

VERIFICATION & CERTIFICATION REPORT

ENERCON (INDIA) LTD

Bundled Wind power project in
Jaisalmer (Rajasthan in India)
managed by Enercon (India) Ltd.
(UN Ref No. 0310)

Monitoring Period
(01/07/2006 to 31/08/2011)

REPORT NO.
CDM.11.VER.0172MP02

Date of this issue: 12/09/2012	KBS Ref. No.: CDM.11.VER.0172MP02	
Project Title	Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd.	
Organization:	KBS Certification Services Pvt. Ltd.	
Client:	Enercon (India) Ltd	
Monitoring Period:	01/07/2006 to 31/08/2011(including both dates)	
Summary:		
<p>KBS Certification Services Pvt. Ltd. has performed the second verification of the CDM project "Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd." having UNFCCC Ref. Number 0310. The verification includes confirming the implementation of the monitoring plan of the revised registered PDD (version 06^{1.2/}) and the application of the monitoring methodology as per ACM0002, version 4 dated 28/11/2005. A site visit was conducted to check the implementation of registered monitoring plan and verify the data submitted in the monitoring report. KBS confirms the following has been reviewed;</p> <ul style="list-style-type: none"> (a) The registered/revised PDD, including the monitoring plan and the corresponding validation opinion; previous verification report; (b) Requests for revision of monitoring plan; (c) Monitoring report for the monitoring period under verification including CER calculations sheets and all supporting documents; (d) The applied monitoring methodology; (e) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board; (f) All information and references relevant to the project activity's resulting in emission reductions <p>KBS Certification Services Pvt. Ltd. confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 373,538tCO₂e emission reductions during period 01/07/2006 to 31/08/2011.</p>		
Subject Group:	Sectoral Scope:	Methodology:
CDM Verification	1	ACM0002 Version 4
Verification Team:		Monitoring report:
Team Leader& Local Expert	Kaviraj Singh	First version V1, 04/10/2011
Verifier	Shreya Garg	Final version V4, 10/09/2012
Technical Expert (TA 01.2)	Kaviraj Singh	Verification status:
Independent Technical Reviewer Team:		<input type="checkbox"/> Findings not closed.
Date	14/09/2012	<input type="checkbox"/> Draft verification opinion
Technical Reviewer	Madhuri Nanda	<input checked="" type="checkbox"/> Final verification opinion
Technical Expert (TA 01.2)	Abhishek Mahawar	
Date	17/09/2012	
Manager T&C	Ashok Kumar Gautam	
Authorized Signatory:		Indexing Terms
Date	17/09/2012	<input checked="" type="checkbox"/> No distribution without permission from client
Managing Director	Kaushal Goyal	<input type="checkbox"/> Limited distribution
		<input type="checkbox"/> Unrestricted distribution
Revision history:		
Date:	Rev. No.	Pages
28/08/2012	1	31
12/09/2012	2	33

Abbreviations

Ajmer DISCOM	Ajmer Electricity Distribution Company Ltd
BM	Build Margin
CEA	Central Electricity Authority of India
CEF	Carbon Emission Factor
CER	Certified Emission Reductions
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
EIL	Enercon (India) Ltd
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
JVVNL	Jaipur Vidyut Vitran Nigam Limited
Jaipur DISCOM	Jaipur Distribution Company Limited
JdVVNL	Jodhpur Vidyut Vitran Nigam Limited
kWh	Kilo Watt hour
MOM	Minutes of meetings
MP	Monitoring Plan
MR	Monitoring Report
MWh	Mega Watt hour
OM	Operating Margin
PDD	Project Design Document
PPA	Power Purchase Agreement
RMP	Revised Monitoring Plan
RRVNL	Rajasthan Rajya Vidyut Prasaran Nigam Ltd
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Validation and Verification Manual
WTG	Wind Turbine Generator

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1. INTRODUCTION

1.1 Objective

KBS has been commissioned by Enercon (India) Ltd (EIL) to perform an independent verification of its registered CDM project Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd., UNFCCC ref. no. 0310 for the reported GHG emission reductions for the given monitoring period 01/07/2006 to 31/08/2011 (both dates included). The CDM projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish 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;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

1.2 Scope

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the registered PDD, approved monitoring plan and the monitoring report. The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

KBS has, based on the recommendations in the latest version of Validation and Verification Manual (VVM), employed a risk-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

1.3 Description of the Project Activity

Project Parties:	India (host); Netherlands
Title of project activity:	Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd.
UNFCCC registration No:	0310
Registration date:	29/05/2006
Applied methodology:	ACM0002 Version 04
Crediting period:	01/07/2004 to 30/06/2014 (fixed)
Project Participants:	Enercon (India) Ltd
Location of the project activity:	The Project is located in Soda village, in Jaisalmer District of Rajasthan state in India.

This project is set up to produce clean power from the wind electric converters which leads to reduced greenhouse gas (GHG) emissions as it displaces electricity from fossil fuel based electricity generation plants. The project activity consists of the 90 machines^{/12/}, each 600 kW of Enercon make, totalling to the capacity of 54 MW, which is in line with registered revised PDD, version 06^{/1,2/}. It may be worthy to note that original capacity of the project activity was validated as 58.2 MW consisting of 97 WTGs ^{/1,1/} and also the verification of the first monitored period has been complete^{/17/}. However, 7 WTGs of the project activity were decommissioned in June 2008^{/16,20,21/}. The design change in this regard has been approved by CDM EB on 13/07/2012^{/18,22/}.

The project activity generated 373,538 tCO₂e emission reductions during the current monitoring period 01/07/2006 to 31/08/2011 (including first and last day).

2. METHODOLOGY

KBS followed a risk based verification approach, wherein a desk review of the project documentation was undertaken, which was followed by an onsite visit by the members of verification team that included technical expert. The verification protocol was filled by the verification team that is based on standard auditing practices and VVM Version 01.2, to capture the applicable CDM requirements. The verification protocol provides transparent means to record the observations by the verification team members and the nonconformities, if any. The verification protocol is an internal document, and available on request.

Duration of verification

Verification Contract	19/09/2011
Publication of MR	06/10/2011 [#]
Site visit	08/11/2011
Draft Verification Report	28/08/2012
Final Verification Report	12/09/2012

[#] The monitoring report was made public on the UNFCCC webpage on 06/10/2011^{23/} however erroneously it was removed from the UNFCCC webpage of the project. It was noticed by the DOE and after notifying and getting approval from UNFCCC the same monitoring report was rewebhosted on 04/01/2012.

2.1 Review of Documentation

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of document reviewed is included in the section 6i.e. 'References'

2.2 Site Visits

A site visit is undertaken by members of verification team, involving but not limited to,

- An assessment of the implementation and operation of the proposed CDM project activity as per the registered PDD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources;
- A check of the monitoring equipments including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The site visit for this verification assessment was undertaken by Kaviraj Singh and details are mentioned below:

Location	Soda village, in Jaisalmer District of Rajasthan state in India	
Dates	08/11/2011	
Key points discussed	Name of person, interviewed	Designation, Organization
Operational data	Manish Wadhwa	Engineer, EIL
	Jeetendra Kumar	Engineer, EIL
Calibration	Manish Wadhwa	Engineer, EIL
	Jeetendra Kumar	Engineer, EIL
Data collection	Jeetendra Kumar	Engineer, EIL
QA/QC procedures	Manish Wadhwa	Engineer, EIL
Calculation of ERs	Saujanya Kumar	CDM-Corporate, EIL
CDM requirements	Saujanya Kumar	CDM-Corporate, EIL

2.3 Reporting of Findings

During the course of verification the findings may be raised as under:

CAR is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

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

All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance. FAR is raised if the monitoring and reporting require attention and/or adjustment for the next verification period. The verification report contains all CARs, CLs and FARs raised during this verification.

