
 <b>Verification and certification report form for CDM project activities</b> <b>(Version 01.0)</b>	
<b>VERIFICATION AND CERTIFICATION REPORT</b>	
<b>Title of the project activity</b>	Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW
<b>Reference number of the project activity</b>	1291
<b>Version number of the verification and certification report</b>	02
<b>Completion date of the verification and certification report</b>	13/01/2016
<b>Monitoring period number and duration of this monitoring period</b>	Monitoring period number- Fifth monitoring period 01/04/2014 to 30/06/2015 (both days are included)
<b>Version number of monitoring report to which this report applies</b>	03
<b>Crediting period of the project activity corresponding to this monitoring period</b>	Fixed, 18/03/2010, 10 years
<b>Project participant(s)</b>	Wind World (India) Limited
<b>Host Party</b>	India
<b>Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)</b>	Sectoral Scope 1 - Energy industries (renewable/ non-renewable sources) ACM0002, Version 6.0
<b>Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the revised approved PDD</b>	82,172 tCO <sub>2</sub> e
<b>Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period</b>	61,537 tCO <sub>2</sub> e
<b>Name of DOE</b>	Earthood Services Private Limited
<b>Name, position and signature of the approver of the verification and certification report</b>	 Dr. Kaviraj Singh Managing Director

**SECTION A. Executive summary**

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**Brief summary of the project activity:**

The project activity involves electricity generation by wind electric convertors and supplying the generated electricity to the Southern Grid. The project being a renewable energy generation activity, it leads to removal of fossil fuel dominated electricity generation. The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change.

The installed capacity of project activity is 30.40 MW, out of which 8.8 MW has been implemented by Wind World Wind Farm (Chitradurga) Ltd (Formerly Enercon Wind Farm (Chitradurga) Ltd) and remaining 21.6 MW by other developers in Gadag and Chitradurga district in Karnataka, India. There are total 38 WTGs have been installed by the project activity, each WTG is of rated capacity 800 KW each and Wind World (E-48) make. The WTGs have been commissioned between 29/03/2006 and 29/12/2006. The same was verified against the commissioning certificates/13/.

All 38 WTGs are fully functional and the assessment team verified this during the site visit. The assessment team confirms that the total emission reductions achieved under this monitoring period 01/04/2014 – 30/06/2015 (including both days) are 61,537 tCO<sub>2</sub>e.

The basic details of the project activity are mentioned below:

Project title	Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW
UNFCCC registration number	1291
Date of registration	18/03/2010
Sectoral scope	1 - Energy industries (renewable/ non-renewable sources).
Methodology/ies applied	Approved consolidated baseline methodology ACM0002, Version 6.0
Project participant	Wind World (India) Limited
Location of Project Activity	Gadag and Chitradurga district , Indian State of Karnataka

**Scope of verification:**

Wind World (India) Limited has contracted Earthood Services Private Limited (Earthood) to conduction the verification and certification of emission reductions reported for the CDM project activity 1291 “Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW” in India for the period 01/04/2014 to 30/06/2015 (including both days).

The verification is the periodic independent review and *ex post* determination by Earthood of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during the defined monitoring period.

The scope of the verification is to establish/verify that:

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

**Verification Process:**

The verification process involves an agreement with project participant for verification scope and defined monitoring period in accordance with latest valid CDM AS. The monitoring report was published on 27/10/2015 and verification was performed as per latest valid CDM Standards i.e., CDM PS, VVS and latest valid CDM PCP. The desk review, onsite assessment, interview, reporting of findings, preparation of draft verification report followed by independent technical review (internal quality check) were performed as stated in further sections of this report. Major verification milestones are stated below;

Monitoring report publication:	27/10/2015
Desk review:	20/11/2015- 22/11/2015

On-site assessment:	23/11/2015
Reporting, calculation checks and QA/QC:	24/11/2015 – 16/12/2015
Draft Verification Report	18/12/2015
Final Verification Report (after internal quality check)	13/01/2015

**Conclusion:**

Earthood has performed the fifth verification of the CDM project “Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW” having UNFCCC Ref. Number 1291. The verification includes confirming the implementation of the monitoring plan of the PDD and the application of the monitoring methodology as per ACM0002 Version 6.0. Earthood confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. The emission reductions from the CDM project activity 1291 “Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW” in India during the period 01/04/2014 - 30/06/2015 (including both days) amount to 61,537 tCO<sub>2</sub>e.

**SECTION B. Verification team, technical reviewer and approver****B.1. Verification team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Deka	Nayan Jyoti	Central Office	Y	Y	Y	Y
2.	Verifier	IR	Deka	Nayan Jyoti	Central Office	Y	Y	Y	Y
3.	Technical Expert	IR	Deka	Nayan Jyoti	Central Office	Y	Y	Y	Y
4.	Financial/ Other Expert	NA	-	-	Not required	NA	NA	NA	NA
5.	Trainee	NA	-	-	-	NA	NA	NA	NA

**B.2. Technical reviewer and approver of the verification and certification report**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Grag	Shreya	Central Office
2.	Technical Expert	IR	Grag	Shreya	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

**SECTION C. Application of materiality****C.1. Consideration of materiality in planning the verification**

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in recording monitored data in JMR sheets(Form-B)	Low	The reading of JMR is being recorded in the presence of representatives of DISCOM and O&M contractor. So chances of noting down incorrect	All the monthly statements to be checked.

			reading diminishes. Monthly Form-B are endorsed by state utility.	
2.	Error in transferring the recorded data to ER sheet	High	The procedure for transferring the recorded share certificate readings to the spreadsheet is manual in nature thus increasing the chances of error.	All the monthly reported values in ER sheet to be verified with Form-B.

## C.2. Consideration of materiality in conducting the verification

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The applicable threshold for materiality in accordance with CDM VVS Version 9 para 361(c) is 2%. All the monthly reported figures for parameter **EG<sub>y</sub>** were verified with respective monthly statements /10/ and were found to be consistent. Therefore, it can be stated that the verified value is free from any potential error / omission / misstatement. The project activity, being a wind energy project, has assumed the project emission and leakages to be zero which is in line to the applied methodology/3/ and is also reasonable in the opinion of assessment team. Therefore, there are no additional factors which might lead to introduction of error in emission reduction estimation.

## SECTION D. Means of verification

### D.1. Desk review

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Earthood conducted a desk review as under;

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, 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;

In addition to the monitoring documentation, Earthood has reviewed;

- The revised approved PDD Version 07 dated 19/08/2014 and the monitoring plan;
- The Validation Report Version 03 dated 25/10/2009;
- Validation opinion on PRC ,dated 06/10/2014
- The applied monitoring methodology (ACM0002 Version 6.0);
- The monitoring report (all versions) to verify that it is as per the standardized format;
- Any other information and references relevant to the project activity's emission reductions (e.g. IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations).

