

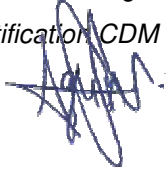


**Verification and certification report form for  
CDM project activities  
(Version 04.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Wind Power Project in Maharashtra by M/s L. B. Kunjir Engineers & Contractors (UNFCCC Ref. No.3554)		
<b>Scale of the project activity</b>	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale		
<b>Version number of the verification and certification report</b>	02		
<b>Completion date of the verification and certification report</b>	01/09/2021		
<b>Monitoring period number and duration of this monitoring period</b>	01 01/04/2015 – 31/03/2020 (including first and last dates)		
<b>Version number of the monitoring report to which this report applies</b>	02		
<b>Crediting period of the project activity corresponding to this monitoring period</b>	01/04/2010 -31/03/2020 (Fixed)		
<b>Project participants</b>	M/s L. B. Kunjir		
<b>Host Party</b>	India		
<b>Applied methodologies and standardized baselines</b>	AMS-I.D "Grid connected renewable electricity generation" (Version 13) Standardized Methodology: Not Applicable		
<b>Mandatory sectoral scopes</b>	1: Energy industries (renewable - / non-renewable sources)		
<b>Conditional sectoral scopes, if applicable</b>	NA		
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD</b>	10,657 tCO <sub>2e</sub>		
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	0 tCO <sub>2e</sub>	12,003 tCO <sub>2e</sub>	0 tCO <sub>2e</sub>
<b>Name and UNFCCC reference number of the DOE</b>	LGAI Technological Center, S.A. (Applus+ Certification) UNFCCC Ref. No.: E-0032		

<b>Name, position and signature of the approver of the verification and certification report</b>	<p>Mr. Agustín Calle de Miguel</p> <p><i>Applus+ Certification CDM Technical Manager</i></p> <p>Signature: </p>
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## SECTION A. Executive summary

M/s L.B. Kunjir has commissioned LGAI Technological Center, S.A. (Applus+ Certification) to perform 4<sup>th</sup> periodic verification of the “Wind Power Project in Maharashtra by M/s L. B. Kunjir Engineers & Contractors”. The project activity involves operation of one WTG of 1.5 MW wind power project in Maharashtra state of India.

The purpose of the project activity is to generate clean form of electricity through renewable wind energy sources. The electricity generated from the project activity is supplied to Maharashtra State Electricity Distribution Company Limited (MSEDCL) via NEWNE grid (now Indian grid).

During the reported monitoring period 01/04/2015 to 31/03/2020(first and last date included) the project activity has supplied 14,747.29 MWh of electricity, and thus contributing to the GHG reductions of 12,003 tCO<sub>2</sub>e.

**1. Verification Scope:** The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification is based on the submitted monitoring report, the validated and registered PDD as well as its validation report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance. Based on the requirements in the CDM validation and verification standard for project activities, Version 02.0, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion. The verification considers both quantitative and qualitative information on emission reductions. The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

### **2. Methodology:**

LGA Technological Center, S.A. (Applus+ Certification) – Hereinafter referred as Applus+ Certification - approach to the verification is a two-stage process.

In the 1<sup>st</sup> stage, Applus+ Certification completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ Certification used a Periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

### **3. Desk Review**

In the 2<sup>nd</sup> stage, using the Verification Checklist, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

The Monitoring Report version 01 submitted by the PP was made publicly available on the UNFCCC website before the verification activities started. The published MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- Verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of

measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid;

- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

#### **4. Assessment team**

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center, S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center, S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect
Mr Jitendra Mohan Singh	LA/TE	YES	YES	NA
Mr. Denny Xue	TR	YES	YES	NA

The curriculum vitae of the DOE's Verification team members is provided in Appendix 2 of this report.

#### **5. Review of Documentation:**

The Monitoring Report version 01 submitted by the PP was made publicly available on the UNFCCC website before the verification activities started. The published MR was assessed based on all the relevant documents. A cross-check between information provided and information from other sources has been done. A complete list of documents reviewed is available in Appendix 3 of this report.

#### **6. On-site Assessment and follow-up Interviews:**

As a part of the verification, the on-site inspection has been performed by the assessment team. The objective of the on-site assessment is to:

- Confirm the implementation and operation of the project;
- Review the data flow for generating, aggregating and reporting the monitoring parameters;
- Confirm the correct implementation of procedures for operations and data collection;
- Cross-check the information provided in the MR documentation with other sources;
- Check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.
- Review the calculations and assumptions used to obtain the GHG data and ER;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

The details are mentioned in section D.2 of this report.

#### **7. Quality of Evidences**

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR. The source of the evidences will be discussed in Appendix 3 of this report.

Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

## 8. Reporting of Findings

As an outcome of the verification process, the assessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CL) 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.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period. All the CARs/CLs/FARs are being discussed in Appendix 4 of this report.

## 9. Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the request of issuance is submitted to CDM EB along with the requisite documents.