2.4 Verification Assessment

Based on the desk review and site visit the verification team filled in the verification protocol to identify and record the findings in the context of the project activity. The findings were communicated to the client. The project documentations, including responses to the findings were reviewed by the team leader in consultation with team members, as appropriate. The team leader prepared the draft verification report subject to closure or non closure of the findings.

It is the responsibility of the team leader to confirm that the verification assessment has been undertaken in accordance with the procedures adopted by KBS as well as in accordance with the standards, procedures, guidance and decision established by CDM EB and related bodies.

2.5 Internal Quality Control

The draft verification report prepared by Team Leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Manager Technical and Certification. The Technical Reviewer and Manager T&C can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager T&C.

3. VERIFICATION FINDINGS

3.1 Project Implementation

Discussion:

The project activity consists of the 90 machines^{12/}, each 600 kW of Enercon make, totalling to the capacity of 54 MW, which is in line with registered revised PDD, version 06^{1.2/}. The original capacity of the project activity was validated as 58.2 MW consisting of 97 WTGs^{1.1/} and also the verification of the first monitored period has been complete^{17/}. However, 7 WTGs of the project activity were decommissioned in June 2008^{16,20,21/}. The design change in this regard has been approved by CDM EB on 13/07/2012^{18,22/}. The electricity generated from the project activity is supplied to Rajasthan Rajya Vidyut Prasaran Nigam Ltd (“RRVPNL”) through a 132kV Double Circuit line to Amarsagar sub-station.

This has been verified during the onsite assessment and through the Joint Meter Reading(JMR)^{6/} issued by the DISCOM, RRVPNL. The information related to commissioning of WTG’s were checked against the respective commissioning certificates^{7/} and found in order.

Findings:

As per the registered PDD^{1.1/} version 02, the project activity generates wind energy from 97 WTGs all of 600 kW totalling a capacity of 58.2 MW and exports to the grid. The electricity generated from the project activity supplied to local sub-station of the RRVPNL using transmission lines. The project activity has 20 sub-projects of different capacities bundled to form the captioned project activity of 58.2 MW capacity.

However, during site visit it was observed that the implementation and operation was not inline to the description in the registered PDD version 02. The deviations observed from the stated scenario are as follows:

1. The installed capacity of the actual project activity was found to be 54 MW. The change in the installed capacity was due to the decommissioning of 7 WEGs during the operation of the project activity.
2. The installed capacities of sub-projects Texmo Group and Venlon Polyester Film Ltd did not match the actual capacities.
3. Among the 20 sub-projects the ownership of 12 sub-projects (aggregating to 31 WEGs) was changed. The change in the ownership is depicted in the table below:

S.No.	Initial description as per registered PDD			Configuration after change of ownership (actual)		
	Sub-Project Owners	Number of WTGs	Capacity (MW)	Sub-Project Owners	Number of WTGs	Capacity (MW)
1	Venlon Polyester Film Ltd	05	3.0	Enercon Wind Farm (Tungbhadra) Pvt. Ltd	5	3.0
2	Texmo Industries-I	03	1.8		3	1.8
3	Dinesh Pouches Limited	03	1.8		3	1.8
4	Texmo Industries-II	01	0.6		1	0.6
5	Revathi Equipment Ltd.	04	2.4		4	2.4
6	R.K.Premises Pvt. Ltd.	01	0.6		1	0.6
7	R. K. Marbles Pvt Ltd	07	4.2		7	4.2

8	Supreme Buildestates Pvt. Ltd.	01	0.6		1	0.6
9	Premier Buildestates Pvt. Ltd.	01	0.6		1	0.6
10	Renaissance Asset Management Co. Pvt. Ltd.	02	1.2		2	1.2
11	Texmo Precision Casting	03	1.8		3	1.8
12	Shree Ram Transport Finance Co Ltd	07	4.2	NU POWER Renewable Ltd.	07	4.2

The implementation of the project activity was not found in line with the description in the registered PDD version 2^{1.1/} with reference to the above stated issues. Therefore, CAR#01 was raised, referring VVM^{15/} paragraph 197 & EB 48 Annex 67 & 68 for the changes in the implementation and operation of the project activity. CAR#01 was kept pending for the approval of notification in the change in the project design from the CDM EB. The change in the project design^{18/} was approved by the CDM EB on 13/07/2012 based on which CAR#01 was closed.

CAR#02 was raised as the MR^{3.1/} did not include the information on the breakdown/shutdown details of the equipments. The information regarding the breakdown/ shutdown of the project WTGs was included in the revised MR^{3.2/}. The information was cross- checked from the downtime detail excel sheet prepared by the O & M contractor of the project and the CAR#02 was closed.

Opinion:

The implementation and operation of the project activity has been assessed against the approved revised PDD^{1.2/} version 6 dated 26/04/2012:

- The project activity consist of 90 WTGs (97 WTGS until June 2008^{1.1/}) of 600 kW commissioned during the period 29/09/2003 to 21/06/2004 in Rajasthan verified from the commissioning certificate^{7/} and during the on-site assessment.
- The implementation and operation of the project activity is inline with the approved revised PDD^{1.2/}. It is worthy to note that the project capacity was 58.2 MW before decommissioning of 7 WTGs (changes in PDD approved on 13/07/2012^{18/}) therefore the implementation till May 2008 was as per the previously registered PDD, version 2.0^{1.1.2/}.
- The estimated emission reductions for the project activity for comparable period (62 months) is 512,874tCO₂e while the actual emission reductions achieved during the monitoring period are 373,538tCO₂e. Therefore, there is no increase from the estimated amount of emission reductions in the approved revised PDD.
- There is no standalone approved RMP for the project activity. However, the change in project design has been notified along with the notification for project design change^{18/}, which got approved on 13/07/2012 (along with Project Design Change (PDC)). The latest approved revised PDD version 6 has been reviewed for the verification of the final Monitoring Report Version 4.
- There is no deviation or changes in the implementation of the project activity from the approved revised PDD^{1.2/}.

3.2 Compliance of Monitoring Plan with the Monitoring Methodology

Discussion:

The monitoring parameters included in the monitoring report^{3/}, allows determination of proper emission reduction in the context of the project activity in accordance with the referred applied methodology.

Findings:

The monitoring plan of the PDD^{1.1/} version 02, involved monitoring of only one parameter EGy i.e. Electricity supplied to the grid by the project. During the on-site assessment it was observed that this parameter could not have been monitored directly but is calculated from various other parameters which were also included in the monitoring report^{3.1/}.

CAR#03 was raised regarding the inconsistency between the registered monitoring plan described in PDD version 2^{1.1/} and the actual procedure for monitoring being followed on-site. In response to which, PP requested a revision in monitoring plan to transparently describe the monitoring procedure and thereof emission reduction calculations. The revision in monitoring plan was accepted by the CDM EB on 13/07/2012, based on which the CAR#03 was closed.

Opinion:

The monitoring plan mentioned in the approved revised PDD^{1.1/} is in line with the applied methodology ACM0002 Version 04^{4/}. The monitoring mechanism is in line with the methodology and is effective and reliable.

3.3 Compliance of Monitoring with Monitoring Plan

The approved monitoring plan^{18/} (accepted on 13/07/2012) is in practice on the project site as verified during the site visit by the assessment team.