The complete list of documents reviewed is included under Appendix 3.

**D.2. On-site inspection**

Duration of on-site inspection: 23/11/2015				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p>An assessment of the implementation and operation of the registered project activity as per the revised approved PDD or any approved revised PDD;</p> <p>A review of information flows for generating, aggregating and reporting the monitoring parameters;</p> <p>Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD;</p> <p>A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;</p> <p>A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;</p> <p>A review of calculations and assumptions made in determining the GHG data and emission reductions;</p> <p>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</p>	Chitradurga and Gadag	23/11/2015	Nayan Jyoti Deka

**D.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Joshi Shenoy	Poorvi	Deputy Manager WWIL	23/11/2015	Electricity Generation Records (monthly energy statements, Invoices and break up sheets), Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure	Nayan Jyoti Deka
2.	Pal	Prafulla Kumar	Sr.Engineer WWIL	23/11/2015	Monitoring and measuring system, Collection of measurements, Observations of established practices and Data Verification of monitoring parameters	Nayan Jyoti Deka
3.	Singh	Anurag	Graduate Engineer Trainee(GET)WWIL	23/11/2015	Calibration procedure of meters	Nayan Jyoti Deka
4.	Murthy RM	Shomkara	Supervisor,WWIL	23/11/2015	QA/QC procedures, data management, internal audits to maintain data quality & reliability, maintenance Practices Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations	Nayan Jyoti Deka

**D.4. Sampling approach**

Not applicable.

**D.5. Clarification requests, corrective action requests and forward action requests raised**

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	CL #2	CAR #3	-
Compliance of the project implementation with the revised approved PDD	CL #1	-	-
Post-registration changes	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
Others (please specify)	NA	NA	NA
<b>Total</b>	<b>2</b>	<b>1</b>	<b>-</b>

**SECTION E. Verification findings****E.1. Compliance of the monitoring report with the monitoring report form**

<b>Means of verification</b>	The monitoring report form used is CDM-MR-FORM version 05.1 which was the appropriate form and the latest version available at the time of verification. All the sections of the form were filled as per the guidelines and gave all the relevant details.
<b>Findings</b>	CAR #3 was raised and resolved
<b>Conclusion</b>	The monitoring report is found to be complying with the monitoring report form.

**E.2. Remaining forward action requests from validation and/or previous verification**

This is 5<sup>th</sup> verification of the project activity. There are no FAR(s) from validation or previous verification that need to be closed during this verification.

**E.3. Compliance of the project implementation with the registered project design document**

<b>Means of verification</b>	<p>This project activity is the generation of electricity from WTGs supplying the generated electricity to the southern grid of India. The project is located at different villages in Gadag and Chitradurga district of Karnataka State in India and has an installed capacity of 30.40 MW (38 WTGs x 0.8 MW/WTG). The PP has signed PPA/14/ with KPTCL/BESCOM for the sale of electricity to the grid. The project was registered as a CDM project on 18/03/2010 /16/. The PP has considered a fixed crediting period for the project activity from 18/03/2010 to 17/03/2020. This is the fifth verification of the project activity covering the period from 01/04/2014 to 30/06/2015.</p> <p>The project has been implemented; equipment installed and is being operated as described in the revised approved PDD /01/. The monitoring plan implemented during the current monitoring period is in compliance with the monitoring plan of the revised approved PDD and the applied methodology. This was verified during the site visit.</p> <p>The project activity WTGs have been commissioned between 29/03/2006 and 29/12/2006 as mentioned in the Monitoring Report. The details of the WTGs installed have been verified against the commissioning certificates/13/ and found to be consistent. In addition to the physical inspection of the site, the following documents have been reviewed by the assessment team during the site visit to verify the project implementation:</p> <ol style="list-style-type: none"> <li>Commissioning certificates</li> <li>Power Purchase Agreements</li> <li>Invoices raised by the PP to BESCOM</li> <li>Testing certificates of all energy meters</li> </ol> <p>The information relating to the project implementation, provided in the Monitoring</p>
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	Report /05/ is consistent with that stated in the revised approved PDD. The data and variables provided in the monitoring report are the same as stated in the revised approved PDD.
<b>Findings</b>	CL #1 and CL #2 was raised and resolved
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>In view of the information's verified during the site visit, the verification team is able to confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM project activity are in place and that the project participants have operated the project activity as per the revised approved PDD.</li> <li>No information with regard to data and variables was identified that may surpass the estimated quantity of ERs in the revised approved PDD.</li> <li>The emission reductions achieved during the current monitoring period are (61,537 tCO<sub>2</sub>e) within the estimated quantity (82,172 tCO<sub>2</sub>e) in the revised approved PDD for the comparable period.</li> </ul>

#### **E.4. Post-registration changes**

##### **E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline**

There are no temporary deviations from registered monitoring plan or applied methodology. It was verified and confirmed from the revised approved PDD; the applied methodology and the on-site verification.

##### **E.4.2. Corrections**

Corrections to the Project activity were already approved (PDD version 06, dated 16/04/2011). It is noted that the PDD was further revised and approved on 29/01/2015 (PRC-1291-001).

##### **E.4.3. Changes to the start date of the crediting period**

There is no change to the start date of the crediting period. It was verified and confirmed from the UNFCCC project webpage/16/.

##### **E.4.4. Inclusion of a monitoring plan to a registered project activity**

Not applicable

##### **E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline**

Permanent changes from the registered monitoring plan were approved by UNFCCC on 21/07/2011. It is noted that the PDD was further revised and approved on 29/01/2015 (PRC-1291-001).

##### **E.4.6. Changes to the project design of a registered project activity**

Changes to the project design of registered project activity were approved by UNFCCC on 29/01/2015 (PRC-1291-001).

##### **E.4.7. Types of changes specific to afforestation and reforestation project activities**

Not applicable

#### **E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline**

<b>Means of verification</b>	<p>The monitoring plan as contained in the revised approved PDD/01/ was reviewed against the monitoring requirements of the applied methodology ACM0002 version 6.0. Based on this review it was found the monitoring plan contained in the revised approved PDD includes all the required parameters to be monitored in the context of project design and description and allows proper determination of emission reductions in accordance with the PDD /01/ and applied methodology ACM0002 version 6.0/03/.</p> <p>It was observed during the site visit that, metering is being done at two different points i.e at 33 kV (Billing point) and at 66 kV (Bulk metering point).</p>
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The electricity supplied to the southern grid is measured through energy meters installed at 33 kV metering location (billing meters) for each project developer. There is one set of dedicated meters (Main and check meter) installed for each sub-bundle involved in the project activity at 33 kV metering points.

