



# VERIFICATION REPORT ENERCON (INDIA) LIMITED

**3<sup>RD</sup> VERIFICATION OF THE  
BUNDLED WIND POWER PROJECT IN CHITRADURGA  
(KARNATAKA IN INDIA) MANAGED BY ENERCON (INDIA) LTD**  
Registration Number 0276  
Monitoring period: 01/07/2007 to 31/12/2009

**REPORT No. INDIA-VER3/68.49/2011**  
REVISION No. 01

**BUREAU VERITAS CERTIFICATION**

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## VERIFICATION REPORT

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Client: <b>Enercon (India) Limited</b>	Client ref.: <b>Mr. Yogesh Mehra</b>

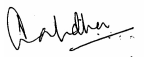
**Summary:**  
Bureau Veritas Certification has made the 3<sup>rd</sup> periodic verification of the "Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd.", CDM Registration Reference Number 0276, project of Enercon (India) Limited located in Chitradurga, Karnataka in India and applying the methodology ACM 0002 version 03, 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 a periodic independent review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) site visit and 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.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is already generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the CER issued totalize 1,12,719 tons of CO<sub>2</sub>eq for the monitoring period.

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

Report No.: <b>INDIA-ver3/68.49/2011</b>	Subject Group: <b>CDM</b>
Project title: <b>Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd</b>	
Work carried out by: <b>S. Thyagaraj, Team Leader V. Senthil Kumar, Team Member</b>	
Internal Technical Review carried out by: <b>H.B. Muralidhar</b> 	
Date of this revision: <b>24/03/2011</b>	Rev. No.: <b>01</b>
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**Indexing terms**

Work Approved by:


**Flavio Gomes, Global Product Manager**
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## 1 INTRODUCTION

Enercon (India) Limited has commissioned Bureau Veritas Certification to verify the emissions reductions of its CDM project “Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd” (hereafter called “the project”) at Chitradurga, Karnataka 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

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.

Based on the applicable requirements of paragraph 62 of the CDM modalities and procedures, this assessment shall:

- (a) Ensure that the project activity has been implemented and operated as per the registered 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 and 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 and the approved methodology;
- (d) Evaluate the data recorded and stored as per the monitoring methodology.

### 1.2 Scope

The verification scope is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant 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 towards the Client. 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

This bundled project activity is an initiative by Enercon (India) Limited towards clean electricity generation using wind energy resources in the state of Karnataka with wind electric converters distributed in Chitradurga district in the state of Karnataka in the name of CEPCO Industries Pvt. Limited and Enercon Windfarms (India) Limited.

The project activity has installation of 28 Wind Electric Converters (WECs) of individual capacity 600 kW of Enercon make E-40 model at two locations (14 WECs at each location) within Jogimatti wind farm in Chitradurga district in the state of Karnataka totalling to an installed capacity of 16.8 MW. M/s. CEPCO Industries Pvt. Limited owns fourteen WECs and the remaining fourteen WECs are owned by M/s. Enercon Windfarms (India) Limited. There have been no modifications or alterations to the project activity during this monitoring period.

The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources, to utilize the generated output for selling it to the grid and to contribute to climate change mitigation efforts. This renewable energy will partially substitute the electricity currently evacuated into the grid by the thermal power plants, thus contributing to the sustainable development of the region socially, environmentally and economically.

### 1.4 Verification Team

The verification team consists of the following personnel:

FUNCTION	NAME	CODE HOLDER*	TASK PERFORMED
Lead Verifier	S. Thyagaraj	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Verifier	V. Senthil Kumar	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI
Technical Specialist	None	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Internal Technical Reviewer (ITR)	H.B. Muralidhar	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Specialist supporting ITR	None	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI

\*DR = Document Review; SV = Site Visit; RI = Report issuance



## 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 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010. 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 verification 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 submitted to the DOE. 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.

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

- (a) The registered PDD, including the monitoring plan and the corresponding validation report;
- (b) Previous verification reports, if any;
- (c) The applied monitoring methodology;
- (d) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;



(e) Any other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations).

## 2.2 Follow-up Interviews

On 29/01/2011 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Enercon (India) Limited 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	<ul style="list-style-type: none"> <li>• Project Design and implementation</li> <li>• Technical Equipment and operation</li> <li>• Monitoring Plan, Monitored data</li> <li>• Data uncertainty and residual risks</li> <li>• GHG Calculation / Emission reductions</li> <li>• Environmental Impacts</li> <li>• Compliance with National Laws and regulations</li> </ul>

## 2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

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

Corrective Action Requests (CAR) is issued, where:

(a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;

(b) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;



(c) Issues identified in a FAR during validation or previous verifications to be verified during verification have not been resolved by the project participants.

Forward Action Requests (FAR) are issued, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

The verification team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

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 Lead Verifier 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 compiles clarification questions for the Lead Verifier and Verification Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized verification report is accepted for further processing such as uploading on the UNFCCC webpage.

### **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 Corrective Action Requests, 03 Clarification Requests, and no Forward Action Requests.

The CARs, CLs 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 VVM paragraph.

#### **3.1 Project implementation in accordance with the registered project design document (198)**

The verification team after performing the site visit confirms that the project implementation is in accordance with the project description in the registered PDD (Ref /14/). The project activity is an installation of 28 Wind Electric Converters (WECs) of individual capacity 600 kW spread across two locations within the Jogimatti wind zone of Chitradurga district in the state of Karnataka with the total installed capacity of 16.8 MW. The project activity's 14 WECs are owned by CEPCO Industries Limited and the remaining 14 WECs are owned by Enercon Windfarm (India) Limited. The WECs of CEPCO Industries Limited have been commissioned between May 2001 and August 2001 and the WECs of Enercon Windfarm (India) Limited have been commissioned between September 2001 and June 2002. All the WECs were commissioned before the registration of



the project. As per the registered PDD, Enercon India Limited (EIL) acts as an aggregator of sub-activities within the CDM project activity.

