02/2014
21	475095	NZR	YMPL	21/10/2011	21/02/2013	20/02/2014
22	475545	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
23	475294	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
24	475536	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014
25	475709	NZR	YMPL	22/10/2011	22/02/2013	21/02/2014

The details of meters installed at Enercon sub-station is as follows:-

Feeder No	Meter type	Meter Serial No.	Make	Accuracy class	Last dates of calibration before monitoring period	Latest Calibration date	Due Date of Calibration
2	Main meter	14831534	Elster	0.2	14/6/2011	20/06/2012 & 29/10/2012	28/10/2013
	Check meter	14831528	Elster	0.2	14/6/2011	20/06/2012 & 01/08/2012	31/07/2013
3	Main meter	14831529	Elster	0.2	14/6/2011	20/06/2012 & 1/8/2012	31/07/2013
	Check meter	14831530	Elster	0.2	14/6/2011	20/06/2012 & 1/8/2012	31/07/2013
4	Main meter	14831520	Elster	0.2	14/6/2011	20/06/2012 & 29/10/2012	28/10/2013
	Check meter	14831521	Elster	0.2	14/6/2011	20/06/2012 & 31/07/2012	30/07/2013
6	Main meter	14831533	Elster	0.2	14/6/2011	20/06/2012 & 29/10/2012	28/10/2013



	Check meter	14831535	Elster	0.2	14/6/2011	20/06/2012 & 29/10/2012	28/10/2013
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The verification team also reviewed the Monitoring report version 6 (/8/) and confirms that the information provided in the Monitoring report is in accordance with that stated in the approved revised PDD.

[Management and Operation]

The PP has operated the Project as per the registered PDD. The monitoring organization has been set up and all monitoring staffs have been trained. Meter reading records of all the meters are based on continuously measurement and monthly recorded by the PP. The grid company issues the Monthly statement to the PP every month to confirm the electricity exported to and imported from the grid.

✌ Corresponding to the paragraph 228 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- The implementation of the Project is consistent with the approved revised PDD.
- The Project is operated as per the approved revised PDD by the PP.

3.3. Compliance of the monitoring plan with the monitoring methodology including applicable tool(s) (232)

The verification team has verified the monitoring plan, including the data and parameters required to be monitored, measurement procedures, monitoring frequency and QC/QA procedures as described in the registered PDD.

The project activity is registered with methodology ACM0002 version 11 (/6/) according to which the net electricity supplied to the Grid by the renewable energy technology i.e. electricity exported by the project activity to the Grid and the electricity imported from the grid is to be monitored and measured. Accordingly, the monitoring plan of the registered PDD indicates that the net electricity supplied to the Grid by the project activity (EG_y) is calculated as the difference between Electricity exported to the grid by the project activity (EG_{Export}) and Electricity imported from the grid to the project activity (EG_{Import}).

The electricity generation is monitored through controller meter installed at each WEC as well as the energy meters (main and check) installed at the substation. The energy meters installed at the substation are with an accuracy class of 0.2.

The grid emission factor (**0.90641** tCO₂/MWh) has been fixed ex-ante for the entire crediting period in the registered PDD.

Hence the verification team concluded that no deviation request or revision request is required for the current monitoring period.

✌ Corresponding to the paragraph 232 of VVS version 03.0, Bureau Veritas Certification can confirm that the monitoring plan is in accordance with the approved methodology including applicable tool(s) applied by the Project.



3.4. Compliance of monitoring activities with the monitoring plan (235-236)

Monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

[Parameters and information flow]

The parameters required by the monitoring plan and how Bureau Veritas Certification has verified the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the values in the monitoring report are described below:

Parameters monitored:

Sr. no.	Parameter	Data information flow
(1)	Summation of $EG_{gross, y}$ is the electricity generated from individual wind turbines other than the project activity connected to common MSEDCL meter measured through its panel (M) $\sum EG_{gross, y}$ $y=0$	<p>The verification team noted that the value of electricity generation from non-project WECs is archived from central monitoring station that collects data from the WEC controller.</p> <p>The controller meter measures the electricity generation of the WEC on a continuous basis and is recorded at the Central monitoring station.</p> <p><i>Based on the above, the verification team concludes that the monitoring of electricity generated from non-project activity WECs is in line with the provision described in the monitoring plan.</i></p>
(2)	Summation of $EG_{gross, y}$ is the electricity generated from wind turbines of the project activity measured through its panel (N) $\sum EG_{gross, y}$ $y=0$	<p>The verification team noted that the value of electricity generation from project WECs is archived from central monitoring station that collects data from the WEC controller.</p> <p>The controller meter measures the electricity generation of the WEC on a continuous basis and is recorded at the Central monitoring station.</p> <p><i>Based on the above, the verification team concludes that the monitoring of electricity generated from project activity WECs is in line with the provision described in the monitoring plan.</i></p>
(3)	Electricity Import recorded at main meters connected to the feeders at the MSEDCL substation ($EG_{JMR, Import}$)	<p>The verification team noted that the electricity imported from the grid (by both project activity and non-project activity) is recorded through Single billing electronic meters connected to different feeders.</p> <p>The electronic tri-vector meters (main and check) measures the electricity imported from the grid on a continuous basis and is recorded by state utility on monthly basis.</p> <p>The parameter energy imported from the grid ($EG_{JMR, Import}$) is measured on a continuous basis and is recorded on a</p>



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		<p>monthly basis and signed jointly by the personnel of MSEDCL and EIL.</p> <p>The same value is reflected in the "<u>Monthly credit note</u>" issued by Maharashtra State Electricity Distribution Company Limited (State Utility).</p> <p>The verification team has cross-checked and verified the monthly credit notes (/9/) of all the feeders for all the months during the entire monitoring period.</p> <p>Since monthly credit notes are the certificate issued by the state utility viz. Maharashtra State Electricity Distribution Company Limited hence the same is considered as authentic and reliable.</p> <p><i>Based on the above, the verification team concludes that the monitoring of electricity imported from the grid is in line with the provision described in the monitoring plan.</i></p>
(4)	Electricity Export recorded at main meters connected to the feeders at the MSEDCL substation (EG_{JMR,Export})	<p>The verification team noted that the electricity exported to the grid (by both project activity and non-project activity) is recorded through Single billing electronic meters connected to different feeders.</p> <p>The electronic tri-vector meters (main and check) measures the electricity exported to the grid on a continuous basis and is recorded by state utility on monthly basis.</p> <p>The parameter energy exported to the grid (EG_{JMR, Export}) is measured on a continuous basis and is recorded on a monthly basis and signed jointly by the personnel of MSEDCL and EIL.</p> <p>The same value is reflected in the "<u>Monthly credit note</u>" issued by Maharashtra State Electricity Distribution Company Limited (State Utility).</p> <p>The verification team has cross-checked and verified the monthly credit notes (/9/) of all the feeders for all the months during the entire monitoring period.</p> <p>Since monthly credit notes are the certificate issued by the state utility viz. Maharashtra State Electricity Distribution Company Limited hence the same is considered as authentic and reliable.</p> <p><i>Based on the above, the verification team concludes that the monitoring of electricity exported to the grid is in line with the provision described in the monitoring plan.</i></p>
(5)	Electricity Import by the project activity	<p>Based on the monitored parameters as described above, the electricity imported from the grid is calculated as per the</p>