The WTGs of the project activity are further connected at the grid interconnection point or state-utility substation through bulk meters. It is noted that WTGs of project activity along with non-project WTGs are also connected at state utility substation:

Sr. No.	Project developer	Capacity (MW)	WWIL Sub-station name	State Utility Sub-station
1	Wind World Wind Farms (Chitradurga) Ltd.	8.8	Wind World Sub-station at Imangala	Aiamangala, 66/11 kV KPTCL sub-station
2	Steelfab Offshore	0.8	GIM-II Sub-station at Gownalli	Hiriyur, 220/66/11 kV KPTCL sub-station
3	Dewanchand Ramsaran	0.8		
4	Elpro International	0.8		
5	Gautam Laddkat	0.8		
6	Sameer Laddkat	0.8		
7	Panama Business Centre	1.6		
8	Sameer Laddkat	1.6		
9	Panama Infrastructure	1.6		
10	MK Agrotech Private Ltd.	1.6		
11	Srinivas Sirigeri	0.8	EP-II Sub-station at Nandana Hosuru	Ramagiri, 66/11 kV KPTCL substation
12	Dempo Industries	0.8		
13	Power Link Systems Pvt. Ltd.	0.8		
14	Desai Brothers	0.8		
15	Siddganga Oil Extraction	1.6	Gadag Sub-station at Banikoppa	Dambal, 110/33/11 kV KPTCL sub-station.
16	Abhilash Garments	0.8		
17	Prasad Global Solution	1.6		
18	Gangadhar Narsingdas Agarwal	4.0		

It is to be noted that the electricity export recorded at the substations represent the cumulative electricity exported by the entire wind farm (project WTGs and non-project WTGs), hence net electricity supplied to the grid by project activity is calculated considering the readings recorded at WTGs location (33 kV metering points) and at respective sub-station.

State utility issues monthly JMRs (form-B) for net electricity supplied by each project developer after adjusting the transmission losses to the generation and electricity import recorded at 33 kV metering point.

The procedure to calculate the net electricity supplied to the grid by the WTGs of the project activity has been correctly described in section C of the MR and in section B.7.2 of the revised approved PDD/1/. This was also verified by interviewing the staff at the sub-station and the officials of the state utility.

The transmission loss calculation is carried out by the state utility and the PP has no role in this calculation. The transmission losses confirmed jointly by the representatives of WWIL and the state utility, this is verified from monthly JMR (Form-B) /10/ recorded at 33kV metering point and cross checked with the invoices/11/ raised to the state utility.

The monthly JMRs (Form-B), is prepared and endorsed by the State Electricity Board (BESCOM) and the PP has no influence in the entire procedure. Hence the data issued by the state electricity board through the monthly JMRs is considered to be authentic.

**Findings**

No finding was raised

**Conclusion**

The monitoring plan outlined in the revised approved PDD is in accordance with the applied methodology /03/ and correctly applied by the registered CDM project activity.

**E.6. Compliance of monitoring activities with the registered monitoring plan****E.6.1. Data and parameters fixed ex ante or at renewal of crediting period****E.6.1.1. Operating Margin Emission Factor of Southern Electricity Grid ( $EF_{OM,y}$ ,  $tCO_2e/MWh$ )**

<b>Means of verification</b>	The value of this parameter is considered as 1.0038. This was checked with the revised approved PDD /01/ and CO2 Baseline Database for Indian Power Sector", version 1.1 published by the Central Electricity Authority, Ministry of Power, Government of India /15/.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	The value in the monitoring report /05/ and corresponding emission reduction calculations spreadsheet /07/ are consistent with the revised approved PDD (page 19). The applied value is correct and justified.

**E.6.1.2. Build Margin Emission Factor of Southern Electricity Grid ( $EF_{grid,BM,y}$ ,  $tCO_2e/MWh$ )**

<b>Means of verification</b>	The value of this parameter is considered as 0.7180. This was checked with the revised approved PDD /01/ and CO2 Baseline Database for Indian Power Sector", version 1.1 published by the Central Electricity Authority, Ministry of Power, Government of India /15/.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	The value in the monitoring report /05/ and corresponding emission reduction calculations spreadsheet /07/ are consistent with the revised approved PDD (page 19). The applied value is correct and justified.

**E.6.1.3. Combined Margin Emission Factor of Southern Electricity Grid ( $EF_y$  or  $EF_{grid,CM,y}$ ,  $tCO_2e/MWh$ )**

<b>Means of verification</b>	The value of this parameter is considered as 0.93204. This was checked with the revised approved PDD /01/ and CO2 Baseline Database for Indian Power Sector", version 1.1 published by the Central Electricity Authority, Ministry of Power, Government of India /15/.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	The value in the monitoring report /05/ and corresponding emission reduction calculations spreadsheet /07/ are consistent with the revised approved PDD (page 18). The applied value is correct and justified.

**E.6.2. Data and parameters monitored****E.6.2.1. Net Electricity supplied to the grid by the project,  $EG_y$  (MWh)**

<b>Means of verification</b>	<b>Criteria/Requirements</b>	<b>Assessment/Observation</b>
	Measuring /Reading /Recording frequency	<p>The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of <math>EG_y</math> are continuously monitored, hourly measured and monthly recorded. <math>EG_y</math> is calculated and based on the measured values of export and import on the energy meter and transmission losses as following:</p> $EG_y = EG_{\text{export}} - (115\% * EG_{\text{import}}) - TE$ <p>Where,</p> <p><math>EG_{\text{export}}</math>= Electricity exported by the project measured at 33 kV metering points</p> <p><math>EG_{\text{import}}</math>= Electricity imported by the project measured at 33 kV metering points</p> <p><math>TE</math>= Transmission losses refer to the energy loss incurred between the 2 metering points for the project WTGs connected at 33 kV metering points and the .</p>

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PDD/01/ and monitoring methodology.
	Monitoring equipment	No monitoring equipment is used as this parameter is calculated using the measured values ( $EG_{\text{export}}$ and $EG_{\text{import}}$ ).
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is(are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable

	How were the values in the monitoring report verified?	<p>The monthly values of <math>EG_y</math> were verified from the monthly JMRs (Form-B) issued by state utility/10/ and found to be consistent.</p> <p>Furthermore monthly values of this parameter is reported in the ER calculation sheet are also verified with the monitoring report and found to be consistent.</p> <p>Value of this parameter for the current monitoring period was verified as 66024.76 MWh.</p>
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of $EG_y$ were further cross checked with the monthly invoices raised by the PP /11/ and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	<p>Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&amp;M Contractor. The data transfer process for the said parameter is as follows:</p> <p>The monthly Joint meter reading at 33 kV metering points and at respective state utility substations ( bulk metering points) is taken by the representatives of KPTCL/BESCOM (State utility) in the presence of WWIL officials in the form of JMRs/10/.</p> <p>Based on the recorded values of <math>EG_{Export}</math>, <math>EG_{Import}</math> in the JMRs and calculated values of <math>T_E</math> electricity supplied to the grid by the project activity(<math>EG_y</math>) is calculated by state utility.</p>
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
<b>Findings</b>	No finding was raised	
<b>Conclusion</b>	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

**E.6.2.2. Electricity Export recorded at meters (main and check meters). All the subprojects included in the project activity have dedicated main and check meters at 33 kV metering point. ,  $EG_{Export}$  (MWh)**

Means of verification	Criteria/Requirements		Assessment/Observation	
	Measuring /Reading /Recording frequency		The electricity exported to the grid is measured through energy meters at the WTG metering location on continuous basis and reported monthly.	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?		Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.	