The verification team also cross checked all the Form B statements (derived from Joint meter readings) issued by KPTCL (Ref /3/ & /4/) for the current monitoring period and confirms that throughout the monitoring period the generated power has been sold to the grid and not used for any other purpose. Therefore, based on the site visit and review of Power purchase agreements with State Electricity Utility (Ref /11/ and /12/), Form B statements issued by the State Electricity Utility (Ref /3/ and /4/) and the Invoices raised by the project promoters on the State Electricity Utility (Ref /8/ and /9/), the verification team confirms that:

- a) 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
- b) There is no addition of component or extension of technology
- c) 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 average PLF for the monitoring period is about 31.81% which is higher than the value conceptualised in the PDD at 29.30% (annualized basis) by about 8.55%. As explained in this section above, there are no changes to the project activity during the current monitoring period that results in increase of emission reductions. The verification team reviewed the consideration of the PLF (29.30%) and the band width of sensitivity (26% - 30%) considered in investment analysis in the registered PDD.

Enercon, which is a leading manufacturer and supplier of Wind Turbine Generators of India, has its own in house infrastructure for conducting wind related studies. The estimated PLF of 29.30 % during decision making was arrived from the data provided by the Wind Resource Department (WRD) of project developer, which was derived from the wind mast installed at the project site. The PLF was determined from the data available for the period ranging from October 1995 to September 2000, i.e. 5 years data prior to decision making (year 2000).

The data collected in this manner was the actual observed data at the site relating to the wind parameters. This data was further processed with the help of software known as Wasp. The Wasp software program enables the wind power density to be computed based on the mast readings taken over the observation period for which the wind speed data is collected and also the local terrain conditions that exist at the site.

The wind power density (WPD) map created through Wasp software is further utilized along with information about the site topological conditions and technical details of the



wind turbine generators proposed to be installed, to calculate the optimized generation that could be expected at the site. This is done by means of a software optimization tool. This eventually leads to an optimized value for estimation of the gross generation at the site after installation of all the proposed wind mills at the wind farm, at the specific micro siting locations.

The DOE confirms through its local and sectoral expertise that use of the Wasp software in the computation of the PLF is a common practice and has observed the same in a number PLF study reports prepared by third party assessment specialists in India.

In addition to the PLF Estimation Report (which is based wind mast data), the project developer also parallelly referred to the extracts from the then publicly available wind data of National Oceanic and Atmospheric Administration (NOAA) ranging from 1995-96 to 1998 – 99. NOAA is a scientific agency within the United States Department of Commerce focused on the conditions of the weather patterns across the globe. The NOAA extract provided by the PP has also been reviewed by the verification team. The NOAA website (<http://www.noaa.gov/about-noaa.html>) facilitates the downloading of historical information on wind speeds achievable in any location across the globe. The data is however available only in the raw form and has to be extrapolated to arrive at the actual profiles. An excel spreadsheet showing this extrapolated data is attached along with our response. From the information provided, for the period between 1995 to 1998-99 the variations of wind speeds have been noted. Hence the PP has considered a PLF of 29.30 % which was maximum known to them through their PLF report in the investment analysis.

A brief mention about the NOAA data and PLF Estimation Report has already been made in the Second Verification Report (Page 11).

Appendix 2 of the PLF report (Page 7/17) provides details on the 'Probability of Exceedance' at P-90, P-75, P-50 P-25 and P-10 levels as can be seen from the Table 1 below (also available in the PP's response)

<b>Table 1</b>	
<b>Probability of Exceedance*</b>	<b>Estimated PLF</b>
P-90	26.00%
P-75	27.60%
P-50	28.50%
P-25	29.60%
P-10	29.99%

*\*Exceedance probability is the probability that a certain value is going to be exceeded*

The table above indicates that the probability of achieving 26.00 % PLF was 90% and that the probability of achieving 29.99 % PLF was only 10 %. Therefore, sensitivity on



PLF for the project activity was tested at P-10 and P-90 levels, i.e. at 30% and 26% respectively.

Since the PLF and sensitivity range considered during decision making process has been based only on the technical information explained above, it has been accepted by the verification team.

An independent third party PLF report by M/s. Ravi Enteck Ltd., Dt., 08/07/2011 (Reference 6) was also shared with the DOE and the report has estimated the average PLF to be 28.32% for the period October 1995 to September 2000, which is lower than the PP's original estimate of 29.93% and hence, this report also corroborates the PLF estimation of the PP. Ravi Enteck is an organization that offers consultancy involved in wind related studies and related services. It has provided third party PLF assessments for several other wind projects (which have been registered as CDM projects).

The verification team cross checked the first tariff order (Order on Non- Conventional Energy tariff dated 18/01/2005 ([http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20\(FINAL\).doc](http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc))) released by the Karnataka Electricity Regulatory Commission (KERC) and observed in para 'b' (page 16 of the order) that the KERC considers a PLF of 26.5 % only, which is based on actual PLF achieved by wind power plants already in operation in the state of Karnataka. The verification team also cross checked the subsequent tariff order (Order dated 11/12/2009 (<http://www.kerc.org/nce%20tariff%202009/Order%20on%20NCE%20Tariff%20final%20dt11.12.2009.doc> )) released by the KERC and also observed in para 'b' (page 25 of the order) that the KERC again re-considers a PLF of 26.5 % only, which is also based on actual PLF achieved by the wind power plants already in operation in the state of Karnataka.