Findings:

The section C of the MR^{3.1/} was incomplete regarding the details of the metering; also a delay in calibration was observed in the years 2007 and 2010. The calibrations were not conducted on the due dates. CAR#04 was raised considering the same issues. In response to the PP revised Section C of the MR^{3.2/} making it complete with all the required information about the installed meters. A correction factor was applied for the affected months in the year 2007 and 2010. The maximum permissible error of the meter (0.2%) was applied as correction factor which is in accordance with EB52 Annex 60^{19/} as the subsequent calibration certificates^{8/} indicates the proper functioning of the meter. The approach applied was found conservative based on which CAR#04 was closed.

CL#05 was raised regarding the change in the back-up meter on line 2, the meter verified during the site visit was ABB0691 however the calibration reports^{8/} prior 2009 indicate the meter number as TNU00951. The PP clarified the meter change took place on 15/02/2008^{16/} and was carried out by RRVNL. The meter was replaced because of display problem as evident from the meter change report^{16/}. The final reading of the old meter and the initial reading of the new meter were found alright. Moreover, the generation^{6/} for the month of February 2008 (month of meter change) was found to be the least for February during the period of 2006 to 2011. The analysis of the recorded data shows that there has been no extravagant measurements caused because of the meter defect. It is also worthy to note that the meter that was replaced was the back-up meter which is not followed customarily. The net electricity exported by the project activity are based on the readings from the main meter which were intact and functional meeting the requirements (apparent from the calibration certificates^{8/}) and was also verified during the site visit. Therefore, CL#05 was closed.

The monitoring parameters involved in the project activity as per approved revised PDD is analysed in detail in the subsections below:

3.3.1. EGy, MWh:

Net electricity generation supplied to the grid by the Project activity.

	Discussion and verification assessment
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	It is a calculated value derived from the JMRs ^{6/} .

Measuring/Reading/Recording frequency	Calculated monthly.																
Data collection (from data generation, aggregation, to recording, calculation and reporting)	<p>The parameter is determined as the difference of $\sum EG_{Export,y,M}$ {Summation of Electricity export to the grid by all the sub-Projects included in the project activity} and $EG_{JMR,Import}$ {Electricity imported by project activity and non-project activity WTGs as recorded by the main meter at the Amarsagar (state utility sub-station)}.</p> <p>The net electricity supplied by individual sub-project is determined by a process of allocating the total electricity recorded at the main meter to the individual sub-project in proportion to the electricity generation recorded by the LCS meters at the individual WTG forming the sub-project.</p> <p>However, in the project activity the values for the net electricity exported by a sub-project has been taken by apportioning (obtained from the JMRs^{/6/}) but the imported electricity is derived from the net electricity imported ($EG_{JMR,Import}$) by all the WTGs (project and non-project) as recorded by the main meter is subtracted.</p>																
Verified value	<table border="1"> <thead> <tr> <th>Period</th><th>Verified value (MWh)</th></tr> </thead> <tbody> <tr> <td>01/07/2006 to 31/12/2006</td><td>36,687.502</td></tr> <tr> <td>01/01/2007 to 31/12/2007</td><td>80,038.742</td></tr> <tr> <td>01/01/2008 to 31/12/2008</td><td>86,160.113</td></tr> <tr> <td>01/01/2009 to 31/12/2009</td><td>81,168.905</td></tr> <tr> <td>01/01/2010 to 31/12/2010</td><td>68,525.670</td></tr> <tr> <td>01/01/2011 to 31/08/2011</td><td>58,573.257</td></tr> <tr> <td>Total</td><td>411,154.189</td></tr> </tbody> </table>	Period	Verified value (MWh)	01/07/2006 to 31/12/2006	36,687.502	01/01/2007 to 31/12/2007	80,038.742	01/01/2008 to 31/12/2008	86,160.113	01/01/2009 to 31/12/2009	81,168.905	01/01/2010 to 31/12/2010	68,525.670	01/01/2011 to 31/08/2011	58,573.257	Total	411,154.189
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01/01/2010 to 31/12/2010	68,525.670																
01/01/2011 to 31/08/2011	58,573.257																
Total	411,154.189																
Cross checks	The values reported in MR ^{/3/} for both the monitored parameters ($\sum EG_{Export,y,M}$ and $EG_{JMR,Import}$) were verified from the JMRs ^{/6/} and were cross verified from the invoices ^{/10/} raised by the respective sub-project owners for net electricity supplied to grid and found to be consistent.																
QA/QC procedures applied	Please refer the parameter $\sum EG_{Export,y,M}$ and $EG_{JMR,Import}$																

Discussion:

This parameter is directly used in the calculation of emission reduction from the project activity. The approach applied is conservative as the project activity is accounting for electricity imported for all the sub-project owners (project) other non-project entities connected to the main meter which is in any case higher than the electricity imported by the project activity alone. The above information has been verified during the onsite assessment, invoices raised by PP^{/10/} and the electricity share certificates/credit subdivision^{/11/} of electricity. The parameter mentioned is in line with the approved revised approved PDD^{/1.2/}.

3.3.2. $EG_{JMR,Export}$: MWh

Electricity export by all the WTGs (project and non-project) recorded at state utility sub-station at Amarsagar.

	Discussion and verification assessment				
Monitoring equipment (type, accuracy class, serial number,	Meter specifications: (Type Two-way tri-vector Meters)				
	Sub-Station	Description	Make	Meter Serial no.	Accuracy Class

calibration frequency, date of last calibration, validity)	Amarsagar	Main meter Line 1	Secure Meters Ltd.	TNU00946	0.2	
		Main meter Line 2		TNU00945	0.2	
	Temdarai	Backup Meter Line 1		RJB00052	0.2	
		Backup Meter Line 2		TNU00951	0.2	
				ABB00691 15/02/2008 onwards)	0.2	
	Calibration requirement:					
	Monitoring methodology			PDD	MR	
Not mentioned		Annually	Annually			
Measuring/Reading/Recording frequency	The values are monitored continuously and recorded monthly					
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The gross exported electrcity reading (by all the WTGs, project and non project) is jointly (representative of EIL and state utility) recorded every month, from the main meter installed at the Electricity Board substation, and JMR ^{/6/} is being generated. The values in the JMR ^{/6/} are translated to the ER spread sheet ^{/5/} from where the final value is reported in the MR ^{/3/} .					
Verified value	Period		Verified value (MWh)			
	01/07/2006 to 31/12/2006		96,378.750			
	01/01/2007 to 31/12/2007		200,725.899			
	01/01/2008 to 31/12/2008		214,997.875			
	01/01/2009 to 31/12/2009		202,741.892			
	01/01/2010 to 31/12/2010		170,361.531			
	01/01/2011 to 31/08/2011		145,267.625			
	Total		1,030,473.572			
Cross checks	The values reported in ER spreadsheet were found consistent with the values mentioned in JMR ^{/6/} .					
QA/QC procedures applied	Calibrated meters within the defined accuracy class were used for measurement; the calibration certificates were cross checked by the verification team. A delay in calibration was evident had been taken into account in accordance with EB 52 Annex 60 ^{/19/} discussed in detail as CAR#04. The review of the calibration certificates ^{/8/} provided assurance that the errors of the meters during the calibrations were found within the permissible range. The details are given in section 3.7 of this report.					