	(Yes / No)	
	Monitoring equipment	There is one set of dedicated energy meters (main & check meter) provided for each WTGs owner at 33 kV metering points.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	All the energy meters are two-way tri-vector meters of accuracy class 0.2. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the registered PDD (Page 34).
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
	Calibration frequency /interval:	Annual
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes the calibration frequency of the energy meters is in line with the monitoring plan of the registered PDD (page 34)/1/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility (BESCOM/HESCOM)/12/
	Is(are) calibration(s) valid for the whole reporting period?	Calibration of energy meters recording energy exported is valid for whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly JMR reports (Form B)/10/ during site visit .Value of this parameter for the current monitoring period is verified as 66972.05	

		MWh. Furthermore monthly values of this parameter is reported in the ER calculation sheet/7/ are also verified with the monitoring report/5/ and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /11/ and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: The monthly Joint meter reading at 33 kV metering points and at respective state utility substations (bulk metering points) is taken by the representatives of KPTCL/BESCOM (State utility) in the presence of WWIL officials in the form of JMRS.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
<b>Findings</b>	No finding was raised	
<b>Conclusion</b>	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology/3/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

**E.6.2.3. Electricity Import recorded at meters (main and check meters). All the subprojects included in the project activity have dedicated main and check meters at 33 kV metering point, EG<sub>import</sub> (MWh)**

Means of verification		
	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The electricity imported from the grid is measured through energy meters at the WTG metering location on continuous basis and reported monthly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	There is one set of dedicated energy meters (main & check meter) provided for each WTGs owner at 33 kV metering points.

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	All the energy meters are two-way tri-vector meters of accuracy class 0.2. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the registered PDD/1/ (Page 34).
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
	Calibration frequency /interval:	Annual
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes the calibration frequency of the energy meters recording energy imported is in line with the monitoring plan of the registered PDD/1/ (page 34).
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility (BESCOM/HESCOM)/12/
	Is(are) calibration(s) valid for the whole reporting period?	Calibration of energy meters is valid for whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly JMR reports (Form B) during site visit .Value of this parameter for the current monitoring period is verified as 134.49 MWh. Furthermore monthly values of this parameter is reported in the ER calculation sheet are also verified with the monitoring report and found to be consistent.
	If applicable, has the reported data been cross-checked with other	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /11/ and found to be consistent.

	available data?	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: The monthly Joint meter reading at 33 kV metering points and at respective state utility substations (bulk metering points) is taken by the representatives of KPTCL/BESCOM (State utility) in the presence of WWIL officials in the form of JMRS.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
<b>Findings</b>	No finding was raised	
<b>Conclusion</b>	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

**E.6.2.4. Transmission loss for export between the metering location at 33 kV metering point and the high voltage side of the substation to which the subproject is connected,  $T_E$  (MWh)**

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Transmission losses refer to the energy loss incurred between the 2 metering points for the project WTGs connected at 33 kV substations and the respective receiving state utility substations.  The calculation of transmission losses is carried out by state utility considering the export readings of the bulk meters at the state utility substation as well as the export readings of each metering point connected to the respective 33 kV receiving substation.  Transmission losses are calculated and recorded on monthly basis.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/.
	Monitoring equipment	Not applicable



	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is(are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	<p>The monthly values of <math>T_E</math> were verified from the monthly JMRs (Form-B) issued by state utility/10/ and found to be consistent.</p> <p>Furthermore monthly values of this parameter is reported in the ER calculation sheet are also verified with the monitoring report and found to be consistent.</p> <p>Value of this parameter for the current monitoring period was verified as 812.79 MWh.</p>

	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of EG <sub>y</sub> were further cross checked with the monthly invoices raised by the PP /11/ and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: The monthly Joint meter reading at 33 kV metering points and at respective state utility substations (bulk metering points) is taken by the representatives of KPTCL/BESCOM (State utility) in the presence of WWIL officials in the form of JMRs. The transmission losses confirmed jointly by the representatives of WWIL and the state utility, this is verified from monthly JMRs.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
<b>Findings</b>	No finding was raised	
<b>Conclusion</b>	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	Not applicable
<b>Findings</b>	Not applicable
<b>Conclusion</b>	Not applicable

### E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	As per the monitoring plan in the revised approved PDD/01/ the meters are to be tested and calibrated once in a year. The latest calibration reports/12/ have been checked and confirmed that the meters were working satisfactorily and the errors observed within permissible limits.				
	The project activity metering has been physically inspected during the site visit. The details of monitoring equipment's involved in the project activity and their calibration dates are mentioned in Section C of the MR/05/ and are summarised in the tables below. All the meters at 33 kV and substation meters (Bulk meters) are of accuracy class of 0.2s and calibration frequency of once in a year.				
	Energy Meters (33 kV metering points):				
	Project developer	R.R No.	Meter type and Sr.No-	Date of calibration	Remark
	Wind World Wind Farms (Chitradurga) Ltd.	EWFA-01	Main: Old: 5463842 New:	28/10/2013, 04/08/2014, 27/07/2015	Old meters were replaced with new one

			13195819		on 27/07/2015. Calibration delay : No
			Check: Old: 5463855 New:13196 453		
	Desai Brothers	EP2-25	Main: 5437948 Check: 5463853	09/01/2014, 16/12/2014	Calibration delay : No
	Dempo Industries	EP2-27	Main: 5463847 Check: 5463838	10/01/2014, 16/12/2014	Calibration delay : No
	Power Link System Private Limited	EP2-28	Main: 5437934 Check: 5462964	10/01/2014, 16/12/2014	Calibration delay : No
	Srinivas Sirigeri	EP2-29	Main: 5463840 Check: 5462963	10/01/2014, 16/12/2014	Calibration delay : No
	Panama Infrastructure	ELP-23	Main: 5390229 Check: 5271055	14/02/2014, 19/11/2014, 23/02/2015	Calibration delay : No
	Sameer Ladkat	ELP-24	Main: 7022973 Check: 7022907	14/02/2014, 19/11/2014	Calibration delay : No
	Elpro International	ELP-29	Main: 5436130 Check: 5436135	14/02/2014, 19/11/2014, 23/02/2015	Calibration delay : No
	MK Agrotech Private Ltd	ELP-31	Old Main: 5389904 New Main: 6760767 Old Check : 5436140 New Check: 5342856	14/02/2014, 20/11/2014, 24/02/2015	Old meters were replaced with new one on 07/08/2014.  Calibration delay : No
	Panama Business Centre	ELP-33	Main: 8001400 Check: 5390230	18/02/2014, 21/11/2014, 25/02/2015	Calibration delay : No
	Sameer Ladkat	ELP-34	Main: 5390421 Check: 5341085	18/02/2014, 21/11/2014, 25/02/2015	Calibration delay : No
	Gautam Ladkat	ELP-35	Main: 5389971 Check: 5389974	18/02/2014, 21/11/2014, 25/02/2015	Calibration delay : No
	Steelfab Offshore	ELP-37	Main: 5437939 Check: 5437956	18/02/2014, 21/11/2014, 25/02/2015	Calibration delay : No