Based on the explanation provided above, the verification team considers, the PLF used by the PP in the registered PDD as appropriate and conservative.

In accordance with the EB 48, Annex 67, Para -7 (Guidelines on Assessment of different types of changes from the project activity as described in the registered PDD - which states that 'The DOE shall assess how the affected data/information in the registered PDD have been derived, and validate if the assumptions underlying this original data/information is correct') we confirm that the assumptions on PLF underlying and impacting the generation of electricity that were made in the registered PDD are correct.

The increase in PLF is only due to the seasonal and cyclical variation in the wind pattern, which is beyond the control of the project proponents. Therefore the verification team agrees and confirms that the higher generation has no bearing on the additionality of the project and does not likely increase the estimates of the emission reductions in the future monitoring period.



The verification team reviewed the Monitoring report, version 2.0 (Ref /17/) and confirms that the information provided in the Monitoring report and the project implementation is in accordance with the registered PDD.

### **3.2 Compliance of the monitoring plan with the monitoring methodology (203)**

The parameter that needs to be monitored as per the methodology ACM 0002 is the Electricity generation from project activity and the Data needed to recalculate the operating margin and Build margin emission factor (if needed).

The net electricity generated from the project activity WECs is metered through two sets of Main and Check Meters at the pooling stations (one set for every pooling station) of CEPCO Industries Limited and Enercon Windfarm (India) Limited at the high voltage side of step up transformers.

The net electricity supplied by the project activity WECs to the grid is arrived by deducting the transmission losses till the 66/33 kV receiving station constructed and maintained by M/s. Enercon (India) Limited at Kakkeharavu village, which is the delivery point of net electricity to the grid as defined by the state electricity utility, Karnataka Power Transmission Corporation Ltd (KPTCL). The metering system for calculating transmission losses and all the meters are under the control of KPTCL. All the meters are of 0.2 accuracy Class, which is of suitable quality standard for measuring wind electricity generation in India. Every month meter readings are taken jointly from meters located at the pooling stations and the meters located at the receiving station by the KPTCL officials and representatives of the project participant every month.

The data needed to recalculate Operating margin and Build margin emission factor is not applicable for this project activity as the grid emission factor for Southern grid (0.9633877 tCO<sub>2</sub>/MWh) has been fixed ex-ante for the entire crediting period in the registered PDD.

The verification team noted that the registered PDD and the Revised Monitoring plan approved by UNFCCC on 26/03/2010 (Ref /15/) applies the monitoring methodology ACM 0002 Version 03 "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources", whereas the Project search interface in the UNFCCC website indicates the project applies the methodology ACM 0002 Version 04. Hence a corrective action request, CAR 1 was raised by the verification team (this issue is a forward action request from the previous verification report). In response to the above, the project participant had sent an email communication to UNFCCC on 30/12/2010 on discrepancy in the version number of the methodology appearing in the



project search interface in UNFCCC website and requesting to correct the same. The intimation also indicates, “there is no difference in both the versions from the perspective of applicability, additionality or CER calculations for the project activity”. The verification team cross checked the email communication sent to UNFCCC on 30/12/2010 (Ref /20/) and also both the versions of the methodology ACM 0002, the version 3 (Ref /18/) and version 4 (Ref /19/) and found that the change in version is only “to provide guidance for project participants to define the grid boundary applicable to their project activity in situations where the application of ACM 0002 does not result in a clear grid boundary given country-specific grid management policies”. The change in the methodology version does not impact the applicability, additionality or the CER calculations and since the project participant has also intimated to UNFCCC, it is accepted by the verification team.

The verification team has checked the Second verification report (Ref /21/) and confirms that 01 FAR raised in the previous report has been addressed and closed in the current report.

The verification team thus confirms the monitoring plan is in accordance with the approved methodology applied by the CDM project activity.

### **3.3 Compliance of monitoring with the monitoring plan (206)**

According to the Monitoring Plan the only parameter that has to be monitored by the project activity is the net electricity supplied to the regional electricity grid. The procedure for monitoring this parameter has been adopted and is in place.

The main data source for emission reduction calculations is the ‘Form B’ statements issued by KPTCL every month. The readings are taken jointly by the representatives of KPTCL and the project participant. There are two sets (one set for every pooling station) of Main and Check Meters at the point of evacuation on to the feeder lines, from which joint readings are taken. The metering system, for calculating transmission losses, is located at the receiving station constructed by M/s. Enercon (India) Limited at Kakkeharavu village, Chitradurga district. It is also confirmed that the Form B statements are dated from first of the month to first of the next month for continuity and there is no double counting of the generation.

The system and procedure exist at site for data collection and transfer of the collected data to the CDM coordinator at head office of the project participant at Mumbai. A dedicated staff at the head office carries out the data analysis, review the recording and calibration frequencies and





compiles the monitored data in the monitoring report. All the data pertaining to CDM requirements are then archived in the Head office.

As per PDD, in exceptional circumstances of failure of main meter, the check meter reading will be taken for billing purpose till such time the main meter is replaced after calibration. However no such incidents of meter failure are noticed during the current monitoring period and have not resulted in any loss of data.

The verification team also checked the calibration certificates of all the energy meters (Ref /5/, /6/ & /7/) related to the project activity and confirms that the calibration frequency of once in every calendar year as per the Revised Monitoring plan has been complied by the project participant. The meter calibration is under the jurisdiction of state utility (KPTCL) and calibration has been performed as per their laid down procedures. The calibration certificates indicate "The meters are recording well within the permissible limit of + or – 0.2 of Accuracy class of meter".