## 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/document review	On-site inspection	Interviews	Verification findings
1.	Lead Auditor/Technical Expert	OR	Singh	Jitendra Mohan	True Quality Certifications Private Limited- Outsourced entity	Yes	NA	Yes	Yes

### 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	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustín	Applus+ Certification

## 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 errors: Readings from Meters (if not automatic)	LOW	Human error is likely to occur if the monitoring personnel are not trained well or inexperienced in data recording procedures and monitoring processes.	All the personal are well trained to monitor and collect data and thus risk associated with Human error is minimized. Assessment team checked the training records to confirm that all the personal are well trained to handle the activities related to monitoring. Assessment team checked the training records for the complete monitoring period and confirm that the personal are well trained to monitor and collect data for the project activity.
2.	Human error: Quantification of emission reduction	LOW	Use of spreadsheets without adequate data control, changes/updates, version tracking, traceability and security	All the JMRs (Monthly meter reading reports) sheets and the invoices for the complete monitoring period are checked and thus the assessment team confirms that the ER value is conservative and correct.

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

In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. There are no material errors, overestimation of ER, omission or misstatement.

## SECTION D. Means of verification

### D.1. Desk/document review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment used including calibration requirements, and the QA/QC procedures, and an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reduction.

The initial MR Version 01 submitted by the project participant and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step involved the identification of corrective action requests, clarification requests and Forward action request (CAR, CL and FAR) which are presented in Appendix 4 of this report. As a result of these findings, the MR is revised & submitted by PP. A complete list of all documents and records reviewed is as attached in Appendix 3 of this report.

### D.2. On-site inspection

No physical verification was conducted by the DOE for this CDM verification due to high threat of COVID-19 in entire state of India and state-wise lockdown and quarantine rules.

Hence, in line with the guidance to relax mandatory site visits by DOEs due to COVID 19 pandemic published by UNFCCC, DOE has taken alternative measures to arrive at conservative estimation

of emission reductions achieved, applying standard auditing techniques for verification, as referred in section 9.1.3 of the "CDM validation and verification standard for project activities, Version 02.0". Also, PP has commitment for delivery of CERs on or before 31/01/2022. As per UNFCCC guideline DOE concluded that the site visit cannot be postponed and therefore the audit was conducted on 24/08/2021 remotely to avoid any delay. So, the site visit cannot be postponed to a later date. Thus, as per guidance to relax mandatory site visits by DOEs due to COVID 19 pandemic, assessment team have conducted remote audit and used standard auditing techniques to verify information and compliance with applicable requirements to the extent possible, to ensure the completeness and credibility of the audit.

The remote audit was conducted through Skypes and audit was attended by Site In-charge of both sites as well as consultants. Details of attendees is given below in section D.3.

The topics discussed during the remote audit is given in below table and explained in detailed latter part.

Duration of remote audit: 24/08/2021				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p>The verification team conducted virtual audit of the project to confirm the information and to resolve issues identified in the document review. An on-site assessment was conducted as a part of verification activity and involved:</p> <p>1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD</p> <p>2) a review of information flows for generating, aggregating and reporting of the monitoring parameters</p> <p>3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan</p> <p>4) a cross-check between information provided in the MR and data from other sources</p> <p>5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology</p> <p>6) a review of calculations and assumptions made in determining the GHG data and ERs, and</p> <p>7) an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters</p>	Remote Audit (conference call via zoho)	24/08/2021	Jitendra Mohan Singh

As referred above, the objective of the remote assessment was to verify the following issues:

- Confirm the implementation and operation of the project in line with CDM PDD: the project activity is implemented as per the registered PDD and there is no change in capacity or design of the project activity since commissioning. Same was confirmed from commissioning certificate, technical specifications of the WTG, PPA, interviews with PP/Site in charge and JMRs as well as invoices raised by PP towards state utility;
- Review the data flow for generating, aggregating and reporting the monitoring parameters: JMR procedures are followed at the project site in line with the state utility practice and is in line with the registered PDD. JMR procedure is confirmed during the interviews with PP and assessment team also checked entire monthly JMRs issued by the state utility for the project activity with the values provided in the ER sheet for the calculations of the emission reductions;
- Confirm the correct implementation of procedures for operations and data collection: during interviews with PP. it was confirmed that implementation of procedures for operations and data collection is in line with registered PDD. Service provider is responsible for the operations, maintenance as well as maintaining other technical data of the project activity. Performance and operation data of each WTG is controlled and maintained by service provider through the dedicated software and made available to the PP as & when required;
- Cross-check the information provided in the MR documentation with other sources: the information provided in the MR was crosschecked with the commissioning certificates, PPA, calibration certificates and JMRs are issued by Statutory authority and invoices are used for cross-checking;
- Check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.: monitoring meters are cross checked with the previous verification reports, interviews with PP, current photographs/videos submitted by PP and calibration is checked with the calibration certificates issued by State Utility authorized third parties;
- Review the calculations and assumptions used to obtain the GHG data and ER: calculation procedures and monthly generation data is checked with JMR and crosschecked with invoices;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters: during interviews with PP, it was confirmed that quality control and quality assurance procedures are in place. Metering arrangements & JMR procedure is defined and controlled by state utility and PP do not have control on it. Assessment team checked all the monthly JMR values as well as crosschecked with the invoices and found that emission reductions are calculated conservatively.