	from the grid(EG_{Import})	<p>following formula by the state utility:</p> $EG_{Import} = \frac{EG_{MR, import} \times \sum_{y=0}^n EG_{gross, y}}{(\sum_{y=0}^n EG_{gross, y} + \sum_{y=0}^m EG_{gross, y})}$ <p>The same value is reflected in the “<u>Monthly credit note</u>” issued by Maharashtra State Electricity Distribution Company Limited (State Utility).</p> <p>The verification team has cross-checked and verified the monthly credit notes (/9/) of all the feeders for all the months during the entire monitoring period.</p> <p>Since monthly credit notes are the certificate issued by the state utility viz. Maharashtra State Electricity Distribution Company Limited hence the same is considered as authentic and reliable.</p> <p><i>Based on the above, the verification team concludes that the monitoring of electricity imported from the grid by the project activity is in line with the provision described in the monitoring plan.</i></p>
(6)	Electricity exported by the project activity to grid(EG_{Export})	<p>Based on the monitored parameters as described above, the electricity exported to the grid is calculated as per the following formula by the state utility:</p> $EG_{Export} = \frac{EG_{MR, export} \times \sum_{y=0}^n EG_{gross, y}}{(\sum_{y=0}^n EG_{gross, y} + \sum_{y=0}^m EG_{gross, y})}$ <p>The same value is reflected in the “<u>Monthly credit note</u>” issued by Maharashtra State Electricity Distribution Company Limited (State Utility).</p> <p>The verification team has cross-checked and verified the monthly credit notes (/9/) of all the feeders for all the months during the entire monitoring period.</p> <p>Since monthly credit notes are the certificate issued by the state utility viz. Maharashtra State Electricity Distribution Company Limited hence the same is considered as authentic and reliable.</p> <p><i>Based on the above, the verification team concludes that the monitoring of electricity exported to the grid by the project activity is in line with the provision described in the monitoring plan.</i></p>
(7)	Net electricity supplied to the grid by	Based on the monitored parameters as described above, the net electricity supplied to the grid is calculated as:



	<i>the machines of the Project (EG_y)</i>	$EG_y = EG_{Export} - EG_{Import}$
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Parameters determined ex-ante:

(1) **$EF_{CM,y}$** - Combined Margin Emission Factor of Western Regional Electricity Grid

The emission factor of the Project has been determined ex-ante in the registered PDD. The emission factor used in the monitoring report has been verified against the PDD and found them to be consistent.

✌ Corresponding to the paragraph 235 and 236 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.
- All parameters required by the monitoring plan have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified by checking the whole information flow.

3.5. Compliance with the calibration frequency requirements for measuring instruments (243)

Details of calibration frequency of measuring equipment

<i>Baseline emission parameters</i>		
Sr. no.	Parameter	Details
(1)	<i>Net electricity supplied to the grid by the machines of the Project (EG_y)</i>	<p><u>Monitoring equipment</u> – (or energy meters) installed on each feeder (at the Enercon sub-station) which are used to measure the net electricity exported to the grid are of 0.2 accuracy class and are under the control of the state electricity utility.</p> <p><u>Calibration frequency</u> – All the energy meters have been calibrated and details of calibration of all the energy meters for the entire monitoring period has been included in section C of the monitoring report. The verification team has cross-checked the records of calibration (/7/) of all the energy meters for the entire monitoring period and found them to be appropriate.</p> <p>From reviewing each of the calibration certificates, the verification team was able to confirm that test results for all the energy meters are satisfactory and that the meters have operated within the permissible error limit.</p> <p><i>The procedure followed in case of delay in meter calibration is described below.</i></p>



Hence, in line with the above the verification team confirms that the calibration frequency has been carried out in accordance with the national standards and EB guidance.

[Calibration frequency]

The calibration frequency fulfills the requirement as described in the monitoring plan and is in compliance with the national standard /10/.

During the site visit, while reviewing the meter details of all the feeders, the verification team noted that the energy meters for following feeders were changed. The details are provided below:

<i>Feeder no.</i>	<i>Meter type</i>	<i>Old meter number</i>	<i>New meter number</i>	<i>Meter change date</i>	<i>Reason for meter change</i>
2	Main	4862979	14831534	29/10/2012	Display Hang
	Check	4961781	14831528	01/08/2012	Display Hang
3	Main	4862986	14831529	01/08/2012	Display Hang
	Check	4862988	14831530	01/08/2012	Display Hang
4	Main	4862984	14831520	29/10/2012	Display Hang
	Check	5126137	14831521	31/07/2012	Display Hang
6	Main	4862987	14831533	29/10/2012	Display Hang
	Check	4862982	14831535	29/10/2012	Display Hang

It is identified that the calibration has been delayed during the monitoring period. A conservative approach is adopted in the calculation of emission reductions as follows:

Conservative approach to calculate the net electricity supplied has been followed in line with VVS version 03, Appendix 1 wherever applicable as follows:

<i>Measured Value</i>	<i>Parameter</i>	<i>Error identified during calibration</i>	<i>Corrected values</i>
X MWh	Electricity export	± 1%	X (1 -Max . permissible error%/100)
X MWh	Electricity import	± 1%	X (1+Max . permissible error%/100)



As per the calibration records available after the delayed calibration, the energy meters were found to be within maximum permissible error and hence for the above procedure the maximum permissible error of energy meters viz. 0.2(for feeder meters) and 0.5(for controller meters) and was used. The verification team also raised CL 2 to address the issue of delayed calibration.

Separate sub-sheet has been included in the ER spreadsheet titled “*ER Calculation sheet*” which specifies the calculation applied for delayed calibration.

As a conservative approach, maximum permissible error of both controller meters and feeder meters have been applied for the entire duration of the monitoring period.

Corresponding to the paragraph 243 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- For calibration that has been delayed, the conservative approach is adopted in the calculation of emission reductions and deemed as appropriate.

3.6. Assessment of data and calculation of emission reductions (246)

A complete set of data for the specified monitoring period is available.

The critical parameter used for the determination of the Emission Reductions is the net electricity supplied to the grid by the Project. The data pertaining to the above parameter are maintained in the identified records. All the data are in compliance with that stated in the Monitoring Report version 6.