The current monitoring period is from 01/07/2007 to 31/12/2009. The verification team also reviewed the annual calibration certificates for the year 2010 (Ref /5/, /6/ & /7/) for all the energy meters and observed that the meters are recording well within the permissible limit of + or – 0.2 of Accuracy class of meter.

The review of the calibration certificates revealed that there was a delay in performing calibration in two instances. In the first instance it was delayed by two months (July & August 2007) and in the second instance it was delayed by four months (May, June, July & August 2009), hence CAR 3 was raised in this regard. In response to the CAR, the project participant had applied the paragraph 4 of section B of the "Guidelines for assessing compliance with the calibration frequency requirements" (Annex 60 of EB 52) for revising the emission reduction calculations. The project participant has applied the maximum permissible error of 0.2%, which is the accuracy class of the meters for the above months. The verification team checked the revised emission reduction calculations sheet (Ref /2/) and found the error has been applied in a conservative manner and has resulted in lower baseline emissions. Hence CAR 3 has been closed.

The verification team thus confirms the monitoring plan is in accordance with the Revised Monitoring Plan applied by the CDM project activity.

### **3.4 Assessment of data and calculation of greenhouse gas emission reductions (209)**



The data used for calculation of the GHG emission reductions is the net electricity supplied to the grid by the project activity, which is contributed by the 28 WECs and the Grid emission factor. All the data required for the estimation of the emission reductions during the monitoring period was available to the DOE.

The team verified the generation data of all the WECs provided in the CER calculation sheet through the monthly generation reports in Form B issued by the KPTCL. This being the certificate issued by the state utility and based on this only the project participant raises the invoices and receives payment for the electricity supplied to the grid from the state electricity utility, this is considered authentic and reliable. The same Form B statements were also used by the team to verify the values of electricity generation stated in the monitoring report submitted by the project participant.

The verification team checked the generation data and the CER calculations sheet, version 1 (Ref /1/) for the monitoring period and noted that the CERs claimed for the 30 month period (1st July 2007 to 31st December 2009) is 1,12,851 while the annual estimated CERs in the registered PDD for the same 30 month period is 1,03,828. The verification team also noted that the CER calculations were not conservative, as it did not consider the minimum value of export reading recorded among the main meter & check meter and the maximum value of import reading recorded among the main meter and check meter. Hence a corrective action request, CAR 2 was raised to revise the CER calculations and the clarification request, CL 3 was raised seeking clarification on excess CERs for the current monitoring period.

In reply to CAR 2 & CAR 3, the project participant has submitted the revised CER calculation sheet, version 2 (Ref /2/) which now takes into account the conservative value of export and import for calculating the emission reductions. The revised CERs claimed for the current monitoring period is 1,12,719. The verification team cross checked the same with the Form B statements issued by KPTCL and found no discrepancies. Hence the revised CER calculation is accepted by the verification team.

In response to CL 3, the project participant has replied that, “plant load factor for wind energy power plant project is not within the control of the Project Participant, this difference in CER can be attributed to conditions beyond the control of project participant” and “since there is no change in value of any operational parameter which is within their control, reassessment of additionality is not required”.

The verification team during site visit observed that (a) there is no change in effective output capacity due to increased installed capacity or increased number of units, or replacement of existing units with advanced





technology units, (b) there is no addition of component or extension of technology, (c) there is no addition of site to the project activity and (d) there is no change in values of actual operational parameters relevant to determination of emission reduction which are within the control of project participant. The verification team also cross checked the Form B statements issued by KPTCL for the entire monitoring period and found that there is no change in effective output capacity and the project activity site. Hence the verification team considers the PLF of 31.81 % achieved for the current monitoring period is only due to seasonal change in wind pattern which is beyond the control of project participant and that there is no need to re-assess the additionality of the project activity. Hence it was accepted by the verification team.

The Revised Monitoring Plan states that “The net electricity supplied to the grid shall be sourced from the Form B derived from the Joint Meter Reading (JMR) and can be cross checked from the invoices”. The team verified the net electricity exported to the grid by checking all the invoices (Ref /8/ & /9/) raised by project participant. This served as a cross check for the certification of the generation figures in the Form B statements and that taken in the monitoring report.

The RMP indicates “If during any of the monthly meter readings, the variation between the main meter and the check meter is more than the permissible limit for meters of 0.2% accuracy class, all the meters shall be re-tested and calibrated immediately”. In line with the Revised Monitoring Plan, the project proponent has compared the net energy exported to the grid between the readings recorded by main meter and check meter for all the months (Ref /10/) and demonstrated that the variation in the readings of all the months is within the permissible limit of 0.2 % accuracy. The verification team cross checked the same with the Form B statements and found no discrepancies. Based on the document review the verification team considers the energy meters were recording within the permissible limits of accuracy throughout the current monitoring period. Hence it was accepted by the verification team.

The parameter used for the determination of the Baseline emission reductions is the joint meter readings for net power export to the grid. The baseline emissions has been calculated using the correct values and in accordance with the formulae and methods described in the Revised Monitoring Plan. Since all the WECs involved in this project activity are new and as said in the registered PDD there is no transfer of equipment to or from the project activity, there is no leakage. It is confirmed that there is no project emissions accountable to this project activity.

The only default value applied in the CER calculations is the Grid emission factor for Southern grid. The section D.2 of the registered PDD and Revised Monitoring plan indicates the following, “Since the simple OM



emission factor is calculated based on a 3 year average, based on the most recent statistics available at the time of PDD preparation, its updation based on ex post monitoring is not required. For BM calculation, option 1 (refer ACM 0002) has been chosen, which is calculated ex ante based on the most recent information, hence its monitoring is also not required.”