Thus, to verify the implementation of project activity, onsite operation & maintenance, monitoring & management practices; assessment team has conducted skype call/telephonic interviews with onsite in-charge, O&M team and also had a detail discussion with the PP representative and reviewed third party statutory documents i.e. Commissioning certificate, Power Purchase Agreement, Complete set of JMRs covering monitoring period, Invoice (for cross check of Net electricity supplied to the grid as per revised PDD), training records, plant/breakdown logbook, O&M schedule, complaint/feedback register and other relevant records.

After telephonic and video (via zoho) interviews with concerned onsite persons, document reviews & site videos/photographs submitted by PP; assessment team concluded that the project activity is still implemented and operated in-line with the registered PDD. There is no change in the project design or operation and monitoring practices at site which can alter the applicability of meth or additionality of the project activity. In addition to the interviews with PP, assessment team have checked the commissioning certificate, PPA and JMRs and found that the project activity is implemented as per the PDD, and Monitoring report submitted by the PP for current monitoring period. From review of JMR and invoices assessment team therefore of the opinion that project is implemented as described in the registered PDD and there is no change in monitoring practices as well as all monitoring parameters as envisaged in the PDD. All the monitored values are supported by the evidences i.e. JMRs and found that information provided in the MR is in line with the



submitted evidences. Assessment team reviewed all the calibration certificates and found that monitoring meters are calibrated periodically. Detailed assessment provided later in Section E.7 of this report.

### D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	-	Akshay	PP representative	24/08/2021	As mentioned above in section D.2 of this report	Jitendra Mohan Singh
2.	Sharma	Barun	Consultant, EKI Energy Service Ltd.	24/08/2021	As mentioned above in section D.2 of this report	
2.	Ramindla	Sushma	Consultant, EKI Energy Service Ltd.	24/08/2021	As mentioned above in section D.2 of this report	

### D.4. Sampling approach

No sampling is used as the verification team has visited site along with the substations. The verification team has reviewed all the documents like commissioning certificates, JMR (monthly reports) sheets, invoices etc

### D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	00	01	00
Compliance of the project implementation and operation with the registered PDD	00	01	00
Post-registration changes	00	00	00
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	00	00	00
Compliance of monitoring activities with the registered monitoring plan	00	02	00
Compliance with the calibration frequency requirements for measuring instruments	00	01	00
Assessment of data and calculation of emission reductions or net removals	00	02	00
Assessment of reported sustainable development co-benefits	00	00	00
Global stakeholder consultation	00	00	00
Others (please specify)	00	00	00
<b>Total</b>	<b>00</b>	<b>07</b>	<b>00</b>

## SECTION E. Verification findings

### E.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	The verification team has determined whether the monitoring report was completed using the valid version of the applicable monitoring report form. The verification team has checked whether all the sections of the monitoring report follow the guidelines provided in the template
<b>Findings</b>	CAR 01 was raised during the verification process and closed successfully. Please refer Appendix 4 for the complete closure of the CAR.
<b>Conclusion</b>	The MR was web hosted in version 08.0 of the MR form which is currently active version available in the UN platform. The monitoring report has been prepared as per the instructions provided in the template. DOE has made the version 01 of the monitoring report covering the monitoring period 01/04/2015 to 31/03/2020;(both the days included) publicly available through its dedicated interface on the

	UNFCCC CDM website on 27/07/2021 <sup>1</sup> i.e. before undertaking the remote audit for the verification. The verification team has concluded that the monitoring report was completed using the valid version of the applicable monitoring report form and is followed the guidelines contained in the template.
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## E.2. Remaining forward action requests from validation and/or previous verifications

This is 4<sup>th</sup> periodic verification of the project activity. No FAR was raised during the validation and previous verification of the project activity.