As per the methodology ACM0002 version 11 and the approved revised PDD, the emission reductions for the Project are calculated as the baseline emissions minus the project emissions and leakage. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y: Emission reductions

BE_y: Baseline emissions

PE_y: Project emissions

The data used for calculation of the GHG emission reductions are as follows:

- a) The net electricity exported to the grid by the project activity
- b) The Combined margin emission factor of western regional electricity grid

As per the monitoring plan of the registered PDD, the following complete data set was required for the specified monitoring period to calculate the GHG emission reductions resulting from the project activity-



Baseline emission	
Parameter	Source
<i>Net electricity supplied to the grid by the machines of the Project (EG_y)</i>	<p><u>Monthly credit notes showing the net electricity supplied by the wind mill</u></p> <p>All the monthly credit notes showing the electricity supplied by the project activity wind mills for the current monitoring period have been cross-checked by the verification team.</p> <p>The value in the credit note is aggregated to calculate the net electricity exported to the grid by the project activity.</p>

The verification team confirms that complete data set for all the above mentioned monitored parameters is available for the current monitoring period and hence any theoretical assumption or request for deviation was not required before submitting the request for issuance.

Cross check of information in monitoring report

The information in the monitoring report has been cross-checked through other documentary evidence as explained below:

Baseline emission	
Parameter	Cross-check Source
<i>Net electricity supplied to the grid by the machines of the Project (EG_y)</i>	The value of net electricity supplied to the grid as reflected in the monthly credit notes has been compared with the invoices submitted to MSEDCL (/11/).

Calculation procedure of baseline emissions, project emissions and leakage

	Calculation procedure
<i>Baseline emissions</i>	<p>Baseline emission calculations have been done in the monitoring report as per the following equation -</p> $BE_y = EG_y * EF_y$ <p>Where –</p> <p>BE_y – Baseline emissions</p> <p>EG_y – Net electricity supplied to the grid by the machines of the Project</p> <p>EF_{grid,CM,y} – Combined Margin Emission Factor of Western Regional Electricity Grid</p> <p>The above mentioned calculation procedure is in line with the procedure described in the registered PDD.</p>
<i>Project emissions</i>	Not applicable since there are no emissions attributed to the project activity outside the project boundary.
<i>Leakage</i>	Not applicable since there are no emissions attributed to the project activity



	outside the project boundary.
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The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed.

Emission factor and default values

Baseline emission factor of western regional grid - The emission factor taken for the calculation of baseline emissions (**0.90641** tCO₂/MWh) is determined ex-ante and fixed for the crediting period. The same is in line with the registered PDD.

The verification team confirms that the emission factor is in line with the requirement of the applied methodology and associated tools.

[Comparison of ERs]

The annual estimated emission reductions are 33,348 tCO₂e as per the registered PDD. The actual operation period of the Project in the monitoring period is 9 months. The corresponding estimate in the monitoring period are $(33348/12) \times (9) = 25011$ tCO₂e. The actual emission reductions are 10.17 % higher than the estimated value in the monitoring period.

The verification team noted that the selected monitoring period (01/04/2012 to 31/12/2012) considers the peak wind season i.e. from May-2012 to October-2012 i.e. six months out of total 9 months of monitoring period.

Further, when full year duration (12 months) is considered i.e. from Jan 2012 to December 2012, the amount of emission reduction is 32116 tCO₂e, which is less than the estimated value of 33348 tCO₂e for the same duration in the registered PDD. Hence the verification team concluded that higher generation for this monitoring period is only due to majority coverage of peak wind season, which covers a major duration of the monitoring period.



Corresponding to the paragraph 246 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- Data used for the determination of the emission reductions are available and monitored in accordance with the monitoring plan contained in the registered PDD.
- Information and data provided in the monitoring report have been cross-checked with other sources such as monthly credit notes, controller data, invoices and calibration records etc.
- Appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed.
- Assumptions, emission factors and default values that were applied in the calculations have been justified.



4. VERIFICATION OPINION

Bureau Veritas Certification has performed the 3rd periodic verification of “**20 MW Enercon Wind farms (SAI) Pvt. Limited in Maharashtra**” CDM Registration Reference Number **3854**, which is located at Panchpatta site in Ahmednagar district of Maharashtra State in India and applying the methodology ACM0002 version 11. The verification was performed based on the requirements set by the CDM and relevant guidance provided by CMP and the CDM Executive Board.


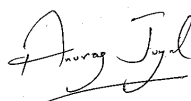
The verification consisted of the following three phases: i) desk review of the project design, the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of *Enercon (India) Limited* is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the project on the basis set out within the monitoring plan contained in the registered PDD. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification has verified the project Monitoring Report version 06 dated 06/05/2013 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as described in the validated and registered project design documents. Installed equipments being essential for generating emission reductions run reliably and are calibrated appropriately. The monitoring system is in place and the Project is generating GHG emission reductions as a CDM project.

Bureau Veritas Certification can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the projects' GHG emissions and resulting GHG emission reductions reported and related to the validated and registered project baseline, approved monitoring plan and its associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms the following statement:

Reporting period:	01/04/2012 to 31/12/2012
Baseline emissions:	27,554 t CO ₂ equivalents
Project emissions:	0 t CO ₂ equivalents
Leakage emissions:	0 t CO ₂ equivalents
Emission Reductions:	27,554 t CO ₂ equivalents

	
Mr. Sanjay Patankar	Mr. Anurag Juyal
Internal Technical Reviewer	Team Leader
08/05/2013	06/05/2013



5. REFERENCES

Documents reviewed:

/1/	Registered PDD version 04 dated 12/04/2010, UNFCCC ref no. 3854
/2/	Approved revised PDD version 05 dated 19/09/2012, UNFCCC ref no. 3854
/3/	Validation Report dated 30/06/2010
/4/	Verification report dated 17/01/2012
/5/	Verification report dated 25/08/2012
/6/	ACM0002 / version 11 " <i>Consolidated baseline methodology for grid-connected electricity generation from renewable sources</i> "
/7/	Calibration certificates of all the energy meters for the year 2011 and 2012.
/8/	Monitoring Report version 06, dated 06/05/2013
/9/	Monthly credit notes showing the energy supplied by the wind mill issued by MSEDCL for the entire monitoring period
/10/	CEA metering regulations
/11/	Invoices submitted to MSEDCL for the entire monitoring period

Persons interviewed:

	Enercon (India)Limited	
/1/	Mr. Bhupendra Verma	
/2/	Mr. Bapun Mishra	
/3/	Mr. Ulkesh	
/4/	Ms. Mallika Bose	



6. CURRICULA VITAE OF THE DOE'S VERIFICATION TEAM MEMBERS

Mr. Anurag Juyal	Bureau Veritas Certification, India	<p>Team Leader, Climate Change Lead Verifier</p> <p>Mr. Anurag Juyal is a Post-graduate in Energy Systems with more than 5 years of experience in the field of climate change services. He is working in Bureau Veritas Certification (India) Pvt. Ltd. as Lead Verifier-Climate Change. Prior to joining Bureau Veritas, he worked on GS/CDM/VCS projects as a consultant. He has received extensive training in CDM validation and verification processes and participated in assessment of CDM projects.</p>
Mr. Pramod Kamble	Bureau Veritas Certification, India	<p>Team Member, Climate Change Lead Verifier</p> <p>Graduate in Chemical Engineering from Mumbai University (MUICT). He has prior experience in CDM, VCS and CCX projects development. He has undergone intensive training on Clean Development Mechanism and completed CDM Verifier/Lead Verifier training course. He has hands on experience in carrying out energy audits for energy industries and buildings. At present he is involved in the Validation/verification of CDM and VCS projects.</p>
Mr. Sanjay Patankar	Bureau Veritas Certification, India	<p>Technical Reviewer, Climate Change Local Product Manager</p> <p>Educational qualifications: B.E. (Mech.) M.E. (Mech.) He has over 20 years of experience in engineering manufacturing industry covering various functions like enterprise management, product design, engineering, tool & die design, improvements in the production shop, quality assurance & control and systems planning and implementation, including ISO 9001 based quality management systems. Working for the last 2 years in Bureau Veritas Certification (India) Pvt. Ltd. as Lead Auditor for ISO 9001, 14001 and OHSAS 18001 standards/specifications. Has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of CDM project activities.</p>