Discussion:

This information has been verified during the onsite assessment and by the JMR^{/6/} signed duly by representative of state electricity board and PP. This parameter is used for the calculation of electricity exported by a sub-project to the grid; $EG_{\text{Export,y,M}}$ which is further used for the calculation of net electricity supplied by project activity, EG_y .

3.3.3. $EG_{\text{JMR,Import}}$, MWh

Electricity imported by project activity and non-project activity WTGs, as recorded by the main meters at the Amarsagar (state utility sub-station).

	Discussion and verification assessment				
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Meter specifications:(Type- Two-way tri-vector Meters)				
	Sub-Station	Description	Make	Meter Serial no.	Accuracy Class
	Amarsagar	Main meter Line 1	Secure Meters Ltd.	TNU00946	0.2
		Main meter Line 2		TNU00945	0.2
	Temdarai	Backup Meter Line 1		RJB00052	0.2
		Backup Meter Line 2		TNU00951	0.2
				ABB00691 15/02/2008 onwards)	0.2
	Calibration requirement:				
	Monitoring methodology		PDD	MR	
	Not mentioned		Annually	Annually	
Measuring/Reading/Recording frequency	The values are monitored continuously and recorded monthly.				
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The gross imported electricity reading (by all the WTGs, project and non project) is jointly (representative of EIL and state utility) recorded every month, from the main meter installed at the Electricity Board substation, and JMR ^{/6/} is being generated. The values from JMRs ^{/6/} are routed to the ER spread sheet ^{/5/} from where the final value in the MR ^{/3/} are obtained.				
Verified value	Period		Verified value (MWh)		
	01/07/2006 to 31/12/2006		270.000		
	01/01/2007 to 31/12/2007		369.950		
	01/01/2008 to 31/12/2008		284.250		
	01/01/2009 to 31/12/2009		265.000		
	01/01/2010 to 31/12/2010		425.273		
	01/01/2011 to 31/08/2011		175.375		
	Total		1,789.848		
Cross checks	The values reported in ER spreadsheet ^{/5/} were found consistent with the actual values mentioned in JMR ^{/6/} .				
QA/QC procedures applied	Calibrated meters within the defined accuracy class were used for measurement; the calibration certificates ^{/8/} were cross checked by the verification team. A delay in calibration was evident had been taken into account in accordance with EB 52 Annex 60 discussed in detail as CAR#04. The review of the calibration certificates ^{/8/} provided assurance that the errors of the meters during the calibrations were found within the permissible range. The details are given in section 3.7 of this report.				

Discussion:

This information has been verified during the onsite assessment and by the JMR^{6/} signed duly by representative of state electricity board and PP. This parameter is considered for the electricity imported for the project activity used for the calculation of net electricity supplied by project activity, E_{Gy}.

3.3.4. $EG_{Controller,i}$ MWh

Gross electricity export (gross electricity generation by WTG) by a WTG of project activity or non project activity, as measured at the controller (LCS meter) at project site. Where i, is the total number of WTGs connected to main meter including both project activity & non project activity.

	Discussion and verification assessment
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Meter specifications: Meter Type: NZR & Elster Meter Serial No: Refer Table 2 in Annex 1 of MR Version 4. Calibration details: Not applicable (please refer QA/QC procedures below)
Measuring/Reading/Recording frequency	The parameter is continuously measured at the LCS meter and is monthly recorded in the online monitoring station (CMS) through SCADA system by Enercon, which is the entity responsible for operation and maintenance of WTGs.
Data collection (from data generation, aggregation, to recording, calculation and reporting)	It is monitored continuously by the online monitoring station (online monitoring station is located at the project site where all the data [historical and instantaneous] from the LCS meters of all WTGs is retrieved) at the project site.
Verified value	As included in the ER spreadsheet ^{5.3/} corresponding to MR Version 4/3.4/ column 'G' of worksheets panel gen 2006 - 2011.
Cross checks	These values were verified from the CMS data maintained for all the WTGs connected to the system and operated and maintained by Enercon.
QA/QC procedures applied	The LCS meters do not require calibration confirmed from the Annex 4 of the approved revised PDD ^{1.2/} page 70. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the WTG will stop working and generate the error report. No such incident was reported for the current monitoring period as confirmed during onsite audit..

Discussion:

The above information has been verified during the onsite assessment. The online monitoring station continuously monitors and record the electricity generated by each WTG as shown on the LCS meter of each WTG. This parameter is used for the calculation of parameters $\sum EG_{Controller,i}$, $\sum EG_{Controller,N,M}$ and $EG_{Export,y,M}$. The parameter mentioned is in line with the approved revised PDD^{1.2/}.

3.3.5. $\sum EG_{Controller,i}$ MWh

Summation of Gross electricity export (Gross electricity generation by WTG) by all WTG of project activity and non project, as measured at the controller (LCS meter) at project site,

	Discussion and verification assessment
Monitoring equipment (type, accuracy class, serial number,	It is a calculated value, summation of $EG_{Controller,i}$

calibration frequency, date of last calibration, validity)	
Measuring/Reading/Recording frequency	Calculated monthly.
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The parameter is a outcome of summing of all the values recorded for the gross electricity supplied by the all the WTGs (project and non-project) connected to the sub-station.
Verified value	As included in the ER spreadsheet corresponding to MR Version 4 ^{3.4/} column 'K' of worksheet apportioning calculation ^{5.3/} .
Cross checks	These values were verified from the CMS data ^{12/} maintained for all the WTGs connected to the system and operated and maintained by Enercon.
QA/QC procedures applied	Please refer parameter $EG_{Controller,i}$.

Discussion:

The above information has been verified during the onsite assessment. The online monitoring station continuously monitors and record the electricity generated by each WTG as shown on the LCS meter of each WTG. This parameter is used for the calculation of parameters $\sum EG_{Controller,N,M}$ and $EG_{Export,y,M}$. The parameter mentioned is in line with the approved revised PDD

3.3.6. $\sum EG_{Controller,N,M}$ MWh

Summation of Gross electricity export (Gross electricity generation by WTG) by all the WTGs (N number of WTGs) of sub-project (M) included in the project activity, as measured at the LCS where M is any sub project included in the project activity and N is the number of WTGs in a sub-project.

	Discussion and verification assessment
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	It is a calculated value, summation of $EG_{Controller,i}$ of all the WTGs of a sub-project included in the project activity.
Measuring/Reading/Recording frequency	Calculated monthly.
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The parameter is obtained by summing up the gross electricity supplied by the N number of WTGs of a sub-project M.
Verified value	As included in the ER spreadsheet corresponding to MR Version 4 column 'L' of worksheet apportioning calculation.
Cross checks	These values were verified from the CMS data ^{12/} maintained for all the WTGs connected to the system and operated and maintained by EIL.
QA/QC procedures applied	Please refer parameter $EG_{Controller,i}$.

Discussion:

The above information has been verified during the onsite assessment. The online monitoring station continuously monitors and record the electricity generated by each WTG as shown on the LCS meter of each WTG. This parameter is used for the calculation of parameter $EG_{Export,y,M}$. The parameter mentioned is in line with the approved revised PDD

3.3.7. $EG_{Export,y,M}$; MWh

Electricity export to the grid by all WTGs of a sub-Project included in the project activity, where M is any sub project included the project activity.