## E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	The verification team determined the conformity of the actual implemented project activity and its operation with the registered project design document. DOE has, by means of a desk review and interview, assessed whether all physical features of the proposed CDM project activity proposed in the registered PDD are in place, and that the project participants have operated the CDM project activity as per the registered PDD.																		
Findings	CAR 02 was raised during the verification process and closed successfully. Please refer Appendix 4 for the complete closure of the CAR.																		
Conclusion	<p>The verification team has reviewed the commissioning certificates to conclude that the capacity of the project is same as mentioned in the registered PDD. The capacity does not change after the registration of the project activity as confirmed by the assessment team through interview with PP during remote audit. The wind turbine installed is in continuous operation. The situation of continuous operation is confirmed by the PP representation during remote audit and evident from Breakdown log sheets. No major breakdown was found. Scheduled &amp; preventive maintenance were carried out as per manufacturer specification for the power plant. No unforeseen activity observed during the present verification that can alter the applicability or additionality of the applied methodology. The details are checked by the assessment team from the plant log records and found correct. Assessment team also checked the implementation status of the project activity and confirm that detail as presented in the MR is correct. The Project activity is located in Nasik districts of Maharashtra, India.</p> <p>Assessment team checked the latitude and longitude of the project activity with the help of Google earth software and found that the detail of latitude and longitude as mentioned in the registered PDD is correct. The details are given below;</p> <table><tr><th>WTG Location No.</th><th>Site</th><th>Taluk</th><th>R.S.No</th><th>Latitude</th><th>Longitude</th></tr><tr><td>AD 27</td><td>Adwadi</td><td>Sinnar</td><td>134</td><td>21° 21' 57.31" N</td><td>74° 14' 32.09" E</td></tr></table> <p>The WTG was commissioned on 30/03/2009 and the same is verified with the commissioning certificate and found correct.</p> <p>The assessment team checked the above details PP representative during the remote audit &amp; review of commissioning certificate and found correct.</p> <p>The total installed capacity of the project activity is 1.5 MW consisting only one WTG. Assessment team checked the technical specification and details of the power plant during interview with PP representative during remote audit. The details are checked from the manufacturer technical specification as well from the physical visit. The detail as mentioned in the registered PDD is correct and the same is mentioned in the MR. The detail is as follow:</p> <p>Technical specification of installed WTGs (S -82) of 1.5 MW is as follows:</p> <table><tr><td>Rotor diameter</td><td>82.0 m</td></tr><tr><td>Installed electrical output</td><td>1500 kW</td></tr><tr><td>Cut –in wind speed</td><td>4 m/s</td></tr></table>	WTG Location No.	Site	Taluk	R.S.No	Latitude	Longitude	AD 27	Adwadi	Sinnar	134	21° 21' 57.31" N	74° 14' 32.09" E	Rotor diameter	82.0 m	Installed electrical output	1500 kW	Cut –in wind speed	4 m/s
WTG Location No.	Site	Taluk	R.S.No	Latitude	Longitude														
AD 27	Adwadi	Sinnar	134	21° 21' 57.31" N	74° 14' 32.09" E														
Rotor diameter	82.0 m																		
Installed electrical output	1500 kW																		
Cut –in wind speed	4 m/s																		

<sup>1</sup> [https://cdm.unfccc.int/Issuance/MonitoringReports/mr\\_for\\_date.html?date=2021/07/27](https://cdm.unfccc.int/Issuance/MonitoringReports/mr_for_date.html?date=2021/07/27)

	Rated wind speed	14 m/s
	Cut-out wind speed	20 m/s
	Rotor swept area	5281 m <sup>2</sup>
	Rational speed	16.30 RPM
	Rotor material	GRP
	Regulation	Pitch
	Generator	Asynchronous Generator, 4 poles
	Rated output	1500 kW
	Rotational speed	1511 rpm
	Operating voltage	690 v
	Frequency	50 Hz
	Protection	IP 54
	Insulation class	H
	Cooling system	Air -cooled
	Gear box	3 stage gear box, 1 planetary and 2 helical
	Manufacturer	Winergy
	Gear Ratio	95.09
	Nominal load	1650 kW
	Type of cooling	Oil cooling system
	Yaw drive system	4 active electrical yaw motors
	Yaw bearing	Polyamide slide bearing
	Safety system	
	Aerodynamic brake	3 times independent pitch regulation
	Mechanical brake	Spring powered disc brake, hydraulically released fail safe
	Control unit	Microprocessor controlled, indicating actual operating conditions, UPS back up system
	Design standards	GL/IEC
	The WTGs undergone scheduled maintenance as per the manufacturer's specifications and no unforeseen incident observed by the assessment team during the monitoring period. The details are checked by the assessment team from the plant log records and found correct.	
	Based on the documentary evidence of commissioning certificate and virtual verification DOE concludes that the project was implemented as per the registered PDD.	

**E.4. Post-registration changes****E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents<sup>2</sup>**

Not applicable for present Monitoring period.

**E.4.2. Corrections**

Not applicable for present Monitoring period.

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

There is no change in crediting period, this this section is not applicable.

**E.4.4. Inclusion of a monitoring plan**

Not applicable for present Monitoring period.

<sup>2</sup> Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

**E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents**

Not applicable for present Monitoring period.

**E.4.6. Changes to the project design**

Not applicable for present Monitoring period

**E.4.7. Changes specific to afforestation and reforestation project activities**

Not applicable for present project activity.

**E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents**

<b>Means of verification</b>	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology AMS-I.D “Grid connected renewable electricity generation”, Version 13 including applicable tools.
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	The verification team is able to confirm that the monitoring plan contained in the registered PDD is in accordance with the approved methodology applied by the project activity, i.e. AMS-I.D “Grid connected renewable electricity generation” ,Version 13 and its applicable tools. The same is followed onsite and thus assessment team confirms that project activity comply with the requirement of Approved methodology and registered PDD.

**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**

<b>Means of verification</b>	The assessment team checked the registered PDD to confirm the ex-ante fixed parameter mentioned in the current monitoring report. Assessment team also interviewed personal onsite whether monitoring has been to check further regarding the ex-ante values used for emission reduction calculation.
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	<b>Grid emission factor ( <math>EF_{grid}</math> )</b> was mentioned as ex-ante parameter for calculation of ex-ante baseline emission at the time of validation of PDD. Assessment team checked the value, source of data, choice of data, purpose of the data mentioned in the MR from the registered PDD and confirms that this value was used for calculation of baseline during validation of PDD. The value of $EF_{grid}$ (0.810 tCO <sub>2</sub> e/MWh) was considered for the year 2007-08 from the CEA CO <sub>2</sub> baseline database (Version 4.0) published by Central Electricity Authority (CEA). The default value as mentioned in the registered PDD and MR are same. However, this is monitoring parameter as per registered PDD. Thus, this value is not used in calculation of ex-post value of baseline emission reduction calculation.