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APPENDIX A: CDM PROJECT VERIFICATION PROTOCOL (Rev 08)

Table 1 Verification requirements based on VVS version 03.0 (EB 70 Annex 3), PS version 02.1 (EB 70 Annex 2), PCP version 03.1 (EB 70 Annex 4), and Guidelines for completing the Monitoring Report Form version 03.1 (EB 70 Annex 11)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Part I Cover Page					
(a) Is the title of the project activity provided?	MR		Title of the project activity is provided as "20 MW Enercon Wind farms (SAI) Pvt. Limited in Maharashtra"	OK	
(b) Is the reference number of the project activity provided?	MR		The reference number of the project activity is provided as 3854	OK	
(c) Is the version number of the monitoring report indicated?	MR		The version number of the monitoring report is indicated as '2'.	OK	
(d) Is the completion date of the monitoring report provided in DD/MM/YYYY format?	MR		The completion date of the monitoring report is indicated as in DD/MM/YYYY format as 11/02/2013.	OK	
(e) Is the registration date of the project activity provided in DD/MM/YYYY format?	MR		Registration date of the project activity is indicated as '14/12/2010' which is in DD/MM/YYYY format.	OK	
(f) Are the monitoring period number and duration of this monitoring period (first and last days included in DD/MM/YYYY format) provided?	MR		Monitoring period number is provided as '3' and duration of this monitoring period is provided from 01/04/2012 to 31/12/2012 (first and last days included) which is in DD/MM/YYYY format.	OK	
(g) Are project participants indicated?	MR		The project participant is indicated as 'Enercon (India) Limited'.	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
(h) Is the host party(ies) indicated?	MR		The host party is indicated as Government of India	OK	
(i) Are the sectoral scope(s) and applied methodology(ies) indicated?	MR		The sectoral scope of the project activity is indicated as '01' and applied methodology as ACM0002 version 11.	OK	
(j) Is the estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD indicated?	MR		Estimated amount of GHG emissions reductions as per registered PDD for this monitoring period is indicated as 25,011 tCO _{2e}	OK	
(k) Are the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period indicated?	MR		Actual GHG emissions reductions achieved in this monitoring period is indicated as 27,554 tCO _{2e}	OK	
(l) Are the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012 indicated (if applicable)?	MR		The current monitoring period is restricted to 31/12/2012 and hence indicated GHG emission reductions are within specified date.	OK	
(m) Are the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards indicated (if applicable)?	MR		Not Applicable as monitoring period is restricted up to 31/12/2012.	OK	
Part II Monitoring Report					
A. Description of project activity					
A.1 Purpose and general description of project activity					