Dewanchand Ramsaran	ELP-38	Main: 5389379 Check: 5389378	18/02/2014, 21/11/2014, 25/02/2015	Calibration delay : No
Abhilash Garments & Estates (P) Ltd.	GDG/TL & SS/WF/AGEM/Loc No-11/46	Main: 5463841 Check: 6760772	09/05/2013, 16/09/2014, 07/04/2015	Calibration delay : Yes
Prasad Global Solutions	GDG/TL & SS/WF/PGSM/Loc No-1/41	Main: 6607372 Check: 5389381	09/05/2013, 16/09/2014, 07/04/2015	Calibration delay : Yes
Prasad Global Solutions	GDG/TL & SS/WF/PGSR/Loc No-17/50	Main: 6675385 Check: 6675392	15/06/2013, 16/09/2014, 07/04/2015	Calibration delay : Yes
Gangadhar Narsingdas Agarwal	GDG/TL & SS/WF/GNAM/Loc No-12 & 13/47	Main: 6675414 Check: 6675384	26/11/2011, 31/07/2014	Calibration delay : Yes
Gangadhar Narsingdas Agarwal	GDG/TL & SS/WF/GNAM/Loc No-6,7 & 8/45	Main: 6675390 Check: 6760764	25/01/2012, 31/07/2014	Calibration delay : Yes
Siddaganga Oil Extractions Ltd.	GDG/TL & SS/WF/GNAM/Loc No 14 & 15/48	Main: 5463849 Check: 6605127	26/11/2011, 31/07/2014, 07/04/2015	Calibration delay : Yes

## Sub-station meters(Bulk Meters):

Substation location	R.R No-	Meter Type	Meter Sr.No-	Calibration dates	Remark
Wind World Sub-station at Imangala	EWFA-01	Main Meter	Old: 5463842 New: 13195819	28/10/2013, 04/08/2014, 27/07/2015	New meters were installed on 27/07/2015 Calibration delay: No
		Check Meter	Old: 5463855 New: 13196453		
EP-II Sub-station at Nandana Hosuru	EP2-01	Main Meter	Old: 3097652 New: 15192487	28/03/2013, 22/09/2014, 29/08/2015	New meters were installed on 29/08/2015 Calibration delay: Yes
		Check Meter	Old: 2048064 New: 15192488		
	EP2-02	Main Meter	Old: 2048052 New: 15192489	28/03/2013, 22/09/2014, 10/09/2015	New meters were installed on 10/09/2015 Calibration delay: Yes
		Check Meter	Old: 2048043 New: 15192490		
GIM-II Sub-station at Gownalli	ELP-17	Main Meter	Old: 5271046 New: 15192493	20/03/2013, 23/07/2014, 29/08/2015	New meters were installed on 29/08/2015
		Check Meter	Old: 5389972 New:		

				15192494	5	Calibration delay: Yes
		ELP-41	Main Meter	Old: 5389983 New:14195731	20/03/2013, 23/07/2014, 29/08/2015	New meters were installed on 29/08/2015  Calibration delay: Yes
			Check Meter	Old: 5389985 New: 14195735		
	Gadag Sub-station at Banikoppa	Line I (GDG/TL &SS/WF/ELB/110LINE -I/39)	Main Meter	6607369	25/07/2013, 20/10/2014	Calibration delay: Yes
			Check Meter	6606801		
		Line II (GDG/TL &SS/WF/ELB/110LINE -II/39)	Main Meter	6605135	25/07/2013, 20/10/2014	
			Check Meter	6607373		

Note: The meters (main and check) at Wind World Sub-station at Imangala and for the client Wind World Wind Farms (Chitradurga) Pvt. Ltd are common verified during the onsite assessment . Hence zero transmission losses are accepted. The above meter details have been verified through the following means:

- i. Physical inspection of the meters during the site visit
- ii. Interviewing the staff at the sub-station
- iii. The CMS of the O&M service provider located at the site
- iv. Calibration certificates

The installation and working condition of the meters were checked during the on-site inspection and it was found to be satisfactory. These meters are duly approved, installed, tested, sealed and in the custody of the state utility. The PP has no control over the same. Accordance with the guidelines as state under section 3.2.3 of CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/19/ which is considered as national standard “All interface meters shall be tested at least once in five years.” Hence, the calibration frequency of once in a year, mentioned in the revised approved PDD/1/ for the meters is appropriate.

**Meter replacements:**

During the site visit it is verified that meters belongs to project developers Wind World Wind Farms (Chitradurga) Ltd and, MK Agrotech Private Ltd and installed at following substations were replaced with new meters:

- Wind World Sub-station at Imangala
- EP-II Sub-station at Nandana Hosuru
- GIM-II Sub-station at Gownalli

The verification team has verified the meter replacement certificates /20/,/21/,/22/ &/23/ issued by state utility and confirmed that the new meters were of same make ,accuracy class (0.2s) as old one and calibrated before installation. Also the replacement of meters is completely under preview of state utility and PP has no control over the same as confirmed through interviews of site personnel and PPA signed by the PP with state utility/14/.

**Assessment on delay in calibration:**

It is evident from the above table that calibration for all monitoring equipment involved in the project activity is not carried out as per the frequency mentioned in the registered monitoring plan.

Since the delay in calibration of the meters observed during the current monitoring period, hence the PP has adjusted the measured values for the delayed calibration period applying maximum permissible errors.