The Combined margin emission factor, which is fixed ex-ante as 0.9633877 tCO<sub>2</sub>/MWh in the PDD has been correctly applied in the CER calculations.

The verification team confirms that the formulae and methods described in the monitoring plan have been correctly applied for calculating the CERs.

The verification team confirms that there is no discrepancy in the data applied in the CER calculations and that reported in the Monitoring Report, version 2.0.

## 4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 3rd periodic verification of the “Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd” Project in Chitradurga, Karnataka in India which applies the methodology ACM 0002, version 03. 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 and the baseline and monitoring plan; ii) site visit and 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 emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 2.0 and the revised Monitoring plan approved by UNFCCC on 26/03/2010. The development and maintenance of records and reporting procedures in accordance with the monitoring 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 verified the Project Monitoring Report version 2.0 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The



monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/07/2007 to 31/12/2009 (both days inclusive)

Baseline emissions : 1,12,719 tCO<sub>2</sub> equivalents.

Project emissions : 0 tCO<sub>2</sub> equivalents.

Emission Reductions : 1,12,719 tCO<sub>2</sub> equivalents.

20/07/2011  
H.B. Muralidhar  
Internal Technical Reviewer

20/07/2011  
S. Thyagaraj  
Lead Verifier

## 5 REFERENCES

### Category 1 Documents:

Documents provided by Type the name of the company that relate directly to the GHG components of the project.

- /1/ CER calculation sheet, version 1.0
- /2/ CER calculation sheet, version 2.0 dt. 08/03/2011
- /3/ Monthly Form B statements issued by KPTCL for M/s. Enercon Windfarms (India) Ltd for the period July 2007 to December 2009
- /4/ Monthly Form B statements issued by KPTCL for M/s. CEPCO Industries Limited for the period July 2007 to December 2009
- /5/ Annual Calibration certificates issued by KPTCL for the years 2006,2007,2008, 2009 and 2010 for M/s. Enercon Windfarms (India) Ltd
  - a). Dvg/RT/WF-08/708-12 dt. 16/08/2006
  - b). Dvg/RT/WF-08/520-24 dt. 21/08/2007
  - c). Dvg/RT/WF-15/58/08-09/191-95 dt. 02/06/2008
  - d). Calibration certificate issued by KPTCL dt. 13/08/2009
  - e). Calibration certificate issued by KPTCL dt. 04/05/2010
- /6/ Annual Calibration certificates issued by KPTCL for the years 2006,2007,2008, 2009 and 2010 for M/s. CEPCO Industries Limited
  - a). Dvg/RT/WF-05/713-17 dt. 16/08/2006
  - b). Dvg/RT/WF-05/505-09 dt. 21/08/2007
  - c). Dvg/RT/WF-15/58/08-09/191-95 dt. 02/06/2008
  - d). Calibration certificate issued by KPTCL dt. 13/08/2009
  - e). Calibration certificate issued by KPTCL dt. 21/09/2010



- /7/ Annual Calibration certificates issued by KPTCL for the years 2006,2007,2008, 2009 and 2010 for the Receiving station at Kakkeharavu
  - a). Dvg/RT/WF-15/718-22 dt. 16/08/2006 for Line 1 and Dvg/RT/WF-58/723-27 dt. 16/08/2006 for Line 2
  - b). Dvg/RT/WF-15/560-64 dt. 21/08/2007 for Line 1 and Dvg/RT/WF-58/565-69 dt. 21/08/2007 for Line 2
  - c). Dvg/RT/WF-15/58/08-09/191-95 dt. 02/06/2008 both the Lines
  - d). Calibration certificate issued by KPTCL dt. 08/06/2009 for both the Lines
  - e). Calibration certificate issued by KPTCL dt. 25/02/2010 for both the Lines
- /8/ Monthly Invoices raised by M/s. Enercon Windfarms (India) Ltd on KPTCL for the period July 2007 to December 2009
- /9/ Monthly Invoices raised by M/s. CEPCO Industries Limited on KPTCL for the period July 2007 to December 2009
- /10/ Comparison sheet of monthly net export among Main and Check meters for both M/s. Enercon Windfarms (India) Ltd and M/s. CEPCO Industries Limited for the period July 2007 to December 2009
- /11/ PPA between KPTCL and M/s. CEPCO Industries Pvt Limited dt. 23/11/2001.
- /12/ PPA between KPTCL and M/s. Enercon Windfams (India) Limited dt. 23/11/2001.
- /13/ PLF report of the Project developer

### Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- /14/ Registered PDD, version 2.0 dt. 27/10/2005 (project reference no. 0276)
- /15/ Revised Monitoring plan approved by UNFCCC on 26/03/2010 (project reference no. 0276)
- /16/ Monitoring report, version 1.0 dt. 13/12/2010
- /17/ Monitoring report, version 2.0 dt. 08/03/2011
- /18/ Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources", ACM 0002 Version 03
- /19/ "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources", ACM 0002 Version 04
- /20/ Intimation sent by project participant to UNFCCC on 30/12/2010 on the discrepancy in version number of the methodology indicated in project search interface of UNFCCC website
- /21/ Second verification report, version 02 dt. 16/07/2010

### Persons interviewed:

List persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

- /1/ Mr. Bhupendra Verma, Asst manager, Enercon India Limited, Mumbai
- /2/ Mr. Puneet Katyal, Head CDM, Enercon India Limited, Mumbai
- /3/ Mr. Satish J Patil, Lead-Asset Performance, Enercon India Limited, Chitradurga
- /4/ Mr. Puneet Dwivedi, Engineer, Enercon India Limited, Chitradurga
- /5/ Mr. Shafayathulla, Sub-contractor, Enercon India Limited, Chitradurga



- /6/ Mr. Narayan Hegde, Site-Incharge, Enercon India Limited, Chitradurga
- /7/ Mr. Nagesh, Supervisor, Sub-contractor, Enercon India Limited, Chitradurga



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

**S. Thyagaraj: (Team Leader)** He has a Bachelors of Technology degree in Chemical Engineering and over 7 years of experience in Technical services covering various functions like Production management, Energy conservation and Environment protection measures in the manufacturing industry including ISO 14001 based quality management systems. He is a certified Energy Manager from Bureau of Energy Efficiency. Working for the last 1.5 year in Bureau Veritas Certification (India) Pvt. Ltd. as Verifier - Climate change. Has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of CDM project activities.