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
A.1.1 Is the description of the project activity to be presented in this section a brief summary of the detailed description given in the section B.1 Implementation status of the project activity?	MR		Monitoring report provides the brief description of project activity in section A.1. The detailed description about implementation status is given in section B.1 of the report.	OK	
A.1.2 Does this description include:					
A.1.2.1 Purpose of the project activity and the measures taken for GHG emission reductions or net anthropogenic GHG removals by sinks?	MR		Project activity is installation and operation of 20 MW wind power project in Ahmednagar district of Maharashtra state by Enercon (India) Limited. The project results in displacement of equivalent amount of power from fossil fuel fired power plants in the grid and thereby results in GHG emission reductions.	OK	
A.1.2.2 Brief description of the installed technology and equipments?	MR		The brief description of the installed technology and equipments is provided. The project activity consists of 25 WTGs of 800 kW totaling to 20 MW. The WTGs generate 3 phase power at 400V which is stepped up to 33 KV.	OK	
A.1.2.3 Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)?	MR		The MR provides the commissioning date of earliest WTG as 28/02/2007 and last WTG was commissioned on 17/03/2009. The expected operational life is 20 years. All the commissioning dates of 25 WTGs are provided in section B.1 of the MR by project participant.	OK	
A.1.2.4 Total GHG emission reductions or net anthropogenic GHG removals by sinks	MR		Total GHG emission reductions achieved in this monitoring period is stated as 27,554 tCO _{2e} .	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
achieved in this monitoring period?					
A.2 Location of project activity					
A.2.1 Is the information on the location of the project activity provided, including Host Party(ies), Region/State/Province, City/Town/Community, Physical/Geographical location etc.?	MR		The information on the location of host party is provided in the MR in section A.2. The host party is India. The project activity is located in the Ahmednagar district in the state of Maharashtra, Panchpatta site. Further the section A.2 also provides the Latitude and Longitude of each of the WTGs in project activity.	OK	
A.3 Parties and project participant(s)					
A.3.1 Is the Party(ies) and project participant(s) involved in the project activity listed in the provided table?	MR		The host country is stated as Government of India and project participant is mentioned as Enercon (India) Limited as a private entity. The details are mentioned in table provided in section A.3 of standard template of MR.	OK	
A.4 Reference of applied methodology					
A.4.1 Is the exact reference (number, title, version) of the methodology(ies) indicated?	MR		The title of the methodology ACM0002 is provided as "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". The version of applied methodology is 11.	OK	
A.4.2 Is the exact reference (number, title, version) of any tools and other methodologies to which the applied methodology(ies) refers indicated?	MR		Yes. All the tools referred by the applied methodology and applied in registered PDD are mentioned in correct manner in section A.4 of the Monitoring report.	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
A.5 Crediting period of project activity					
A.5.1 Are the type, start date and length of the crediting period corresponding to this monitoring period provided?	MR		The length of the crediting period as per registered PDD is 10 years which is fixed. The crediting period start date is 14/12/2010 and it ends on 13/12/2020.	OK	
B. Implementation of project activity					
B.1 Description of implemented registered project activity					
B.1.1 Is the description of the installed technology, technical processes and equipments provided, including diagrams where appropriate?	MR PS	191(a)	Description of installed technology i.e. 25 WTGs of 800 kW to generate total 20 MW of wind power is provided in section B.1 of the monitoring report. The technical diagrammatic representation of WTG components is also included by PP in MR.	OK	
B.1.2 Is the information on the implementation and actual operation of the project activity, including relevant dates (e.g. construction, commissioning, continued operation periods, etc.) provided?	PS	191(b)	Section B.1 provides the date of commissioning of all the 25 WTGs in project activity in tabular format. The first WTG in project activity was commissioned on 28/02/2007 and last WTG was commissioned on 17/03/2009.	OK	
B.1.3 Is the description of: (i) the events or situations that occurred during the monitoring period that may impact the applicability of the methodology (ii) how the issues resulting from these events or situations have been addressed provided?	PS	191(c)	During the monitoring period, there are no events that occurred and which may impact the applicability of the methodology. As a part of regular maintenance the machines are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly.	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
B.1.4 Have the project participants addressed the FARs identified during validation or previous verification(s)?	VVS	213	Not Applicable. There are no FARs identified during previous verifications and validation process.	OK	
B.1.5 Have the implementation and operation of the project activity been conducted in accordance with the description contained in the registered PDD?	VVS	226	Yes. The implementation and operation of the project activity has been conducted in accordance with the description contained in registered PDD.	OK	
B.1.6 Are all physical features of the project activity in the registered PDD in place?	VVS	227	Yes. All the 25 WTGs of 800 kW and their physical features are in place as per registered PDD. The metering locations in substations as well as the energy meters are same as verified during last verification.	OK	
B.1.7 Have the project participants operated the project activity as per the registered PDD or any approved revised PDD?	VVS	227	Project participants have operated the project activity as per the registered revised PDD dated 19/09/2012.	OK	
B.1.8 Was an on-site visit conducted?	VVS	227	Yes. Onsite visit was conducted on 11/03/2013 and 12/03/2013.	OK	
B.1.9 If an on-site visit is not conducted, is the rationale of the decision justified?	VVS	227	Not Applicable	OK	
B.2 Post registration changes					
B.2.1 Temporary deviations from registered monitoring plan or applied methodology					
B.2.1.1 Is it indicated whether any temporary deviations have been applied during	MR		Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
this monitoring period?					
B.2.1.2 Is a description of the deviation(s) in accordance with applicable provisions in the Project standard provided?	MR		Not Applicable	OK	
B.2.1.3 Are 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 included in the description?	MR		Not Applicable	OK	
B.2.1.4 For deviation(s) that require prior approval by the Board, are the date of approval and reference number included in the description?	MR		Not Applicable	OK	
B.2.2 Corrections					
B.2.2.1 Is it indicated whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report?	MR		There are no corrections in to project information and or parameters fixed at validation in current monitoring period. Hence this section is not applicable	OK	
B.2.2.2 In cases where the correction(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the	MR		Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
approval date and reference number provided? Otherwise, are the version number and the completion date of the revised PDD provided?					
B.2.3 Permanent changes from registered monitoring plan or applied methodology					
B.2.3.1 Is it indicated 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?	MR		It is indicated that during second verification, the PDD was revised to include the permanent changes identified at that point of time. The revised PDD with these changes was approved by EB on 02/01/2013.	OK	
B.2.3.2 In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval date and reference number provided? Otherwise, are the version number and the completion date of the revised PDD provided?	MR		There are no permanent changes from registered monitoring plan or applied methodology in current monitoring period. Hence this part is not applicable.	OK	
B.2.4 Changes to project design of registered project activity					
B.2.4.1 Is it indicated whether any changes to the project design of the project activity have been approved during this monitoring period or submitted with this	MR		Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
monitoring report?					
B.2.4.2 In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval date and reference number provided? Otherwise, are the version number and the completion date of the revised PDD provided?	MR		Not Applicable	OK	
B.2.5 Changes to start date of crediting period					
B.2.5.1 Is it indicated whether any changes to the start date of the crediting period have been approved during this monitoring period?	MR		Not Applicable	OK	
B.2.5.2 In cases where the changes and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval date and reference number provided?	MR		Not Applicable	OK	
B.2.6 Types of changes specific to afforestation or reforestation project activity					
B.2.6.1 Is it indicated whether any changes specific to afforestation or reforestation project activities have been applied during this monitoring period based on	MR		Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
applicable provisions in the Project standard that do not require prior approval by the Board?					
B.2.6.2 If changes were applied, are the version number and the completion date of the revised PDD provided?	MR		Not Applicable	OK	
C. Description of monitoring system					
C.1 General requirements					
C.1.1 Have project participants described the monitoring system and provided line diagrams (graphical schemes) showing all relevant monitoring points?	MR PS	193	<p>Project participant has described the monitoring system in detail and provided the line diagram in Appendix 1 of the monitoring report. This diagram shows the 6 number of feeders connected to Bhandardarwadi Enercon Substation which is owned by MSEDCL. Out of these 6 feeders, the feeder number 2, 3, 4 and 6 are connected with WTGs from project activity.</p> <ol style="list-style-type: none"> 1) The line diagram provided in Appendix-1 of the monitoring report incorrectly shows the main and check meter of 33 kV feeder-1 as billing meter that does not have any of the WTGs connected from project activity. 2) Section C of monitoring report states that applied baseline methodology is based on Ex-ante determination of grid emission factor. Please clarify the statement. 	CAR-1	

[illegible]