**E.6.2. Data and parameters monitored**

<b>Means of verification</b>	The assessment team checked the registered PDD to confirm the ex-post parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-post parameter monitoring and confirms that the same is in line with the registered PDD. AMS-I.D “Grid connected renewable electricity generation”, Version 13 which was the applied methodology during the registration of the project is also checked to ensure that monitoring parameters as mentioned in the registered PDD and current MR are in compliance with the methodology.
<b>Findings</b>	CAR 03 and CAR 04 were raised during the verification process and closed successfully. Please refer Appendix 4 for the complete closure of the CAR.
<b>Conclusion</b>	As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored: <b>EG<sub>(Net export from the project activity)</sub>: Net electricity exported from the project activity as measured at the grid interconnection point</b>

**EG**(Net export from the project activity) is calculated value based on the monitored parameter of electricity export and Import and sourced from. The electricity export and import are measured by main and backup meter/ check meter of accuracy class 0.2s at Kahaprale Substation (33 kV Feeder). The Joint Meter Reading taken by representatives of MSEDCL (State Utility official) & O&M service provider (Suzlon) at the substation and the same is apportioned on monthly basis by the State Utility to get export kWh & import kWh values for the project activity WTG. The value of net electricity supplied by the project activity to the grid calculated as follows:

Net export = Export kWh – Import kWh

PP has sourced the quantity of net electricity supplied to the grid by the project activity directly from the monthly Credit Reports (JMRs) prepared by MSEDCL. PP doesn't have any role or control on apportioning of net electricity export to grid.

Assessment team verified the same with the monthly credit report and interview with O & M personals during the remote audit and thus confirm that the value of 14,747.29 MWh as mentioned in the revised monitoring report and emission sheet is correct and the same is in compliance with the requirement of Para 364 and 395 (e).

The details of meters used during this monitoring period are provided below:

**Substation meter:**

Meters	Make	Accuracy Class
Main Meter (Sr.No.14796435)	Elster	0.2s
Check Meter (Sr.No 14796431)	Elster	0.2s

The monitoring period covers the period from 01/04/2015 to 31/03/2020. During this monitoring period, main meter and check is not covered under calibration from 01/12/2015 to 31/03/2019 as per calibration frequency. The last calibration of main and check meter was done on 01/12/2014 and validity was up to 30/11/2015. However, the results of delayed calibration are within permissible limit of accuracy class and PP has applied maximum permissible error 0.2% in electricity exported and imported for the delayed period for the conservativeness. This is in line with the requirement of paragraph 366(a) of VVS 02.0. Thus, acceptable to assessment team.

The Assessment team checked the monthly JMRs issued by the state electricity board. Assessment team also cross-verified the net electricity exported to grid values with invoices raised by PP and found correct.

**Grid Emission Factor:** As per registered PDD, the grid emission factor - Weighted Average Grid Emission rate is to be monitored ex-post and source of data from Central Electricity Authority- Carbon Dioxide baseline database latest available version.

PP has sourced the Weighted Average Grid Emission rate from the latest version of CEA CO<sub>2</sub> Baseline database, version 16 published in March 2021 by Central Electricity Authority (CEA) which is publically available documents and contains the data from Financial Year (FY) 2015-16 to FY 2019-20 (FY starts from 01 April and end on 31 March).

The Weighted Average Emission Factor for year 2015-16, 2016-17, 2017-18, 2018-19 and 2019-20 has been calculated separately and used for calculating the emission reductions of corresponding vintage. This in line with the paragraph 39(b) and 70(b) of Methodological tool: Tool to calculate the emission factor for an electricity system, version 05.0. Therefore, the Weighted Average Grid Emission rate corresponding to Indian financial year 2015-16, 2016-17, 2017-18, 2018-19 and 2019-20 are used to calculate the individual emission factor for each year for the monitoring period 01/04/2015 to 31/03/2020.

The Weighted Average Grid Emission rate (Financial Year wise) for the monitoring period 01/04/2015 to 31/03/2020 are as follows:

Financial Year	tCO <sub>2</sub> /MWh <sup>3</sup>
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<sup>3</sup> <https://cea.nic.in/cdm-co2-baseline-database/?lang=en>

	2015-16 (01/04/2015 to 31/03/2016)	0.82
	2016-17 (01/04/2016 to 31/03/2017)	0.82
	2017-18 (01/04/2017 to 31/03/2018)	0.82
	2018-19 (01/04/2018 to 31/03/2019)	0.82
	2019-20 (01/04/2019 to 31/03/2020)	0.79
<p>Assessment team has checked the CEA-CO<sub>2</sub> baseline database, version 16 and found that weighted average grid emission factor used in baseline emission reductions calculation is correct.</p> <p>During the verification all relevant monitoring parameters (as listed in section B.7.1 of PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The Verification team identified that the correct emission factor is reported under the section D.2 of the monitoring report to apply the appropriately report the emission factor. Based on above assessment the verification team confirms that requisite parameters are monitored in line with registered monitoring plan.</p>		

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	The verification assessed whether the compliance of the sampling efforts and surveys with the registered sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities" if PP had applied a sampling approach to determine data and parameters monitored.
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	PP did not apply sampling plan to determine data and parameters monitored during this monitoring period. The verification team has checked all the documents such as JMR (Monthly meter Readings) report, invoice etc. and hence sampling plan was not required. The verification team hereby confirms that all the documents have been checked and thus DOE has not applied any sampling to the project activity for verification purposes.