**V. Senthil Kumar:(Team Member)** He is a Environmental Engineer with over 5 years of experience in the field of Consultancy related to Training and Implementation of Management Systems (ISO : 9000, 14000 & 18000) for various organizations. For the last 4 years, he is involved in different type of Clean Development Mechanism Projects. He has also experience in offering project management services to various renewable energy projects. Has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of CDM project activities.

**H. B. Muralidhar: (Internal Technical Reviewer)** Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System Graduate in Electrical Engineering with 25 years of experience power generation and distribution related fields as well as in management system auditing. He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System. He has undergone intensive training on Clean Development Mechanism. He is the technical expert & conducted Validation / Verification for more than 50 CDM Projects.

## APPENDIX A - VERIFICATION PROTOCOL

**Table 1** Verification requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
<b>1 Project implementation in accordance with the registered project design document</b>					
a Are all physical features of the proposed CDM project activity proposed in the registered PDD in place?	VVM	196	<p>The project activity is a bundled wind power project with the total installed capacity of 16.8 MW, which comprises of 28 numbers of WECs. The WECs are of Enercon make E-40 model, with each WEC having a capacity of 600 kW.</p> <p>All the 28 WECs are located in Jogimatti wind zone of Chitradurga District in Karnataka State, India. The 14 number of WECs are owned by M/s. Enercon Wind Farms (India) Limited and the remaining 14 WECs are owned by M/s. CEPCO Industries Pvt. Limited. Project was implemented and commissioned between 2001 and 2002, before the registration. All the features and equipments at the site are inline with the description provided in the Registered PDD.</p>	OK	OK
b Have the project participants operated the proposed CDM project activity as per the registered PDD?	VVM	196	The electricity generated from the project activity is being supplied to the grid (KPTCL) under a long-term power purchase agreement. The WECs of project activity generate power at 400 V which is then stepped up to 33 kV. The electricity supplied to the grid is metered at high voltage side of	OK	OK




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## VERIFICATION REPORT

CHECKLIST QUESTION		Ref.	§	COMMENTS	Draft Concl	Final Concl
				transformer at two pooling stations through two (main and check meters) trivector meters for each of the project proponent. The power is further transmitted to the Receiving station (33KV / 66KV) located at Kakkeharavu, which is owned by the WEC supplier and then transmitted to the grid. As per the Power purchase agreement with the KPTCL, the transmission losses till the receiving station at Kakkeharavu are to be deducted from the meter readings at the project location to arrive at the net electricity supplied to the grid.		
c	Was an on-site visit conducted?	VVM	196	Yes. Site visit was conducted on 29/01/2011.	OK	OK
d	If not, justify the rationale of the decision.	VVM	196	Not Applicable.	OK	OK
e	Does the implementation or operation of CDM project activity conform with the description contained in the registered PDD?	VVM	197	The documents pertaining to the operation of the project activity were reviewed during the verification site visit. The operation of CDM project activity was observed to be in line with the description contained in the registered PDD and the revised Monitoring plan approved by UNFCCC on 26 March 2010.	OK	OK
f	If not, which are the potential impacts due to these changes, according to the relevant guidelines established by the Executive Board (EB48-§73)?	VVM	197	There are no changes w.r.t the following: a). Changes 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. b). Addition of component or extension of technology. c). Removal or addition of one (or more) site of a	OK	OK




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## VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			project activity registered with multiple-sites. d). Different values of those actual operational parameters relevant to determination of emission reduction which are within the control of project participant.		
g Was a notification or a request for approval of changes from the project activity as described in the registered PDD submitted prior to the conclusion of the verification/certification for the corresponding?	VVM	197	Not Applicable.	OK	OK
<b>2 Compliance of the monitoring plan with the monitoring methodology</b>					
a Is the validated monitoring plan in accordance with the approved methodology applied by the proposed CDM project activity?	VVM	200	The PDD and the Revised Monitoring plan has applied the monitoring methodology ACM 0002 Version 03 "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources", whereas the Project search interface in the UNFCCC website indicates the project applies the methodology ACM 0002 Version 04.	CAR 1	OK
b If no, was a request for revision of the monitoring plan was done? (The DOE may request for revision of the monitoring plan covering the monitoring period under verification, for approval by the CDM Executive Board)	VVM	201	The validated monitoring plan is in accordance with the monitoring methodology ACM 0002, version 3 indicated in the registered PDD. Hence revision in the monitoring plan is not required.	OK	OK
c Are there any monitoring aspects of the project activity that are not specified in the methodology, particularly in the case of small-scale methodologies (e.g. additional monitoring	VVM	202	There are no other / additional monitoring parameters of the project activity other than those specified in the methodology.	OK	OK