Parameter	Maximum	Error applied
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	Permissible error	
EG <sub>export</sub>	+/- 0.2%	- 0.2%
EG <sub>import</sub>	+/-0.2%	+ 0.2%
T <sub>E</sub>	NA*	+0.2%

\*It is noted that the value of the transmission losses is used for the calculation of EG<sub>y</sub> and as a conservative approach the adjusted monthly values of transmission loss after applying +0.2% of correction factor have been used to calculate EG<sub>y</sub>. Identification of meters to whom the calibration was got delayed is provided in the below table:

Meter Location (Project developer/State utility substation)	Delayed calibration period	Approach followed to address the delay.
Abhilash Garments & Estates (P) Ltd	01/05/2014 to 30/09/2014	For the meters at WTGs locations:  An error factor of - 0.2% is applied to export readings and + 0.2% and energy import reading.
Gangadhar Narsingdas Agarwal 12,13	01/04/2014 to 31/07/2014	
Gangadhar Narsingdas Agarwal 6,7,8	01/04/2014 to 31/07/2014	
Prasad Global Solutions 1/41	01/05/2014 to 30/09/2014	
Prasad Global Solutions 17/50	01/06/2014 to 30/09/2014	
Siddaganga Oil Extractions Ltd. 14,15	01/04/2014 to 31/07/2014	
EP-II Sub-station at Nandana Hosuru	01/04/2014 to 30/09/2014	For the meters at state utility substations: An error factor of +0.2% is applied to transmission losses because the substation meter (Bulk meter) export readings are only used for calculation of transmission losses.
GIM-II Sub-station at Gownalli	01/04/2014 to 31/07/2014	
Gadag Sub-station at Banikoppa	01/07/2014 to 31/10/2014	

The verification team has checked the latest calibration certificates/12/ for all the meters and confirmed that the meters were working satisfactorily and error in the meters was under permissible limits. Hence it can be concluded that the approach followed by the PP is conservative and in line with the guidelines provided under paragraph 395 (a) of VVS version 09.

<b>Findings</b>	CAR #3 was raised and resolved
<b>Conclusion</b>	<p>Based on the above mentioned means of verification, the assessment team confirms that:</p> <ul style="list-style-type: none"> <li>The meter details are correctly mentioned in the MR</li> <li>The meter details are consistent throughout all verified documents</li> <li>The entire metering system is in the custody of the state utility. The PP has no control on the same</li> <li>The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the monitoring plan.</li> <li>The accuracy of the equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board</li> <li>The monitoring equipment are controlled and calibrated in accordance with the monitoring plan in the revised approved PDD.</li> </ul> <p>As per paragraph 390 (c) to (e) of the VVS, version 9.0, the verification team</p>

	<p>confirms that</p> <ul style="list-style-type: none"> <li>• The equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and it is controlled and calibrated in accordance with the monitoring plan</li> <li>• Monitoring results are consistently recorded as per approved frequency</li> <li>• Quality assurance and quality control procedures have been applied in accordance with the monitoring plan</li> </ul>
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## E.8. Assessment of data and calculation of emission reductions or net removals

### E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

<b>Means of verification</b>	<p>The verification team verified that</p> <ol style="list-style-type: none"> <li>A complete set of data for the monitoring period was available for the monitoring period and the verification of each monitoring parameter is elaborated under Section E.6.2 of this report. The complete monitoring data is also presented in the corresponding ER sheet /07/ of final Monitoring Report /05/.</li> <li>The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.6.2 of this report. .</li> <li>The calculations of baseline emissions as presented in the corresponding ER sheet of final Monitoring Report were checked and found to be consistent with the formulae and methods described in the registered monitoring plan and the applied methodology.</li> <li>All assumptions used in the emission calculations were found appropriate and therefore justified</li> <li>Appropriate emission factors and other reference values have been correctly applied. This has also been elaborated under Section E.6.1 of this report.</li> <li>No standardized baseline was prescribed in the revised approved PDD and therefore it has not been applied.</li> <li>There is no pro-rate approach (para 402(g) of CDM VVS Version 09) was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.</li> </ol> <p>The baseline emissions are the product of net electricity supplied to the grid <math>EG_y</math> expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors.</p> $BE_y = EG_y * EF_{CM, y}$ <p>Where:</p> <p><math>BE_y</math>: Baseline Emissions in year y; t CO<sub>2</sub></p> <p><math>EG_y</math>: Net electricity supplied to the grid by the project activity</p> $EG_y = EG_{Export, y} - (115\% * EG_{import}) - T_E$ <p><math>EF_{CM, y}</math> = Combined margin CO<sub>2</sub> emission factor (tCO<sub>2</sub>/MWh)</p> <p>As per the revised approved PDD, combined margin emission factor is 0.93204 tCO<sub>2</sub> /MWh. Hence the baseline emissions for the project activity for the current monitoring period are as follows.</p> $BE_y = 66024.76 * 0.93204 = 61,537 \text{ tCO}_2 \text{e}$
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	<p>The verification team confirms that</p> <ol style="list-style-type: none"> <li>The complete data was available and is duly reported;</li> <li>As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.6.2 of this report);</li> <li>Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed;</li> </ol>

	<p>d) Appropriate emission factors and other reference values were correctly applied.</p> <p>e) There is no pro-rate approach (para 403(e) of CDM VVS Version 09) was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.</p>
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**E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks**

<b>Means of verification</b>	The revised approved PDD/1/ and applied monitoring methodology/3/ does not prescribe any project emissions to be considered. The onsite visit and project design also did not reveal any potential source to be considered in this regard.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	No project emissions were required to be calculated.

**E.8.3. Calculation of leakage GHG emissions**

<b>Means of verification</b>	The revised approved PDD/1/ and applied monitoring methodology/3/ does not prescribe any leakage emissions to be considered. The onsite visit and project design also did not reveal any potential source to be considered in this regard.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	No project emissions were required to be calculated

**E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks**

<b>Means of verification</b>	As elaborated above, the entire emission reductions from the project activity were based on baseline emissions. The calculations presented in this regard in the final monitoring report and corresponding ER calculation sheet were found appropriate and complying with the provisions prescribed in the registered monitoring plan of revised approved PDD and applied methodology. The verification team confirms that an audit trail that contains the evidence and records that validated the stated figures were checked and found acceptable.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	<p>The verification team confirms that</p> <ul style="list-style-type: none"> <li>a) The complete data was available and is duly reported;</li> <li>b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.6.2 of this report);</li> <li>c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed;</li> <li>d) Appropriate emission factors and other reference values were correctly applied.</li> <li>e) There is no pro-rate approach (para 403(e) of CDM VVS Version 09) was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.</li> </ul> <p>The total number of ERs achieved during the current monitoring period is 61,537tCO<sub>2</sub>e.</p>

**E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in revised approved PDD**

<b>Means of verification</b>	As verified and evident from the final Monitoring Report /05/ and corresponding ER sheet /07/, the actual emission reductions achieved by the project activity in the current monitoring period were found less than the estimated quantity in the revised approved PDD/1/ for the comparable period. This is largely due to low plant load factor achieved during the current monitoring period. Considering, there is no increase in ERs than the estimated amount, it was found acceptable to the assessment team.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	The actual emission reductions achieved by the project activity are lower than the



	estimated quantity of ERs in the revised approved PDD/1/. Accordingly, it was accepted by the verification team.
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**E.8.6. Remarks on difference from estimated value in revised approved PDD**

<b>Means of verification</b>	The actual emission reductions were less than the estimation in the revised approved PDD/1/ for an equivalent length of the monitoring period therefore no further explanation is required.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	The actual ERs are less than the estimated quantity of ERs as given in the revised approved PDD, which is appropriate and accepted.