	Discussion and verification assessment
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	It is a calculated value derived from parameters $EG_{JMR,Export}$, $\sum EG_{Controller,N,M}$ and $\sum EG_{Controller,i}$.
Measuring/Reading/Recording frequency	Calculated monthly
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The parameter is reflected in the generation break-up sheets ^{/11/} prepared by the O&M contractor (EIL) on the basis of monthly JMR sheets ^{/6/} and LCS readings ^{/12/} .
Verified value	As included in the ER spreadsheet corresponding to MR Version 4.
Cross checks	The values in the break-up sheets were cross-verified from the invoices ^{/10/} raised by the sub-project owners for the electricity sold to the grid. Also, the precedent values for the parameter in the ER spreadsheet were found consistent with the actual values mentioned in JMR ^{/6/} .
QA/QC procedures applied	The QA/QC for the input parameters used in the calculations are provided under respective parameter's table.

Discussion:

Electricity Export to the grid by the sub-project included in the project activity is calculated by the following formula,

$$EG_{Export,y,M} = \frac{EG_{JMR,Export} * \sum EG_{Controller,N,M}}{\sum EG_{Controller,i}}$$

Where,

- $EG_{JMR,Export}$ = Electricity export recorded at respective billing meters located at state utility sub-station
- $\sum EG_{Controller,N,M}$ = Electricity exported by the sub project included in the project activity, as recorded at LCS where N is number of WEGs in the sub project M included in the project activity
- $\sum EG_{Controller,i}$ = Electricity exported by project activity as well as non project activity WEGs, as recorded at the LCS where 'i' is number of WEGs including project and non project.

This information has been verified during the onsite assessment and from the calculations carried out in the ER sheet^{/5/}. The values have been derived from the values in the JMR^{/6/} signed duly by representative of state electricity board and PP and cross verified from the invoices^{/10/}

raised by the sub-project owners on the state utility. This parameter is used for the calculation of the total electricity supplied by the project activity to the grid, $\sum EG_{\text{Export},y,M}$.

3.3.8. $\sum EG_{\text{Export},y,M}$: MWh

Summation of Electricity export to the grid by all the sub-Projects included in the project activity.

	Discussion and verification assessment	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	It is a calculated value, summation of the parameter $EG_{\text{Export},y,M}$	
Measuring/Reading/Recording frequency	Calculated monthly	
Data collection (from data generation, aggregation, to recording, calculation and reporting)	The parameter is the summation of $EG_{\text{Export},y,M}$ calculated on the basis of monthly JMR sheets and LCS readings.	
Verified value	Period	Verified value (MWh)
	01/07/2006 to 31/12/2006	36,957.502
	01/01/2007 to 31/12/2007	80,408.692
	01/01/2008 to 31/12/2008	86,444.363
	01/01/2009 to 31/12/2009	81,433.905
	01/01/2010 to 31/12/2010	68,950.943
	01/01/2011 to 31/08/2011	58,748.632
	Total	412,944.037
Cross checks	The precedent values reported in ER spreadsheet ^{/5/} were found consistent with the values mentioned in the invoices ^{/10/} raised by the sub-project owners.	
QA/QC procedures applied	The QA/QC for the input parameters used in the calculations are provided under respective parameter's table.	

Discussion:

This information has been verified during the onsite assessment and by the invoices^{/10/} raised by the sub-project owners on the state utility. This parameter is used for the calculation of net electricity supplied by project activity, EG_y .

Opinion:

The calibration and other technical details of the measurement devices were found meeting the QA/QC procedures as mentioned in the approved revised PDD. The delay in calibration observed during year 2007 and 2010 in the monitoring period was taken to due account by the application of appropriate correction factor as discussed in CAR#04. Therefore the monitoring of the project activity is carried out as per the approved revised PDD^{/1.2/} and meets the requirement of the applied methodology^{/4/} and enabling accurate estimation of emission reductions.

3.4 Data not monitored (ex ante or external parameters)

3.4.1. $EF_{OM,Y,tCO_2e/MWh}$:

Simple Operating Margin Emission Factor of Northern Regional Grid

	Discussion and verification assessment
Verified value	2001 – 02 1.12172 2002 – 03 1.12260 2003 – 04 1.02817 Average 1.09083
Source of value	Registered PDD ^{/1,2/}
Justification	Annex 3 of the registered PDD ^{/1,2/} includes the detailed calculation of the parameter for which the data was sourced from the data made public by Central Electricity Authority ^{/9/} .

3.4.2. $EF_{BM,y,tCO_2e/MWh}$:

Build Margin Emission Factor of Northern Regional Grid

	Discussion and verification assessment
Verified value	2003 – 04 0.72621
Source of value	Registered PDD ^{/1,2/}
Justification	Annex 3 of the registered PDD ^{/1,2/} includes the detailed calculation of the parameter for which the data was sourced from the data made public by Central Electricity Authority ^{/9/} .

3.4.3. $EF_y,tCO_2e/MWh$:

Combined Margin Emission Factor of Northern Regional Grid

	Discussion and verification assessment
Verified value	0.90852
Source of value	Registered PDD ^{/1,2/}
Justification	Annex 3 of the registered PDD ^{/1,2/} includes the detailed calculation of the parameter for which the data was sourced from the data made public by Central Electricity Authority ^{/9/} .

Opinion:

In the opinion of assessment team, the assumptions, emission factors and default values that were applied in the calculations have been justified.

3.5 Remaining Issues (FARs from Previous Validation or Verification)

There are no issues found pending from the Validation report ^{/2/} and the previous verification confirmed from verification report^{/17/}.

3.6 Assessment of Data & calculation of GHG Emission Reductions

The general conditions set out for metering, recording, meter readings, meter inspections, test & checking and communication are as per the procedures implemented by RRVN pursuant to the provisions of the PPA^{/14/}. Each meter is inspected and sealed by an official from state utility who also takes the meter reading and then translates it in the “Certificate for share of electricity” format, which indicates the net electricity exported. This forms the basis for the calculation of emission reductions.

BE (baseline emissions) is the electricity delivered to the grid by the project that would have otherwise been generated by the operation of grid-connected power plants. Calculated as follows:

$$BE_y = EG_y * EF_y$$

Where,

EG_y is the net electricity supplied to the grid in year y

EF_y is the CO₂ emission factor of the grid (fixed ex-ante)

Therefore,

Period	EG _y (MWh)	EF _y (tCO _{2e} /MWh)	BE _y * (tCO _{2e})
01/07/2006 to 31/12/2006	36,687.502	0.90852	33,331
01/01/2007 to 31/12/2007	80,038.742	0.90852	72,716
01/01/2008 to 31/12/2008	86,160.113	0.90852	78,278
01/01/2009 to 31/12/2009	81,168.905	0.90852	73,743
01/01/2010 to 31/12/2010	68,525.670	0.90852	62,256
01/01/2011 to 31/08/2011	58,573.257	0.90852	53,214
Total			373,538

*values have been rounded down

PE, The project activity is a renewable energy project which generates electricity using wind power therefore there are no resulting project emissions.

LE, There are no leakage emissions.

ER, Emission reductions achieved for the period 01 July 2006 to 31 August 2011 are:

$$\begin{aligned}
 ER_y &= BE_y - PE_y - L_y \\
 &= 373,538 \text{ tCO}_{2e} - 0 - 0 \\
 &= 373,538 \text{ tCO}_{2e}
 \end{aligned}$$

Opinion:

The verification team confirms that

- The complete data set for the monitoring parameters was available as prescribed in the monitoring plan of the approved revised PDD;
- The cross check, for each monitored parameter has been included separately and were found complying the requirements in the monitoring plan of the approved revised PDD;
- Appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed; and
- The assumptions, emission factors and default values that were applied in the calculations have been justified.