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## VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
parameters, monitoring frequency and calibration frequency)?					
<b>3 Compliance of monitoring with the monitoring plan</b>					
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	VVM	205	The monitoring plan and the applied methodology has been properly implemented by the project proponents.	OK	OK
b Have all parameters stated in the monitoring plan, the applied methodology and relevant CDM Executive Board decisions been sufficiently monitored and updated as applicable, including:	VVM	205			
i Project emission parameters?	VVM	205	There are no project emissions associated with the project activity.	OK	OK
ii Baseline emission parameters?	VVM	205	The electricity supplied to the grid is metered at high voltage side of transformer at two pooling stations through two (main and check meters) trivector meters for each of the project proponent. The net electricity supplied monthly to the grid after deducting the transmission losses are deducted from the Form B which reflects the readings of the Joint Meter Readings recorded by KPTCL officials and the representatives of the project participant every month.	OK	OK
iii Leakage parameters?	VVM	205	There are no Leakage emissions associated with the project activity.	OK	OK
iv Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the	VVM	205	The Management and operational system adopted at site is in line with the revised monitoring plan approved by UNFCCC.	OK	OK



## VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
monitoring plan?					
c Is the accuracy of equipment used for monitoring in accordance with the relevant guidance provided by the CDM Executive Board and are equipment controlled and calibrated in accordance with the monitoring plan?	VVM	205			
i Are monitoring results consistently recorded as per approved frequency?	VVM	205	The monitoring results are consistently recorded every month by the representatives of the project participant and KPTCL officials in the form of Joint Meter Readings, the joint meter readings are finally reflected in a statement termed as Form –B.	OK	OK
ii Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	VVM	205	<p>The project participant has provided the excel spread sheet which contains the monthly comparison of net electricity recorded in the Main meter and Check meter for both the project proponents. The excel spread sheet reveals that the difference in readings recorded in both the meters have been within the permissible limits.</p> <p>The Annual calibration certificates for the years 2007 (August), 2008 (May) and 2009 (August) for all energy meters have been provided by the project participant. The calibration certificates reveal the energy meters were all working within the permissible limits of accuracy of 0.2 class. Project participant to provide the calibration certificate of the year 2010 to ascertain the certainty of data for the period August 2009 to December 2009.</p>	OK  CL 1	OK  OK



## VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			During the document review it was also observed that for the year 2007 and 2009 the calibration frequency was not as per the approved monitoring plan. The PP is requested to clarify how this in line with Annex 60 of EB 52.	CAR 3	OK
<b>4 Assessment of data and calculation of greenhouse gas emission reductions</b>					
a Is a complete set of data for the specified monitoring period is available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the DOE shall opt to either make the most conservative assumption theoretically possible in finalizing the verification report, or raise a request for deviation prior to submitting request for issuance, if appropriate).	VVM	208	The complete set of data pertaining to the current monitoring period was made available to the verification team. However, the Form B statements submitted for the months March 2009, May 2009 and June 2009 for both the project proponents are not readable. Please provide a clear copy of the same.	CL 2	OK
b Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	VVM	208	<p>The invoices raised by both the project proponents on BESCOM for the entire monitoring period has been provided by the project participant.</p> <p>There are two meters (Main meter and check meter) at each of the pooling stations for both the project proponents. The emission reduction calculation does not take into account the conservative readings recorded amongst these two meters for arriving at a conservative estimate of emission reductions.</p>	<p>OK</p> <p>CAR 2</p>	<p>OK</p> <p>OK</p>



## VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			The webhosted monitoring report indicates the CERs for the current monitoring period as 1,12,851 (2 years and 6 months). Whereas for the same time duration (2 years and 6 months) as per the registered PDD the estimated CERs works out to be approximately 1,03,828. Please clarify the difference in the CERs.	CL 3	OK
c Have calculations of baseline emissions, proposed CDM 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?	VVM	208	There are two meters (Main meter and check meter) at each of the pooling stations for both the project proponents. The emission reduction calculation does not take into account the conservative readings recorded amongst these two meters for arriving at a conservative estimate of emission reductions.	(CAR 2)	OK
d Have any assumptions used in emission calculations been justified?	VVM	208	There are no assumptions involved in emission reduction calculations.	OK	OK
e Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	VVM	208	The emission factor for the Southern grid, which is fixed for the crediting period (0.9633877 Tco <sub>2</sub> /MWh) has been correctly used in the emission reduction calculations.	OK	OK

## VERIFICATION REPORT

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

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
<p>CAR 1</p> <p>The PDD and the Revised Monitoring plan has applied the monitoring methodology ACM 0002 Version 03 “Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources”, whereas the Project search interface in the UNFCCC website indicates the project applies the methodology ACM 0002 Version 04.</p>	2.a	<p>An intimation regarding the said discrepancy in methodology version number has been sent to UNFCCC on 30<sup>th</sup> December 2010. The scanned copy of this email has been provided to DOE for reference. Thus, the project participant has carried out the necessary action to be performed at its end. The rectification of typographical error on the website is beyond the control of project participant.</p>	<p>The verification team checked the scanned copy of the mail sent by the project participant to UNFCCC on 30/12/2010, requesting a correction in version number of the methodology indicated in the project search interface of the UNFCCC website. The mail also states, “that there is no difference in both the versions from the perspective of applicability, additionality or CER calculations for the project activity”. The verification team cross checked both the versions of the methodology ACM0002, the version 3 and version 4 and found that the change in version is only “to provide guidance for project participants to define the grid boundary applicable to their project activity in situations where the application of ACM0002 does not result in a clear grid boundary given country-specific grid management policies”. Since this change does not impact the</p>



## VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
			applicability, additionality or the CER calculations and since the project participant has also intimated to UNFCCC, it is accepted by the verification team and the CAR is closed.
<p>CAR 2</p> <p>There are two meters (Main meter and check meter) at each of the pooling stations for both the project proponents. The emission reduction calculation does not take into account the conservative readings recorded amongst these two meters for arriving at a conservative estimate of emission reductions.</p>	4.b	<p>The emission reductions calculations have been revised to consider the conservativeness of CER based on the readings recorded among main meter and check meter.</p>	<p>The revised emission reduction calculation sheet, version 2.0 takes into account the minimum value of export reading recorded among the main meter &amp; checks meter and the maximum value of import reading recorded among the main meter &amp; check meter in the respective pooling stations to arrive at Net electricity exported to grid, which is conservative. The verification team cross checked all the values with Form B statements issued by the state electricity utility, KPTCL for the entire monitoring period and found no discrepancies. Hence the revised emission reduction calculations are accepted by the verification team and the CAR is closed.</p>



## VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
<p>CAR 3</p> <p>During the document review it was also observed that for the year 2007 and 2009 the calibration frequency was not as per the approved monitoring plan. The PP is requested to clarify how this in line with Annex 60 of EB 52.</p>	<p>3.c.ii</p>	<p>According to Annex 60 of EB 52 (Point 4 (a)) which states to apply the maximum permissible error of the instrument to the measured values, if the results of the delayed calibration do not show any errors in the measuring equipment, As there were no errors in subsequent delayed calibration, PP has applied the maximum error factor of 0.2 % for 0,2 class meters as per the CEA metering code in measured values of export, import and transmission losses conservatively i) in the months for July &amp; August 2007 and, ii) in the month of May, June, July &amp; August 2009. After taking the maximum error factor into consideration the emission reduction calculation works out to be 1,12,719 tCO<sub>2</sub>e.</p> <p>The revised emission reduction calculation sheet and revised monitoring report is submitted to the DOE.</p>	<p>The PP has submitted the revised emission reduction calculation and revised monitoring report. The maximum permissible error of 0.2 % for 0.2 accuracy class energy meters has been applied in the delayed calibration months, which is in line with Annex 60 of EB 52. The revised emission reduction calculations are found to be calculated in a conservative manner which is acceptable, hence CAR 3 is closed.</p>





## VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
<p>CL 1</p> <p>The Annual calibration certificates for the years 2007 (August), 2008 (May) and 2009 (August) for all energy meters have been provided by the project participant. The calibration certificates reveal the energy meters were all working within the permissible limits of accuracy of 0.2 class. Project participant to provide the calibration certificate of the year 2010 to ascertain the certainty of data for the period August 2009 to December 2009.</p>	3.c.ii	<p>Calibration certificates of the year 2010 are provided with this document to ascertain the certainty of data for the period August 2009 to December 2009.</p>	<p>The calibration certificates for the year 2010 for all the energy meters has been provided by the project participant. The verification team cross checked the calibration certificates issued by the State electricity utility and found that the energy meters are recording within the permissible limits of +or – 0.2 accuracy class. Since the subsequent calibration certificate of the year 2010 does not reveal any error in the energy meter readings, the verification team considers the data to be certain for the period August 2009 to December 2009, which covers the current monitoring period. Hence the CL is closed.</p>
<p>CL 2</p> <p>The complete set of data pertaining to the current monitoring period was made available to the verification team. However, the Form B statements submitted for the months March 2009, May 2009 and June 2009 for both the project proponents are not readable. Please provide a clear copy of the same.</p>	4.a	<p>The clear copies of Form B for the months March 2009, May 2009 and June 2009 for both the project proponents have been provided to DOE.</p>	<p>The clear copies of the Form B statements for the months March 2009, May 2009 and June 2009 has been provided. The verification team cross checked the same with the values applied in CER calculations and found that there are no discrepancies. The clarification and the relevant documents provided by the PP are accepted by the</p>



## VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
<p>CL 3</p> <p>The webhosted monitoring report indicates the CERs for the current monitoring period as 1,12,851 (2 years and 6 months). Whereas for the same time duration (2 years and 6 months) as per the registered PDD the estimated CERs works out to be approximately 1,03,828. Please clarify the difference in the CERs.</p>	4.b	<p>As per the revised conservative CER calculation, total CERs for the monitoring period cumulate to 1,12,719 against an estimate of 1,03,828 CERs as per the registered PDD, which is a deviation of 8.55%.</p> <p>With reference to Item No 5 (C) of Annex 67 /EB 48 which states that there is a need to reassess changes which may impact the additionality of the project activity only if there are 'Different values of those actual operational parameters relevant to determination of emission reduction which are within the control of project participant and which result in the IRR passing the benchmark as described in the registered PDD.</p> <p>Since plant load factor for wind</p>	<p>verification team and the CL is closed.</p> <p>The verification team during site visit observed that, (a). There is no change in effective output capacity due to increased installed capacity or increased number of units, or replacement of existing units with advanced technology units.</p> <p>(b). There is no addition of component or extension of technology.</p> <p>(c ). There is no addition of site to the project activity.</p> <p>(d). There is no change in values of actual operational parameters relevant to determination of emission reduction which are within the control of project participant.</p> <p>The verification team also reviewed the Form B statements issued by KPTCL for the entire monitoring period and found that there is no change in effective output capacity and the project activity site.</p>



## VERIFICATION REPORT

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		energy power plant project is not within the control of the Project Participant, this difference in CER can be attributed to conditions beyond the control of project participant.	Hence the verification team considers the PLF of 31.81 % achieved during the current monitoring period is only due to seasonal change in the wind pattern which is beyond the control of project participant and that there is no need to re-assess the additionality of the project activity. Hence accepted by the verification team and the CL is closed.