**E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards**

<b>Means of verification</b>	Based on the assessment done in section E.8.1 to E.8.6, the verification team is able to certify that the emission reductions from the CDM project activity 1291 "Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW" in India during the period 01/04/2014 to 30/06/2015 (including both days) is 61,537 tCO <sub>2</sub> e.
<b>Findings</b>	No finding was raised
<b>Conclusion</b>	Actual GHG emission reductions achieved during period starting from 1 <sup>st</sup> January 2013 onwards was verified to be 61,537 tCO <sub>2</sub> e.

**SECTION F. Internal quality control**

A draft verification report that is prepared by verification team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team.

During the technical review process additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized by the Quality Manager on behalf of Earthood Services Private Limited.

**SECTION G. Verification opinion**

Earthood Services Private Limited (Earthood), contracted by Wind World (India) Limited, has performed the independent verification of the emission reductions for the CDM project activity 1291 "Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW" in India for the monitoring period 01/04/2014 -30/06/2015 (including both days) as reported in the Monitoring Report (public) Version 1 dated 26/10/2015. The Wind World (India) Limited is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

Earthood commenced the verification on the basis of the baseline and monitoring methodology ACM0002 Version 6.0, the monitoring plan contained in the revised approved PDD Version 07 dated 19/08/2014 , Monitoring Report (public) Version 1 dated 26/10/2015.

ESPL confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. This verification report has been prepared using the latest available template specified by UNFCCC and complies with the instructions to follow as per para 406 and 407 of CDM VVS Version 9.

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

The verification team confirms that:

- The project activity was found completely implemented as per the description given in the revised approved PDD.

- The actual operation conforms to the description in the revised approved PDD.

## SECTION H. Certification statement

Earthood Services Private Limited (Earthood), contracted by Wind World (India) Limited, has performed the independent verification of the emission reductions for the CDM project activity 1291 “Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW” in India for the monitoring period 01/04/2014 -30/06/2015 (including both days) as reported in the Monitoring Report (Final) Version 03 dated 12/01/2016. The Wind World (India) Limited is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity

Earthood commenced the verification on the basis of the baseline and monitoring methodology ACM0002 Version 6.0, the monitoring plan contained in the PDD Version 07 dated 19/08/2014, Monitoring Report (public) Version 1 dated 26/10/2015 as per the methodology described under Section D of this report.

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 01/04/2015 - 30/06/2015 are fairly stated in the Monitoring Report (final) Version 03 dated 12/01/2016. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 Version 6.0 and the monitoring plan contained in the PDD Version 07 dated 19/08/2014.

Earthood Services Private Limited is able to certify that the emission reductions from the CDM project activity 1291 “Enercon Wind Farms in Karnataka Bundled Project – 30.4 MW” in India during the period 01/04/2014 – 30/06/2015 (including both days) amount to 61,537 tCO<sub>2</sub>e.

### Verified and certified emission reductions as per commitment period:

Commitment period (Kyoto Protocol)	Amount
Upto 31/12/2012 (First)	0 tCO <sub>2</sub> e
From 01/01/2013 onwards (Second)	61,537 tCO <sub>2</sub> e

## Appendix 1. Abbreviations

Abbreviations	Full texts
BESCOM	Bangalore Electricity Supply Company
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
EB	Executive Board
EF	Emission Factor
EPC	Engineering ,Procurement and Construction
ER	Emission Reductions
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GOI	Government of India
HESCOM	Hubli Electricity Supply Company
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
KPTCL	Karnataka Power Transport Company Limited
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
PDD	Project Design Document
PPA	Power Purchase Agreement
PP	Project Participant
PRC	Post Registration Changes
PS	Project Standard
RMP	Revised Monitoring Plan
SLDC	State Load Dispatch Center
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator
WEC	Wind Energy Convertor
WWIL	Wind World (India) Limited

## Appendix 2. Competence of team members and technical reviewers

Competence Statement	
<b>Name</b>	Nayan Jyoti Deka
<b>Country</b>	India
<b>Education</b>	M.Tech. (Energy Technology), Tezpur University

<b>Experience</b>	8 Years		
<b>Field</b>	Climate Change & Energy Management		
<b>Approved Roles</b>			
<b>Team Leader</b>	YES		
<b>Validator</b>	YES		
<b>Verifier</b>	YES		
<b>Financial Expert</b>	NO		
<b>Technical Reviewer</b>	YES		
<b>TA Expert (1.1, 1.2, 3.1, 13.1)</b>	YES		
<b>Reviewed by</b>	Abhishek Mahawar	<b>Date</b>	12/10/2015
<b>Approved by</b>	Ashok Kumar Gautam	<b>Date</b>	12/10/2015

<b>Competence Statement</b>			
<b>Name</b>	Shreya Garg		
<b>Country</b>	India		
<b>Education</b>	M.Sc. (Climate Science & Policy), TERI University		
<b>Experience</b>	4 Years		
<b>Field</b>	Climate Change		
<b>Approved Roles</b>			
<b>Team Leader</b>	YES		
<b>Validator</b>	YES		
<b>Verifier</b>	YES		
<b>Financial Expert</b>	NO		
<b>Technical Reviewer</b>	YES		
<b>TA Expert (1.2)</b>	YES		
<b>Reviewed by</b>	Abhishek Mahawar	<b>Date</b>	29/12/2014
<b>Approved by</b>	Ashok Gautam	<b>Date</b>	29/12/2014

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	PP	Revised approved PDD	Version 7.0 ,Dated 19/08/2014	Other
2	SGS	Validation Report	Revision 3, dated 25/10/2009	Other
2.1	BVC	Validation opinion on PRC	Report No-PRC/648.49/2014, dated 06/10/2014	Other
2.2	BVC	Verification report ( previous verification MP04)	BVC-India /VR/648.49/2014,dated 03/11/2014	Other
3	UNFCCC	Consolidated baseline methodology for grid-connected electricity generation from renewable sources ,ACM0002	Version 6.0	Other
4	PP	Monitoring Report (publication) Ver. 1	Version 01,dated 26/10/2015	PP