3.7 Quality of Evidence to Determine Emission Reductions

The monitoring results are in accordance with respect to the monitoring frequency defined in the approved revised PDD^{1,2/} and applied methodology^{4/}. The calibration and technical details of the measurement equipment was found to be meeting the requirements and are listed below in this section. The monitoring period of the project activity is from 01/07/2006 to 31/08/2011 and therefore the validity of calibration has been checked for the same period.

Year	Sub-station	Meters	Certificate	Calibration	Date of	Validity of
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			details (no and date)	Agency	calibration	calibration
2006	Main Meter (Amarsagar)	TNU00946 (Line I)	15/02/2006**	RRVPNL	15/02/2006	14/02/2007
		TNU00945 (Line II)	15/02/2006**		15/02/2006	14/02/2007
	Back up meter (Temdarai)	RJB00052 (Line I)	24/05/2006**		24/05/2006	23/05/2007
		TNU00951 (Line II)	24/05/2006**		24/05/2006	23/05/2007
2007	Main Meter (Amarsagar)	TNU00946 (Line I)	09/03/2007**		09/03/2007 ^Φ	08/03/2008
		TNU00945 (Line II)	09/03/2007**		09/03/2007 ^Φ	08/03/2008
	Back up meter (Temdarai)	RJB00052 (Line I)	11/03/2007**		11/03/2007	10/03/2008
		TNU00951 (Line II)	11/03/2007**		11/03/2007	10/03/2008
2008	Main Meter (Amarsagar)	TNU00946 (Line I)	15/02/2008**		15/02/2008	14/02/2009
		TNU00945 (Line II)	15/02/2008**		15/02/2008	14/02/2009
	Back up meter (Temdarai)	RJB00052 (Line I)	15/02/2008**		15/02/2008	14/02/2009
		TNU00951* / ABB00691 (Line II)	15/02/2008**		15/02/2008	14/02/2009
2009	Main Meter (Amarsagar)	TNU00946 (Line I)	29/01/2009**		29/01/2009	28/01/2010
		TNU00945 (Line II)	29/01/2009**		29/01/2009	28/01/2010
	Back up meter (Temdarai)	RJB00052 (Line I)	30/01/2009**		30/01/2009	29/01/2010
		ABB00691 (Line II)	30/01/2009**		30/01/2009	29/01/2010
2010	Main Meter (Amarsagar)	TNU00946 (Line I)	YMPL/174032/2 9112; 06/04/2010	Yadav Measurements Pvt.***	30/03/2010 ^Φ	29/03/2011
		TNU00945 (Line II)	YMPL/174032/2 9111; 06/04/2010		30/03/2010 ^Φ	29/03/2011
	Back up meter (Temdarai)	RJB00052 (Line I)	YMPL/174040/2 9123; 16/04/2010		31/03/2010 ^Φ	30/03/2011
		ABB00691 (Line II)	YMPL/174039/2 9122; 16/04/2010		31/03/2010 ^Φ	30/03/2011
2011	Main Meter (Amarsagar)	TNU00946 (Line I)	YMPL/201745/3 4197; 26/03/2011		26/03/2011	25/03/2012
		TNU00945 (Line II)	YMPL/201745/3 4199; 26/03/2011		26/03/2011	25/03/2012
	Back up meter	RJB00052 (Line I)	YMPL/201757/3 4220;		28/03/2011	27/03/2012

	(Temdarai)		28/03/2011			
		ABB00691(Line II)	YMPL/201756/3 4217; 28/03/2011		28/03/2011	27/03/2012

*The meter was replaced because of the display problem.

**The calibration certificates do not contain a unique number as these calibrations were carried out by the State Utility itself. The certificates have been accepted by the assessment team as they were duly signed by the Executive engineers of RRVNPL and JdVVNL. Moreover, the responsibility of the calibration lies in the preview of the State Electricity Board and is not in hands of the PP.

***Authorised representative of state utility.

ⓈIndicates delay in calibration.

3.8 Management System and Quality Assurance

The operation and maintenance of the project activity is carried out by the WTG supplier, which is Enercon (India) Ltd (EIL) in this case. The monitoring of the project activity is also done by the same entity. The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the approved revised PDD^{1,2/}. It can therefore be concluded that the CDM project along with its management system is in place and properly executed. In addition EIL is also an ISO9001:2008 certified organization and thus all the QA/QC procedures are as per the standard.

4. RECOMMENDATIONS / FORWARD ACTION REQUEST

There are no recommendations/FAR raised for the project activity.

5. VERIFICATION & CERTIFICATION STATEMENT

KBS Certification Services Pvt. Ltd. has been contracted by Enercon (India) Ltd (EIL) to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd. UNFCCC Ref. No. 0310 for the monitoring period 01/07/2006 to 31/08/2011 in the Monitoring Report Version 1.0 dated 04/10/2012 (publicly made available).

The verification is based on the validated and approved revised PDD version 06 dated 26/04/2012 (accepted on 13/07/2012)^{1,2/} and the monitoring report^{3/} for this project. Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board.

The management of the Enercon (India) Ltd (EIL) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report Version 4.0 dated 10/09/2012. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Enercon (India) Ltd (EIL). The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 4.0 dated 10/09/2012.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/07/2006 to 31/08/2011 based on the reported emission reductions in the Final Monitoring Report Version 4.0 dated 10/09/2012 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following:

Monitoring period: From 01/07/2006 to 31/08/2011

Verified and certified emission in the above reporting period:

	Amount	Unit
Baseline emissions (BE)	373,538	tCO ₂ e
Project emissions (PE)	0	tCO ₂ e
Leakage emissions (LE)	0	tCO ₂ e
Certified emission reductions (CERs)	373,538	tCO ₂ e

Location: Faridabad, Haryana

Date: 17/09/2012



Kaushal Goyal

Managing Director

KBS Certification Services Pvt. Ltd.