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

Means of verification	The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the PP at a frequency specified in the registered monitoring plan.		
Findings	CAR 05 was raised during the verification process and closed successfully. Please refer Appendix 4 of this report for the detail closure of the CAR.		
Conclusion	Metering arrangement is bi-directional tri-vector main meter and backup/meter. All the meters used to measure the monitoring parameter of accuracy class 0.2s as verified through calibration certificates. This energy meter is capable of recording both, export as well as import of electricity. Calibration frequency of meters are annually. The meter details and their calibration are as below:		
	Meter (Sr. No.)	Calibration Date	Validity of calibration
	Main Meter	01/12/2014	30/11/2015
	Sr. No. (Sr.No.14796435)	01/04/2019	31/03/2020
	Check Meter (Sr. No	01/12/2014	30/11/2015
	14796431)	01/04/2019	31/03/2020
	The monitoring period covers the period from 01/04/2015 to 31/03/2020. During this monitoring period, main meter and check is not covered under calibration from 01/12/2015 to 01/04/2019 as per calibration frequency. The last calibration of main and check meter was done on 01/12/2014 and validity was up to 30/11/2015. However, the results of delayed calibration are within permissible limit of accuracy class and PP has applied maximum permissible error 0.2% in electricity exported and imported for the delayed period for the conservativeness. This is in line with the requirement of paragraph 366(a) of VVS 02.0. Thus, acceptable to assessment team.		
Assessment team checked the calibration details of the installed meters and confirms that calibration dates are correct as verified from the calibration certificates of all meters. All meters are of accuracy class of 0.2s as per registered monitoring plan. Interview with O&M personnel during remote audit. Assessment			

	team checked the calibration details of the installed meters and found also confirms the same.
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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

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.			
Findings	CAR 06 was raised during the verification process and closed successfully. Please refer Appendix 4 of this report for the detail closure of the CAR.			
Conclusion	As the approved methodology AMS-I.D “Grid connected renewable electricity generation”, Version 13 baseline emissions for the project activity are the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO <sub>2</sub> e/kWh) calculated in a transparent and conservative manner as: Baseline emissions = Grid emission factor (tons of CO <sub>2</sub> /MWh *Net electricity exported to the Substation (MWh/year). The same are given below:			
	Period	Net Annual Generation from the project Activity(MWh)	Grid emission factor (tCO <sub>2</sub> e/MWh)	Baseline Emissions (tCO <sub>2</sub> e)
	01/04/2015 to 31/03/2016	3,247.09	0.82	2,662.61
	01/04/2016 to 31/03/2017	2,956.30	0.82	2,424.17
	01/04/2017 to 31/03/2018	2,796.41	0.82	2,293.06
	01/04/2018 to 31/03/2019	2,769.73	0.82	2,271.18
	01/04/2019 to 31/03/2020	2,977.76	0.79	2,352.43
	Total	14,747.29		12,003.00
	Therefore, BEy = 12,003 tCO <sub>2</sub> e (rundown value)			
	Net electricity exported from the project activity has been verified with the monthly JMRs issued by the state electricity board and cross-verified the net electricity exported to grid values with invoices raised by PP and found correct.			
Calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.				

### E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

<b>Means of verification</b>	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of project GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	The project emissions are regarded as zero according to the applied methodology and registered PDD

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

<b>Means of verification</b>	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
<b>Findings</b>	There is no CAR/CL raised in this section.

<b>Conclusion</b>	The leakage emissions are regarded as zero according to the applied methodology and registered PDD.
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#### E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

<b>Means of verification</b>	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	<p><b>Emission Reductions:</b> The total emission reduction achieved in a year would be  <math>ER_y = BE_y - PE_y - L_y</math></p> <p>Where,  <math>ER_y</math> is the Emission reductions during the year y  <math>BE_y</math> is the Baseline emissions during the year y  <math>PE_y</math> is the Project emissions during the year y  <math>LE_y</math> is the Leakage emissions during the year y</p> <p>Thus:  <math>ER_y = BE_y - PE_y - L_y</math>  <math>= 12,003 \text{ tCO}_2 - 0 - 0</math>  <math>= 12,003 \text{ tCO}_2</math></p> <p>Calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.</p>

#### E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

<b>Means of verification</b>	The verification team has determined the emission reductions achieved during this monitoring period with the estimated value and reason for increase if any.
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	The total actual emission reduction achieved by the activity in this monitoring period is 12,003 tCO <sub>2</sub> e. The estimated emission reductions in the in the registered PDD for 365 days is 2,129 tCO <sub>2</sub> e. The current monitoring period contains 1827 days. This, the value is calculated based on pro-rata basis from the estimated value in the registered PDD. The estimated value for the present monitoring period is 10,657 tCO <sub>2</sub> e. The emission reduction value in the monitoring period is 12.63% higher than estimated values for the monitoring period. The calculation is checked by the assessment team in the actual emission reduction sheet and found correct.