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
additional monitoring parameters, monitoring frequency and calibration frequency), are there any issues which may enhance the level of accuracy and completeness of the monitoring plan and should bring to the attention of the Board?					
C.1.5 Has the monitoring plan been properly implemented and followed by the project participants?	VVS	234(a)	Yes. Monitoring plan has been properly implemented by project proponent and followed it as per registered revised PDD.	OK	
C.1.6 Have all parameters stated in the monitoring plan and relevant Board decisions been monitored and updated as applicable, including:	VVS	234(b)		-	-
C.1.6.1 Project emission parameters?	VVS	234(b)	Project activity does not have any project emissions; hence no project emission parameters are defined at validation stage.	OK	
C.1.6.2 Baseline emission parameters?	VVS	234(b)	All baseline emission parameters are included in section D.2 of monitoring report which is in line with the section B.7.1 of registered revised PDD.	OK	
C.1.6.3 Leakage parameters?	VVS	234(b)	Project activity does not have any leakage emissions hence no leakage parameters are defined at validation stage.	OK	
C.1.6.4 Management and operational system: the responsibilities and authorities for	VVS	234(b)	The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?			authorities stated in the monitoring plan.		
D. Data and parameters					
D.1 Data and parameters fixed ex ante or at renewal of crediting period					
D.1.1 For "Purpose of data", is one of the following options chose: (a) Calculation of baseline emissions or baseline net GHG removals by sinks; (b) Calculation of project emissions or actual net GHG removals by sinks; (c) Calculation of leakage?	MR		Purpose of data is specified in section D.1 for each of the parameters. All the parameters listed are used for baseline emission calculations.	OK	
D.1.2 For "Value(s) applied", if applicable, is one table used to report multiple values referring to the same data and parameter? If necessary, are reference(s) to electronic spreadsheets used?	MR		Single value for each of the parameter like emission factor OM, BM and CM is reported as per section B.6.2 of the revised registered PDD.	OK	
D.1.3 Is the source of data provide and/or identified?	PS	195(d)	Source of data is provided for all parameters in section D.1 of the monitoring report.	OK	
D.1.4 Is information about appropriate emission factors, IPCC default values and any other reference values that have been used in the calculation of GHG emission reductions or net GHG removals provided?	PS	195(g)	The reference source for emission factors used is taken from CEA database and the reference source is mentioned in section D.1 of the parameters.	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
D.2 Data and parameters monitored					
D.2.1 For “Purpose of data”, is one of the following options chose: (a) Calculation of baseline emissions or baseline net GHG removals by sinks; (b) Calculation of project emissions or actual net GHG removals by sinks; (c) Calculation of leakage?	MR		Purpose of data is specified in section D.1 for each of the parameters. All the parameters listed are used for baseline emission calculations.	OK	
D.2.2 For “Value(s) of monitored parameter”, if applicable, is one table used to report multiple values referring to the same data and parameter? If necessary, are reference(s) to electronic spreadsheets used?	MR		Values of monitored parameters are provided in section D.2 of the monitoring report. However for parameter “EGgross” the gross generation data recorded at panel of each WTG is not provided in emission reduction spreadsheet or MR. Please provide the documentary source also to verify EGgross values mentioned in section D.2 of MR.	CAR-2	
D.2.3 Are the values of the monitored parameter for the purpose of calculating GHG emission reductions or net GHG removals provided? Where data are measured continuously, are they presented using an appropriate time interval? For default values (such as an IPCC value), where it is ex post confirmed, is the most recent value applied?	PS	195(a)	All the monitored data is provided in monthly manner in emission reductions sheet. The section D of the monitoring report provides the values of monitored parameter in aggregate manner i.e. for total monitoring period.	OK	
D.2.4 Is the equipment used to monitor each parameter described, including details on accuracy class, and calibration information	PS	195(b)	The energy meters used for monitoring the electricity import and export to the grid are of 0.2s accuracy class	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
(frequency, date of calibration and validity), if applicable as per monitoring plan?			and are calibrated for the monitoring period.		
D.2.5 Is the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan, the applied methodology, the Board guidance, local/national standards, or as per the manufacturer's specification?	VVS	234(c)	1) It is identified that the yearly frequency of calibration is not maintained for both main and check meters. The corresponding meter error is applied to electricity import and export readings; however, section E of MR does not specifically provide the method of application of error while calculating emission reductions. 2) Monitoring report does not provide the next calibration dates for panel meters in WTGs which will cover complete monitoring period under consideration. 3) During site visit, it was identified that the main and check meters of all project activity connected feeders were replaced by new energy meters in current monitoring period. However, Monitoring report does not mentioned about the same. Please clarify the reason for change of meters and possible application of error to electricity import-export values.	CL-2	
D.2.6 Is the calibration of those measuring equipments that have an impact on the claimed emission reductions conducted by the project participants at a frequency specified in the applied monitoring	VVS	237	Refer CL-2 above	(CL-2)	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
methodology and/or the monitoring plan?					
D.2.7 If, during verification of a certain monitoring period, the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available), is the following conservative approach adopted in the calculation of emission reductions:	VVS	238			
D.2.7.1 Applying the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration, if the results of the delayed calibration do not show any errors in the measuring equipment, or if the error is smaller than the maximum permissible error?	VVS	238(a)	Yes. The maximum permissible error of energy meters is applied to export and import figures. However, please refer to CL raised above.	OK	
D.2.7.2 Applying the error identified in the delayed calibration test, if the error is beyond the maximum permissible error of the measuring equipment?	VVS	238(b)	The error identified during delayed calibration is within the maximum permissible error of energy meters. Hence maximum permissible error is applied to all the readings.	OK	
D.2.8 Has the error has been applied:	VVS	239	-	-	-
D.2.8.1 In a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer	VVS	239(a)	Yes. The error is applied in such manner that the net electricity export to grid is conservatively estimated on	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
claimed emission reductions?			lower side by applying error to import and export figures. This results in lesser estimation of emission reductions from the project activity.		
D.2.8.2 For all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.	VVS	239(b)	Please refer CL-2 above	(CL-2)	
D.2.9 In cases where the results of the delayed calibration are not available, or the calibration has not been conducted at the time of verification, prior to finalizing verification, were the project participants requested to conduct the required calibration have the project participants calculated the emission reductions conservatively using the approach mentioned in item "D.2.7" above?	VVS	240	Not Applicable. The delayed calibration is conducted and results are available.	OK	
D.2.10 In cases where it is not possible for the project participants to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of PPs, are the requirements for post registration changes, in section 9.5 of the VVS, followed?	VVS	241	Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
D.2.11 In cases where neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipments, are the equipments calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification? If neither local/national standards nor the manufacturer's specification are available, were international standards used?	VVS	242	Not Applicable	OK	
D.2.12 Is it described how the parameters are measured/calculated and the measurement and recording frequency?	PS	195(c)	Yes. Measurement procedure or calculation methods to arrive at the parameters required for GHG emission reduction calculation is described in the monitoring report. The recording frequency is stated for each of the parameters.	OK	
D.2.13 Are monitoring results consistently recorded as per approved frequency?	VVS	234(d)	Yes. Data is monitored and recorded consistently as per approved frequency for each of the parameters	OK	
D.2.14 Is the source of data (e.g. logbooks, daily records, surveys, etc.) provide and/or identified?	PS	195(d)	Yes. Source of data is identified for each of the parameters. This is in line with the description provided in section B.7.1 of the PDD.	OK	
D.2.15 Where relevant is the calculation method of the parameter provided?	PS	195(e)	Yes. Calculation method of parameters is described in section C of the monitoring report.	OK	
D.2.16 Are the QA/QC procedures applied	PS	195(f)	Yes. QA/QC procedures are applied as described in the	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
described (if applicable per monitoring plan)?			monitoring plan. The calibration of energy meters are conducted on annual basis.		
D.2.17 Have quality assurance and quality control procedures been applied in accordance with the monitoring plan or the revised monitoring plan?	VVS	234(e)	Not Applicable	OK	
D.2.18 Is information about appropriate emission factors, IPCC default values and any other reference values that have been used in the calculation of GHG emission reductions or net GHG removals provided?	PS	195(g)	The emission factor is ex-ante defined in registered PDD which was calculated based on CEA database version 2. The same factor is used for emission reduction calculation.	OK	
D.3 Implementation of sampling plan					
D.3.1 Is a description provided on how project participants implemented the sampling efforts and surveys for those data and parameters according to the sampling plan, Include:	MR		Not Applicable. No sampling procedure is followed in project activity.	OK	
D.3.1.1 Description of implemented sampling design?	MR		Not Applicable	OK	
D.3.1.2 Collected data (electronic spreadsheets may be attached and referenced)?	MR		Not Applicable	OK	
D.3.1.3 Analysis of the collected data?	MR		Not Applicable	OK	
D.3.1.4 Demonstration on whether the required	MR		Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
confidence/precision has been met?					
E. Calculation of emission reductions or GHG removals by sinks					
E.1 Calculation of baseline emissions or baseline net GHG removals by sinks					
E.1.1 Are the sample calculations for all formulae used and calculation of baseline emissions or baseline net GHG removals by sinks provided, applying actual values?	MR PS	197(a)	Yes. GHG emission reduction calculations are carried out by applying the formulae described in B.6.3 of registered PDD.	OK	
E.1.2 Are the electronic spreadsheets to present full calculations in the monitoring report attached?	MR		Yes. The separate electronic sheet to calculate emission reduction is provided to validation team.	OK	
E.2 Calculation of project emissions or actual net GHG removals by sinks					
E.2.1 Are the sample calculations for all formulae used and calculation of project emissions or actual net GHG removals by sinks provided, applying actual values?	MR PS	197(b)	The project emissions are not considered for this project activity.	OK	
E.2.2 Are the electronic spreadsheets to present full calculations in the monitoring report attached?	MR		Not Applicable	OK	
E.3 Calculation of leakage					
E.3.1 Are the sample calculations for all formulae	MR		Not Applicable	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
used and calculation of leakage provided, applying actual values?	PS	197(c)			
E.3.2 Are the electronic spreadsheets to present full calculations in the monitoring report attached?	MR		Not Applicable	OK	
E.4 Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks					
E.4.1 Are the results of above sections summarized and GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period presented, using the provided table?	MR PS	197(d)	The GHG emission reductions are provided in tabular format in section E.4 of the monitoring report.	OK	
E.4.2 Is a complete set of data for the specified monitoring period is available?	VVS	245(a)	Yes. Complete set of data is available for the specified monitoring period.	OK	
E.4.3 Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	VVS	245(b)	The net electricity export to the grid from the project activity is cross checked with the invoices raised by PP to MSEDCL.	OK	
E.4.4 Have calculations of baseline emissions, and project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	VVS	245(c)	Yes. The calculations of baseline emissions are appropriate and carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.	OK	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
E.4.5 Have any assumptions used in emission calculations been justified?	VVS	245(d)	No assumptions are used.	OK	
E.4.6 Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	VVS	245(e)	1) The emission reduction sheet does not provide the calculation of emission factor by applying relevant formulae. 2) In ER calculation sheet, cell D15, does not have formula to calculate estimated emission reduction as per PDD.	CAR-3	
E.5 Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD					
E.5.1 Is a comparison of actual GHG emission reductions or net anthropogenic GHG removal of the project activity achieved during this monitoring period with the estimates in the registered PDD provided?	MR PS	198	The comparison of actual GHG emission reduction achieved during this monitoring period with the estimates in the registered PDD is provided in section E.5.	OK	
E.6 Remarks on difference from estimated value in registered PDD					
E.6.1 For any registered CDM project activity, except A/R project activities, have project participants explained the cause of any increase in the actual GHG emission reductions achieved during the current monitoring period (e.g. higher water	MR PS	199	Please substantiate the excess estimation of emission reductions in light with actual annual generation data from Apr-2012 to Mar-2013.	CL-3	