6. REFERENCES

- /1/ /1.1/ PDD Version 2.0 dated 15/12/2005 (previously registered PDD)
- /1.2/ PDD Version 6.0 dated 26/04/2012 accepted on 13/07/2012 (for PDC & RMP)
- /2/ Validation report issued by DNV, report number 2005-9023-2 dated 11/08/2005
- /3/ Monitoring report
 - /3.1/ Monitoring report version 1.0 dated 04/10/2011 (made publicly available)
 - /3.2/ Monitoring report version 2.0 dated 16/07/2012
 - /3.3/ Monitoring report version 3.0 dated 23/08/2012
 - /3.4/ Monitoring report version 4.0 dated 10/09/2012 (final)
- /4/ Approved Consolidated Methodology 0002 (ACM 0002), version 4 dated 28/11/2005.
- /5/ ER Sheet
 - /5.1/ ER Sheet version 01 dated 04/10/2011
 - /5.2/ ER Sheet version 2.0 dated 16/07/2012
 - /5.3/ ER Sheet version 3.0 dated 23/08/2012 (final)
- /6/ Joint Meter Reading Certificates by RRVNL and JdVVNL for the period July 2006 to August 2011.
- /7/ Commissioning certificates issued by RRVNL/JVVNL.
 - RVPNL/XEN (PROT)/JDPR/S:TECH/D.126 dated 14/06/2004
 - RVPNL/SEN-(M&P)/JDPR/S:TECH/F:/D.94 dated 26/05/2004
 - RVPNL/SEN-(M&P)/JDPR/S:TECH/F:/D.566 dated 31/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.986 dated 30/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.485 dated 26/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.926 dated 11/03/2004
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1014 dated 29/09/2003
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.922 dated 11/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.924 dated 11/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.903 dated 04/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.905 dated 04/03/2012
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.902 dated 04/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.904 dated 04/03/2004
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1000 dated 29/09/2003
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1001 dated 29/09/2003
 - RVPNL/XEN-III (TCC-IV)/BRM/S:TECH/F:/D.925 dated 11/03/2004
 - RVPNL/XEN-III (TCC-IV) /BRM/S:TECH/F:/D.929 dated 11/03/2004
 - RVPNL/XEN-PROT./JDPR/S:TECH/F:/D.135 dated 21/06/2004
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1595 dated 24/12/2003
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1002 dated 29/09/2003
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1263 dated 31/10/2003
 - RVPNL/XEN-PROT./JDPR/S:TECH/F:/D.153 dated 02/07/2004
 - RVPNL/XEN-III (TCC-IV)/BRM/S:TECH/F:/D.927 dated 11/03/2004
 - JVVNL/XEN/O&M/JSM/S:TECH/F:/D.1447 dated 30/11/2003
- /8/ Calibration certificates issued by RRVNL for the period 2006 to 2009. (details provided u/s 3.7 of this report)
- Calibration certificates by Yadav Measurement Pvt. Ltd. (period 2010 to 2011)
 - Main meter for line I YMPL/174032/29112 issued on 06/04/2010
 - Main meter for line II YMPL/174032/29111 issued on 06/04/2010
 - Back up meter for line I YMPL/174040/29123 issued on 16/04/2010
 - Back up meter for line II YMPL/174039/29122 issued on 16/04/2010
 - Main meter for line I YMPL/201745/34197 issued on 26/03/2011
 - Main meter for line II YMPL/201745/34199 issued on 26/03/2011
 - Back up meter for line I YMPL/201757/34220 issued on 28/03/2011

- Back up meter for line II YMPL/201756/34217 issued on 28/03/2011
- /9/ CEA data for emission factor www.cea.nic.in
- /10/ Invoices raised by Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd for the period July 2006 to August 2011.
- /11/ Share certificates/Credit subdivision of electricity issued by Enercon for the period July 2006 to August 2011.
- /12/ Monthly generation reports issued by Enercon for the period July 2006 to August 2011.
- /13/ Onsite assessment including physical verification of measuring & monitoring procedure, interviews and data/log review, site visit date 09/11/2011
- /14/ Power Purchase Agreements (PP and State Electricity Board)
- /15/ Validation and Verification Manual Version 01.2
- /16/ Purchase orders of the 7 WTGs decommissioned
- /17/ Verification Report (report number BVQI/INDIA/VER # 1/67.49) Revision 00 dated 12/09/2006.
- /18/ Validation opinion on notification of change in the registered PDD and revision in monitoring plan. Version 03 dated 30/04/2012. (accepted on 13/07/2012)
- /19/ Guidelines for assessing compliance with the calibration frequency requirements. EB52 Annex 60
- /20/ Declaration for decommissioning of machines issued by Enercon (India) Limited dated 24/01/2012.
- /21/ Salvage value received by the sub project owners for the 7 WTGs decommissioned
- /22/ Project webpage: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1143050217.74/view>
- /23/ Mail from cdmregistration@unfccc.int notifying the availability of the Monitoring report for Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd. (Ref: 0310) dated 06/10/2011.

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7. FINDINGS DOCUMENT

Summary of findings		CAR	CL	FAR
		06	01	00
Date	Type & Number	Raised by		Reference
13/11/2011	CAR01	Assessment Team		CDM-D-30
Non conformities raised				
The implementation and operation of the actual project activity was not inline to the description provided in the registered PDD version 02 in the following aspects: <div><div>1. The total installed capacity of the project activity and number of WTGs.</div><div>2. The installed capacity of Texmo Group and Venlon Polyester Film Ltd.</div></div>				
Project participant response		Date:16/07/2012		
We would like to submit to DOE that there is a change in project configuration during the current monitoring period. PP has applied for approval of notification of changes in registered PDD which has been approved by UNFCCC dated 13 July 2012.				
Documentation Provided as Evidence by Project Participant				
Please refer approved revised PDD at UNFCCC web-site (http://cdm.unfccc.int/UserManagement/FileStorage/7XU4WSF0Y3TEJDORB6VIPGMQLZHK5C)				
Information Verified by Lead Assessor		Date of review: 20/07/2012		
Revised registered PDD version 06 Revised MR version 02 Validation opinion on PDC & RMP http://cdm.unfccc.int/Projects/DB/DNV-CUK1143050217.74/view				
Reasoning for not acceptance or close out				
The implementation and operation in the revised MR is inline to the actual implementation of the project activity observed on-site and also with the registered PDD. Therefore based on the approval of PDC with regards to the changes in the project implementation and acceptance of PDD version 06 dated 26/04/2012 (accepted on 13/07/2012) CAR 01 was closed satisfactorily.				
Date of acceptance or non expectance		Date: 20/07/2012		Status: Closed

Date	Type & Number	Raised by	Reference
13/11/2011	CAR02	Assessment Team	CDM-D-30
Non conformities raised			
The downtime details of the project activity have not been mentioned in section B.1 of the MR as required by the MR template, EB 54, Annex 34 28 May 2010			
Project participant response		Date:16/07/2012	
Description about down time details has been added in section B.1 of PDD.			
Documentation Provided as Evidence by Project Participant			
Down time detail excel sheet as provided by O&M contractor			
Information Verified by Lead Assessor		Date of review: 20/07/2012	

Revised MR Down time detail excel sheet		
Reasoning for not acceptance or close out		
The downtime details have been added in section B.1 of the revised MR as per the requirement of the template. An excel sheet relating to the information about the operation of the individual WTGs has also been provided substantiating the same.		
Date of acceptance or non expectance	Date: 20/07/2012	Status: Closed

Date	Type & Number	Raised by	Reference
13/11/2011	CAR03	Assessment Team	CDM-D-30
Non conformities raised			
The monitoring plan mentioned in section C & D of the MR was not in accordance to the registered monitoring plan of the PDD version 2.			
Project participant response		Date:16/07/2012	
PP has applied of RMP during the current monitoring period and same has been approved by UNFCCC. Monitoring plan in section C & D of MR has been updated as per the approved revised PDD version 6.0 dated 26 Apr 2012.			
Documentation Provided as Evidence by Project Participant			
Please refer approved revised PDD at UNFCCC web-site (http://cdm.unfccc.int/UserManagement/FileStorage/7XU4WSF0Y3TEJDORB6VIPGMQLZHK5C)			
Information Verified by Lead Assessor		Date of review: 20/07/2012	
Revised registered PDD version 06 Revised MR version 02 Validation opinion on PDC & RMP http://cdm.unfccc.int/Projects/DB/DNV-CUK1143050217.74/view			
Reasoning for not acceptance or close out			
The monitoring plan mentioned in the revised MR is consistent with the revised registered monitoring plan mentioned in the approved PDD version 06.The description provided in section C &D of the revised MR is now inline to actual monitoring plan being followed onsite that was assessed by the assessment team during the site visit.			
Date of acceptance or non expectance		Date: 20/07/2012	Status: Closed

Date	Type & Number	Raised by	Reference
13/11/2011	CAR04	Assessment Team	CDM-D-30
Non conformities raised			
Section C of the MR where the details of the metering equipments are provided does not include the calibration details of the equipment for the entire monitoring period (starting from 01/07/2006 to 31/08/2011).			
Project participant response		Date:16/07/2012	
Calibration details of all the metering equipments have been provided in section C of MR for the entire monitoring period.			