#### E.8.6. Remarks on difference from estimated value in registered PDD

<b>Means of verification</b>	The verification team has determined the emission reductions achieved during this monitoring period with the estimated value and reason for increase if any.
<b>Findings</b>	CAR 07 was raised during the verification process and closed successfully. Please refer Appendix 4 of this report for the detail closure of the CAR.
<b>Conclusion</b>	<p>The actual Emission Reduction (ER) value achieved in the monitoring period is 12.63% higher than the estimated emission reductions during the current monitoring period. Wind flow is a total natural phenomenon which is not under control of any individual or project owner. Furthermore, the increase in actual emission reductions is also due to the changes in weighted average grid emission rates from 0.81 tCO<sub>2</sub>/MWh (ex-ante) to 0.82 tCO<sub>2</sub>e/MWh(ex-post).</p> <p>The actual emission reductions achieved during the current monitoring period is 12.63% more than the estimated emission reduction as PLF increased from 20% (ex-ante) to 22% in this monitoring period. Assessment team has also checked the additionality of the project by doing sensitivity analysis and found that increased in PLF from 20% to 22%, the IRR comes to 12.06% which is within the sensitivity</p>



	<p>range of 10% and below bench mark IRR 12.75%. Further, generation during year 2015-16 was observed higher than others years.</p> <p>Also, there is neither technological changes nor design changes in the project activity. The values from Credit Note issued by MSEDCL have been checked with the invoice values and found to be perfectly aligned. The high PLF is due to seasonal variation during current monitoring period and not in control of PP. The increase in PLF is purely due to variation in wind pattern which is beyond the control of PP. The project activity is otherwise operated according to its description in registered PDD and no changes observed during the monitoring period.</p> <p>Wind availability is not an operational parameter within control of project participant. Hence it is concluded that there is no change in registered CDM project activity.</p> <p>Assessment team has also checked another CDM project UNFCCC ID 2819 (Monitoring report: 01/05/2015 – 30/04/2016) also found that high PLF achieved (around 23%) for that project. Thus, high PLF for proposed project activity during current monitoring period is accepted as this is not considered as changes from registered project activity.</p>
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#### **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>	The verification team has determined the CER achieved during first commitment period and second commitment period
<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	<p>1.GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012: 0 tCO<sub>2</sub>e</p> <p>2.GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards: 12,003 tCO<sub>2</sub>e</p> <p>3.GHG emission reductions or net GHG removals by sinks reported 1 January 2021: 0 tCO<sub>2</sub>e</p>

#### **E.9. Assessment of reported sustainable development co-benefits**

<b>Means of verification</b>	Not applicable for the present monitoring period
<b>Findings</b>	Not applicable for the present monitoring period
<b>Conclusion</b>	Not applicable for the present monitoring period

#### **E.10. Global stakeholder consultation**

<b>Means of verification</b>	Not applicable for the present monitoring period
<b>Findings</b>	Not applicable for the present monitoring period
<b>Conclusion</b>	Not applicable for the present monitoring period

## SECTION F. Internal quality control

As a final step for Verification, the final documentation, including the verification report, has to undergo an internal quality control by the Technical Reviewer(s) to be approved.

Details of the Technical Reviewer(s) are provided within the Verification Report in Section B.2. and Appendix 2 for further references of knowledge and capability to conduct the quality checking.

After the Technical Review process, the final documentation may undergo a final quality checking process called Administrative Review, done by the Applus+ Certification's Project Activity Manager and/or Technical Support.

For final approval, the final set of documents are prepared by the DOE's Technical Manager or its deputy and signed by the authorized signatory of the DOE.

In case any of the persons performing this final internal quality control approval process has acted as a part of the Assessment Team or Technical Review team, the approval can only be given by DOE's personnel who are not part of those teams.

If the final set of documents has been satisfactorily approved, the Request for issuance is submitted to the UNFCCC CDM EB along with the relevant documents.

## SECTION G. Verification opinion

Applus+ Certification has been engaged by M/s L. B. Kunjir to perform the 4<sup>th</sup> periodical verification of the "Wind Power Project in Maharashtra by M/s L. B. Kunjir Engineers & Contractors" (UNFCCC Ref. No. 3554).

The management of "M/s L. B. Kunjir" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's monitoring plan in the PDD version 02 dated:06/02/2010 and the applied methodology AMS-I.D "Grid connected renewable electricity generation" (Version 13).