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
availability, higher plant load factor, etc.), including all information (i.e. data and/or parameters) that is different from that stated in the registered PDD?					
E.7 Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards					
E.7.1 If the monitoring period starts before 31 December 2012 and ends anytime thereafter, are actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved for the following two periods provided respectively? (a) Up to 31 December 2012 (1st commitment period); (b) From 1 January 2013 onwards.	MR		The separate emission reductions till 31/12/2012 are provided in tabular format.	OK	
E.7.2 Is it ensured that the achieved GHG emission reductions or net anthropogenic GHG removals by sinks are calculated proportionally for each period? In cases where annual caps were applied in the calculations, is it ensured that the annual caps are pro-rated to each period?	MR		Not Applicable	OK	

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Table 2 Resolution of Corrective Action /Clarification / Forward Action Requests

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
<u>CAR-1</u> 1) The line diagram provided in Appendix-1 of the monitoring report incorrectly shows the main and check meter of 33 kV feeder-1 as billing meter that does not have any of the WTGs connected from project activity.	C.1.1	1. The WTGs of the project activity are connected through four feeders (Feeder no. 2, 3, 4 & 6) among six feeders located in the sub-station. In feeder 1 & 5, only other customer WTGs are connected, in feeder 2, only the WTGs of Sai project are connected and in feeder 3, 4 & 6, along with Sai WTGs, other customer WTGs are also connected. This has been clearly depicted in the line diagram of the MR. <u>2nd response:</u> The diagram has been revised in the MR. Please refer to Appendix I of the MR.	Comment 1: 1) The diagram in Appendix-1 is not corrected to show Feeder-2 as billing meter. Comment 2: 1) PP has modified the line diagram in Appendix-1 to correctly show the 33 kV billing meter on feeder-2 on which 7 WTGs of project are connected. Therefore CAR raised is closed .

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Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
2) Section C of monitoring report states that applied baseline methodology is based on Ex-ante determination of grid emission factor. Please clarify the statement.		As per the “tool to calculate the emission factor for an electricity system”, if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emission factor during the crediting period is required. The same approach has been followed in the registered PDD also and has been described in the section C of the MR. The MR has also been revised to make it more appropriate. Please refer to section C of the revised MR.	2) PP has modified the section C of MR. The statement is corrected to state that ex-ante emission factor is calculated in registered PDD and same is followed for total crediting period. Hence CAR 1 is closed.
<u>CAR-2</u> Values of monitored parameters are provided in section D.2 of the monitoring report. However for parameter “EGgross” the gross generation data recorded at panel of each WTG is not provided in emission reduction spreadsheet or MR. Please provide the documentary source also to verify EGgross values mentioned in section D.2 of MR.	D.2.2	<p>‘EG_{gross,y}’ denotes the electricity generation recorded of each WTG, at the controller panel and the summation of the same in the form of</p> $\sum_{y=0}^n EG_{gross,y}$ <p>&</p> $\sum_{y=0}^m EG_{gross,y}$ <p>indicates the total electricity generated by the WEGs of the project activity and other</p>	Comment 1: The emission reduction calculation sheet provides the EG _{gross} data for each of the WTGs in project activity. However, please provide generation data from actual archived documentary source for verification.