Documentation Provided as Evidence by Project Participant		
Calibration certificates.		
Information Verified by Lead Assessor	Date of review: 20/07/2011	
Revised MR Calibration certificates.		
Reasoning for not acceptance or close out		
The revised MR and calibration certificates were reviewed and the following inconsistencies were observed: A delay in calibration in the year 2007 and 2010 is evident from the calibration certificates however the delay has not been taken care of by the PP.		
Date of acceptance or non expectance	Date: 20/07/2011	Status: Open
Project participant response	Date:31/07/2012	
As per DOE comment PP has applied error correction factor based on guidelines for assessing compliance with the calibration frequency requirement (EB 52 annex 60). There is a delay in calibration in 2010 in the month of Jan 2010 accordingly error factor has been applied for the affected months in 2007 and 2010 as a conservative approach. An error correction factor of -0.2% has been applied in $EG_{Export,y,m}$ & +0.2% (meter class is 0.2%) of error correction has been applied in $EG_{JMR,Import}$ while calculating EG_y .		
Documentation Provided as Evidence by Project Participant		
1) Calibration certificates 2) Revised MR 3) Revised ER sheet		
Information Verified by Lead Assessor	Date of review: 23/08/2012	
1) Calibration certificates 2) Revised MR 3) Revised ER sheet		
Reasoning for not acceptance or close out		
The applied correction factor was found in compliance with EB 52 Annex 60. The approach is conservative as -0.2% has been applied for calculation of Exported electricity ($EG_{Export,y,m}$)& +0.2% (meter class is 0.2%) of error correction has been applied for calculation of imported electricity ($EG_{JMR,Import}$).		
Date of acceptance or non expectance	Date:25/08/2012	Status: Closed

Date	Type & Number	Raised by	Reference
20/07/2011	CL05	Assessment Team	CDM-D-30
Non conformities raised			
<p>The meter number (ABB0691) for the back-up meter on line-2 was verified during the site visit by the assessment team but the calibration certificates prior to the year 2009 mentions a discrepant meter number (TNU00951).</p> <p>Please clarify.</p>			
Project participant response		Date: 31/07/2012	

We would like to submit to DOE that backup meter (TNU00951) at line 2 was replaced new meter (ABB0691) on 15/02/2008. Meter replacement certificate is being attached with the response for DOE reference.		
Documentation Provided as Evidence by Project Participant		
Meter replacement certificate dated 15/02/2008.		
Information Verified by Lead Assessor	Date of review: 25/08/2012	
Meter replacement certificate dated 15/02/2008.		
Reasoning for not acceptance or close out		
<p>The meter got replaced on 15/02/2008 because of the display problem as evident from the meter replacement certificate issued by Rajasthan Rajya Vidhyut Prasaran Nigam Ltd (RRVPL). The calibration certificate of the previous meter indicates a proper functioning of the meter and there have been no extravagant reading observed for the month of February 2008 when the meter was found faulty. It was observed that the reading obtained is the least for the February in the adjoining months generation data and also the generation observed for the month of February in the other years.</p> <p>It is also worthy to note that the main meter readings are considered for the preparation of monthly JMRs which was functioning properly (evident from the calibration certificates) and the back-up meter was replaced. Therefore, the assessment team concludes that change in the back-up meter would not affect the calculation of emission reductions for the current monitoring period.</p>		
Date of acceptance or non expectance	Date:25/08/2012	Status: Closed

Date	Type & Number	Raised by	Reference
10/09/2012	CAR06	Technical Reviewer	CDM-D-35
Non conformities raised			
Please address the following issues in the MR:			
<div>a) Clear information regarding the project capacity and number of WTGs (original and revised) of the project activity could not be drawn from the MR. Considering that the decommissioning of certain WTGs happened during the current monitoring period.</div> <div>b) The name of the applied methodology in section A.5 of the MR does not match the actual name indicated on the UNFCCC page.</div> <div>c) Section B.1 of the MR is incomplete relating the implementation status of the project activity. The section particularly does not include the commissioning dates of all the WTGs and decommissioning dates of the decommissioned WTGs.</div> <div>d) In section D.1 where emission factors have been listed NEWNE grid has been indicated however in the registered PDD the value adopted was for Northern Regional Grid. Inconsistency is not clear.</div>			
Project participant response		Date:10/09/2012	
<div>a) We would like to submit to DOE the capacity of project activity was 58.2 MW as per the registered PDD. Later on during the current monitoring period, 07 WTGs of the project activity were decommissioned in the month of June 2008 due to which total project capacity was reduced to 54.0 MW. Same has been mentioned in revised MR.</div> <div>b) Name of the applied methodology in section A.5 of the MR has been corrected.</div> <div>c) Implementation status of the project activity w.r.t. commissioning & decommissioning detail has been updated under section B.1 of PDD.</div> <div>d) Inconsistency has been corrected under section D.1 of MR.</div>			
Documentation Provided as Evidence by Project Participant			
Revised Monitoring report version 4.0			

Information Verified by Lead Assessor	Date of review: 12/09/2012	
Revised Monitoring report version 4.0		
Reasoning for not acceptance or close out		
<div>a) From the description provided it is clear that the original capacity of the project activity was 58.2 MW which in June 2008 changed to 54 MW after the decommissioning of 7 WTGs. The information in the MR is consistent with the registered PDD version 06.</div> <div>b) The name of applied methodology in the revised MR is consistent with the actual.</div> <div>c) Clear information about the status of the project activity can be drawn from the revised MR particularly regarding the information on commissioning and decommissioning of WTGs.</div> <div>d) The inconsistency has been corrected indicating the grid to be Northern Regional Grid; which is also consistent from the registered MR.</div>		
Date of acceptance or non expectance	Date: 12/09/2012	Status: Closed

8. CERTIFICATE OF COMPETENCE

Personnel Name:		Kaviraj Singh	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar TA 1.2: Energy generation from renewable energy sources		
Waste handling and disposal	TA 13.1: Waste handling and disposal		
Approved by (Manager C & T)	Mayank Kumar Jain		
Approval date:	12 /12/2011		

Personnel Name:		Shreya Garg	
Qualified to work as:			
Team Leader	<input type="checkbox"/>	Technical Expert	<input type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
NA	NA		
Approved by (Manager C & T)	Mayank Kumar Jain		
Approval date:	12 /12/2011		

Personnel Name:		Ashok Kumar Gautam	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Waste handling and disposal	TA 13.1: Waste handling and disposal		
Approved by (Manager C & T)	Mayank Kumar Jain		
Approval date:	12/12/2011		

Personnel Name:		Abhishek Mahawar	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>

Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope		Technical Area	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Approved by (Manager C & T)		Mayank Kumar Jain	
Approval date:		06/04/2012	

Personnel Name:	Madhuri Nanda
Qualified to work as:	

Version	Date	Nature of revision	Reviewed by	Approved by
2.0	21/12/2011	Comprehensively revised	Manager CDM Quality 21/12/2011	Managing Director 21/12/2011
Team Leader		<input type="checkbox"/>	Technical Expert	<input type="checkbox"/>
Validator/Verifier		<input type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer		<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise				
Sectoral Scope		Technical Area		
Approved by (Manager C & T)		Mayank Kumar Jain		
Approval date:		04 /09/2012		

History of the document

Version	Date	Nature of revision	Reviewed by	Approved by
2.0	21/12/2011	Comprehensively revised	Manager CDM Quality 21/12/2011	Managing Director 21/12/2011