4.1	PP	Monitoring report (intermediate versions)	Version 02,dated 09/12/2015	PP
5	PP	Monitoring Report (final)	Version 03,dated 12/01/2016	PP
6	PP	ER Spreadsheet	Version 01,dated 20/11/2015	PP
7	PP	ER spreadsheet (final)	Version 02, dated 17/12/2015	PP
8	UNFCCC	CDM VVS	Version 09	Other
9	UNFCCC	CDM PS	Version 09	Other
10	TANGEDCO	Monthly JMRs(Form-B) issued by state utility	-	PP
11	PP	Monthly invoices raised by the PP to state utility	-	PP
12	State Utility	Calibration certificates of main meter and check meter	-	PP
13	State Utility	Commissioning certificates (for all WTGs)	-	PP
14	State Utility	Power Purchase Agreement between KPTCL and Wind World (India) Limited	Each project developer signed PPA with KPTCL separately	PP
15	CEA	CO <sub>2</sub> Baseline Database for Indian Power Sector	Version 1.1	Others
16	UNFCCC	UNFCCC webpage for the project activity	<a href="http://cdm.unfccc.int/Projects/DB/SGS-UKL1187092432.51/view">http://cdm.unfccc.int/Projects/DB/SGS-UKL1187092432.51/view</a> last accessed on 12/01/2016	Others
18	Ministry of corporate Affairs, GOI	Name change consent issued by Government of India,	dated 01/01/2013	PP
19	CEA	CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006	-	Others
20	BESCOM	Meter replacement certificate MK Agrotech Private Ltd	Ref.No- AEE/NCE/HT/MT/CTA/1369-70/14-15dated 07/08/2014	PP
21	BESCOM	Meter replacement certificate Wind World Wind Farms (Chitradurga) Ltd.	Ref No-AEE(Ele)/NCE/MT/CTA, dated 27/07/2015	PP
22	BESCOM	Meter replacement certificate (EP-II Sub-station at Nandana Hosuru)	Ref No-AEE(Ele)/NCE/MT/CTA/15-16/17351-54, dated 31/08/2015	PP
23	BESCOM	Meter replacement certificate (GIM-II Sub-station at Gownalli )	Ref No-AEE(Ele)/NCE/MT/CTA/15-16/17355-58, dated 31/08/2015	PP

## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	NA	Section no.	Date : DD/MM/YYYY
<b>Description of FAR</b>			
No FAR remaining form validation or previous verification			
<b>Project participant response</b>			<b>Date : DD/MM/YYYY</b>
<b>Documentation provided by project participant</b>			
<b>DOE assessment</b>			
			<b>Date: DD/MM/YYYY</b>

Table 2. CL from this verification

CL ID	01	Section no.	E.3	Date : 23/11/2015
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<b>Description of CL</b>	
Operation period of the project activity is stated as from 01/10/2012 to 31/03/2014 in section A.1 of the MR. Please clarify.	
<b>Project participant response</b>	<b>Date : 09/12/2015</b>
<i>The operation period has been corrected in revised version of MR.</i>	
<b>Documentation provided by project participant</b>	
Revised MR version 02,dated 09/12/2015	
<b>DOE assessment</b>	<b>Date: 12/12/2015</b>
The PP has corrected the operation period in the MR in line with the comment. Hence CL #1 is closed.	

<b>CL ID</b>	02	<b>Section no.</b>	E.4	<b>Date : 23/11/2015</b>
<b>Description of CL</b>				
Information's relevant to post registration changes provided in section B.2 of the MR are not in line with instructions provided in the MR template.				
<b>Project participant response</b>				<b>Date : 09/12/2015</b>
<i>Information relevant to post registration changes provided in Section B.2 of MR has been corrected in revised version.</i>				
<b>Documentation provided by project participant</b>				
Revised MR version 02,dated 09/12/2015				
<b>DOE assessment</b>				<b>Date: 12/12/2015</b>
The PP has updated the information's relevant to post registration changes in Section B.2 of MR, the same is found to be appropriate, hence accepted. CL #2 is closed.				

Table 3. CAR from this verification

<b>CAR ID</b>	03	<b>Section no.</b>	E.8	<b>Date : 23/11/2015</b>
<b>Description of CAR</b>				
<ol style="list-style-type: none"> <li>1. Template of MR is not the latest one i.e. Footer showing the version 4.0. Please clarify</li> <li>2. Monitoring period mentioned in section E.1 of the MR is not consistent with other sections of MR.</li> <li>3. Meter serial numbers (EP-II substation at Nanadanahosuru) as mentioned in the MR don't match with meter numbers verified during the site visit. Please clarify the inconsistency observed.</li> <li>4. Please submit the ER calculation sheet.</li> </ol>				
<b>Project participant response</b>				<b>Date : 09/12/2015</b>
<ol style="list-style-type: none"> <li>1. Latest template of MR has been used in revised version of MR.</li> <li>2. Monitoring period in Section E.1 of revised MR has been corrected.</li> <li>3. Meter Serial number for EP-II has been changed in revised version of MR &amp; supporting document for meter change has been submitted to DOE.</li> <li>4. ER Calculation Sheet has been submitted along with revised version of MR.</li> </ol>				
<b>Documentation provided by project participant</b>				
Revised MR version 02,dated 09/12/2015				
ER calculation sheet version 01,dated 20/11/2015				
<b>DOE assessment</b>				<b>Date: 12/12/2015</b>
<p>The PP has referred the latest available template of MR and monitoring period is corrected in section E.1 of the revised MR.</p> <p>Meter numbers for EP-II substation are corrected and found to be same as verified during the site visit.</p> <p>ER calculation sheet is submitted, however the error factor has not been applied for the calibration delayed period correctly. Please clarify.</p> <p>CAR #3 is open</p>				
<b>Project participant response</b>				<b>Date : 17/12/2015</b>
Error Factor has applied for the calibration delay period correctly in the revised version of ER calculation sheet.				
<b>Documentation provided by project participant</b>				
ER calculation sheet version 02,dated 17/12/2015				
<b>DOE assessment</b>				<b>Date : 18/12/2015</b>
The PP has applied the error factor for the delayed calibration period appropriately hence CAR #3 is closed.				
CAR #3 re-opened				<b>Date : 12/01/2016</b>
<b>Description of CAR</b>				
<p>Value of ERs achieved during the current monitoring period as mentioned at page 2 of MR is inconsistent with ER sheet.</p> <p>Model number of WTGs is not consistent with registered PDD.</p>				
<b>Project participant response</b>				<b>Date : 12/01/2016</b>
Value of emission reductions and model number is corrected in the revised MR				

<b>Documentation provided by project participant</b>	
Revised MR version 03,dated 12/01/2016	
<b>DOE assessment</b>	<b>Date : 12/01/2016</b>
The issues are addressed satisfactorily in the revised MR ,hence CAR #3 is closed.	

Table 4. FAR from this verification

<b>FAR ID</b>	xx	<b>Section No.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
No FAR raised in this verification				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
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Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		