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Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
		<p>customers measured at the controller panel respectively, which are monitored on monthly basis. The value of the same is there in the ER sheet.</p> <p><u>2nd response:</u> As referred in the MR, section C, the above parameters will be used for the apportionment procedure and based on the apportionment, the monthly credit notes will be issued by state utility (MSEDCL) to the PP. Further, on that basis, the invoices are raised to the DISCOM by the PP. The monthly credit notes and the invoices have already been provided to the DOE for verification.</p>	<p>Comment 2: This data regarding controller panel generation of WECs is provided by the O & M contractor to the PP in excel sheet format and is therefore accepted. Hence CAR 2 is closed.</p>
<p><u>CAR-3</u></p> <p>1) The emission reduction sheet does not provide the calculation of emission factor by applying relevant formulae.</p>	E.4.6	<p>1. The combined margin emission factor is fixed (under ex-ante approach) for the whole crediting period as per the registered PDD and the value has been used directly in the ER sheet.</p>	<p>1) PP has modified emission reduction sheet to include emission factor directly from PDD which is fixed ex-ante during validation stage. The emission factor in PDD is stated as 0.90641 tCO₂/MWh. Hence this query is closed.</p>
<p>(2) In ER calculation sheet, cell D15, does not have formula to calculate estimated emission reduction as per</p>		<p>2. The annual emission reduction value has been directly sourced from the registered PDD.</p>	<p>2) The ER sheet is corrected to directly consider the Emission Reduction value from PDD i.e. 33,348 tCO₂-e/yr for comparative assessment of estimated emission</p>

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Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
PDD.			reductions during current verification period. Therefore CAR-3 is Closed.
<u>CL-1</u> Please clarify the statement, "The electricity generation value recorded at the LCS meter (panel reading) is cross verified by the energy calculated by inverting system installed in the WTGs".	C.1.2	The same has been revised in the MR. Please refer to section C of the MR.	The corresponding statement is removed by PP from the revised MR. From the description in section C, it is understood that during WTG operation, the WTG internally cross check the energy values recorded by LCS panel meter with that of energy values calculated by the inverting system in WTG. If there is mismatch in both values then machine stops working and generate error report. The correction is accepted in MR and hence CL raised is Closed.
<u>CL-2</u> 1) It is identified that the yearly frequency of calibration is not maintained for both main and check meters. The corresponding meter error is applied to electricity import and export readings; however, section E of MR does not specifically provide the method of application of error while calculating	D.2.5	1. The calculation method after applying the correction factor has been incorporated in the MR, section E.1.	1) The MR provides the steps for application of error to export and import readings in conservative manner so that emission reductions are estimated on lower side. The main meter error of 0.2% and panel meter error of 0.5% is applied to energy export values so that export to grid is calculated on lower side. Similarly above error percentage are applied to energy import values such that import from the grid is calculated on higher side. However,

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Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
emission reductions.		<p><u>2nd response:</u></p> <p>The MR has been revised. Please refer to section E.1 of the MR.</p> <p>Furthermore, for LCS meters, the error factor has been applied in the MR & ER sheet in line with table 1 of the Appendix 1. Calibration of Clean development mechanism validation and verification standard, Version 03.0.</p>	<p>revised MR erroneously considered 0.3% error in formulae applied to calculate net electricity export to grid. Also the maximum error identified for control panel meter is 0.64% for EWSPLPP-19 WTG, however same is not applied for net electricity export calculation. Please clarify.</p> <p>Comment 2</p> <p>The verification team has noted that as per the latest calibration certificate of controller meters, all the controller meters are working within permissible range of error and also the PP has conservatively applied the maximum possible error i.e. 0.5 for entire generation to arrive at the most conservative estimate of ERs.</p> <p>Hence this query is closed.</p>
(2) Monitoring report does not provide the next calibration dates for panel meters in WTGs which will cover complete monitoring period under consideration.		2. The same has been incorporated in the MR. Please refer to the revised MR, section C.	(2) Revised MR now incorporated the calibration dates for all the WTG panel meters to cover the monitoring period from 01/04/2012 to 31/12/2012. However, it is noticed that meter calibration has taken place only in year 2013 i.e. specifically on 21

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Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
		<p><u>2nd response:</u></p> <p>All the calibration reports for the LCS meters have been provided to the DOE.</p>	<p>and 22nd Feb 2013. Please provide the above calibration certificates of WTG panel meters to verification team for review.</p> <p>Comment 2 All calibration certificates have been provided to DOE.</p> <p>Hence this query is closed.</p>
<p>(3) During site visit, it was identified that the main and check meters of all project activity connected feeders were replaced by new energy meters in current monitoring period. However, Monitoring report does not mentioned about the same. Please clarify the reason for change of meters and possible application of error to electricity import-export values.</p>		<p>3. The old meters as referred in the calibration reports for the calibration performed on 20 June, 2012 (for the year 2012) have been replaced due to display hang. As this meter changes have taken place within the validity period of the calibration done for the old meters dated 20 June, 2012 and all the new meters are duly calibrated during installation in the period of July – October, 2012, when the meters got changed, therefore, the calibration for the new meters is valid till July – October, 2013. Therefore, there is no calibration delay happened in the year 2012 and no error is identified. The same has been explained in details in the revised MR. Please refer to section C of the revised MR. The calibration</p>	<p>(3) Verification team have reviewed the calibration records of replaced main and check meters which clearly specifies that the old meters were replaced due to display hang problem. The old replaced meters were calibrated on 20/06/2012 which is checked from calibration certificates for each main and check meters; and hence the calibration was valid till next year. However same meters were replaced by new meters on 28/07/2012 and 01/08/2012 which is confirmed during site visit and from review of calibration reports of new meters. Therefore for the monitoring period, post 20/06/2012, electricity was always monitored and recorded with calibrated energy meters and hence no error is required to be applied to</p>

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Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
		reports of the old & new main and check meters have been provided to the DOE.	<p>electricity import and export data.</p> <p>Comment 2:</p> <p>1) & 2) PP has corrected typo error in MR. Also verification team reviewed the delayed calibration results of control panel meters which shows the error of panel meters within maximum permissible error limit of 0.5%. Hence same is applied by PP to conservatively estimate the net power exported to grid. Hence emission reduction calculation is conservative.</p> <p>CL raised is Closed.</p>
<p><u>CL-3</u></p> <p>Please substantiate the excess estimation of emission reductions in light with actual annual generation data from Apr-2012 to Mar-2013.</p>	E.6.1	<p>The Emission Reduction (ER) value in the monitoring period (9 months starting from 1 April, 2012 – 31 December, 2012) is 10.17 % higher as compared to the value estimated in the registered PDD. This difference is due to the fact that annual wind cycle has not been completely covered in the current monitoring period. Therefore, PP has calculated the consolidated emission reduction observed for the project activity starting from January, 2012 till December, 2012 (one complete year). This is 3.69 %</p>	<p>Verification team has checked the annual estimation of emission reductions i.e. from Jan-12 to Dec-12 as presented in ER sheet and it is inferred that actual emission reductions estimated for the year 2012 is equal to 32,116 tCO₂ which is lesser than registered PDD estimation by 3.69%.</p> <p>However, please provide the net electricity export data source for Jan-12 to March-12 in form of Invoices raised by PP to MSEDCL for review, so that final result can be</p>

VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
		<p>lower than the corresponding annual value mentioned in the registered PDD.</p> <p>The same has been explained in the revised MR (section E.6) and the calculation has been shown in the ER sheet.</p> <p><u>2nd response:</u></p> <p>The invoices for the month of January – March, 2012 have been provided to the DOE.</p>	<p>confirmed.</p> <p>Comment 2:</p> <p>Verification team has reviewed the net electricity export data for previous three months so that annual generation can be compared that with estimates in the PDD. It is verified that the annual generation for year 2012 is within limit of that estimated in registered PDD. For the current verification period of 9 months, the generation is more because these months falls in good wind availability period and slack months are outside the above considered period. However, as a overall actual generation is lesser than as estimated in registered PDD.</p> <p>Hence CL raised is closed.</p>