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the project design document approved by the EB;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by the EB;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably, however, delay in calibration observed which is addressed in line with para 366 (a) of CDM validation and verification standard for project activities, version 02.0;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for "Wind Power Project in Maharashtra by M/s L. B. Kunjir Engineers & Contractors" for the monitoring period 01/04/2015 to 31/03/2020; as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/04/2015 to 31/03/2020;

Verified emissions in the above reporting period:

Leakage emissions 0 tCO<sub>2</sub> equivalents

Project emissions

0 tCO<sub>2</sub> equivalents

Baseline emissions

12,003 tCO<sub>2</sub> equivalents

Emission reductions

12,003 tCO<sub>2</sub> equivalents

**SECTION H. Certification statement**

Same as above

## Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
ER	Emission Reductions sheet
FAR	Forward Action Request
JMR	Joint Meter reading
GHG	Greenhouse gas(es)
GWP	Global Warming potential
MSEDCL	Maharashtra State Electricity Distribution Company Ltd.
PP	Project Participant
PPA	Power purchase agreement

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

1. **Jitendra Mohan Singh**, has done Advanced MSc in Sustainable Energy Systems and Management from International Institute of Management, University of Flensburg, Germany and B.Tech. in Agricultural Engineering from Allahabad University, India. He has more than (18) years of working experience in different organizations like IARI, IIT Delhi, ICAR, IRADe, CAPART, SMEC and Perenia Carbon and M B Power (Madhya Pradesh) Ltd. in the area of Agriculture, Energy & Environment and Climate Change. He also worked on contract basis (adhoc) as a RIT expert in UNFCCC from 2010 to 2013. Currently, he is associated with True Quality Certifications Private Limited and is Applus+ Certification to carry out validation and verification related to GHG reductions projects.
2. **Denny Xue** has a Bachelor's Degree on Thermal Energy Engineering and Master's Degree on Environmental Engineering. He has more than 10 years of experience on CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. He is working with Applus+ since 2011 carrying out Validation and verification for CDM/GS/VCS project under scope 1 and 13 as auditor, lead auditor, technical expert and technical reviewer.

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	NA	Commissioning certificates	Commissioning Certificates of the Wind Power Plant.	Project participant
2.	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
3.	NA	CDM PS and VVS-version 02.0	CDM validation and verification standard for project activities, Version 02.0 CDM project standard for project activities, Version 02.0	UNFCCC
4.	NA	Credit Notes	Joint Meter Reading (JMR) for the complete monitoring period issued by State Utility	Project participant
5.	NA	Invoices	Invoices for the complete monitoring period raised by PP towards State Utility	Project participant
6.	NA	MR version 01 MR version 02	MR version 01 dated 15/07/2021(Initial) MR version 02 dated 30/08/2021(Final)	Project participant
7.	NA	ER sheet	ER Sheet Version 01 dated 15/07/2021(Initial) ER Sheet Version 02 dated 30/08/2021	Project participant
8.	NA	Actual geo-coordinates	Actual coordinates for the project activity via GPS meters	Project participant
9.	NA	Break Down details of plant	Log book records	Project participant
10.	NA	Application of materiality	Guidelines for Application of materiality in verifications version 2.0	UNFCCC
11.	NA	Registered documents of the project activity	Registered CDM-PDD version 02 dated 06/02/2010	UNFCCC website
12.	NA	Approved methodology	AMS-I.D. ver. 13 - Grid connected renewable electricity generation	UNFCCC
13.	NA	Calibration certificates	Calibration certificates of all meter associated with current monitoring period	PP

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

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

<b>FAR ID</b>	01	<b>Section no.</b>	-	<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
NA				
<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

Table 2. CL from this verification

<b>CL ID</b>	Xx	<b>Section no.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of CL</b>				
NA				
<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

Table 3. CAR from this verification

<b>CAR ID</b>	01	<b>Section no.</b>	E.1	<b>Date:</b> 24/08/2021
<b>Description of CAR</b>				
Format of the dates are not in line with the MR template guidelines. PP requested to keep date format consistent throughout MR and ER sheet.				
Further, PP has mentioned monitoring period number 01, however as per UNFCCC website this is 4 <sup>th</sup> MP. Corrective action is sought.				
<b>Project participant response</b>				<b>Date:</b> 31/08/2021
The date format is now corrected in the revised MR and the same is now made consistent in the ER sheet. The Monitoring period number is now corrected in the revised MR.				
<b>Documentation provided by project participant</b>				
1. Revised MR 2. ER sheet				
<b>DOE assessment</b>				<b>Date:</b> 31/08/2021
PP has now corrected date format in revised MR. PP has also corrected the monitoring period number i.e. 4 in revised MR. Thus <b>CAR is closed..</b>				

<b>CAR ID</b>	02	<b>Section no.</b>	E.3	<b>Date:</b> 24/08/2021
<b>Description of CAR</b>				
During desk review, verification team observed that following documents are not submitted to DOE.: <ul style="list-style-type: none"> <li>Commissioning certificate of the WTGs</li> <li>Manufacturer technical specification of WTGs</li> <li>Power Purchase agreement</li> <li>Plant log book/break down details to verify continuous operation of project activity</li> <li>O &amp; M agreement</li> </ul> PP is requested to submit above documents for verification.				
<b>Project participant response</b>				<b>Date:</b> 30/08/2021
The documents are now submitted to the DOE assessment team.				
<b>Documentation provided by project participant</b>				

1. Commissioning certificates of the WTGs
2. Technical specifications of the WTGs
3. Power purchase agreement
4. Breakdown details of the Project activity
5. O & M agreement

<b>DOE assessment</b>	<b>Date:</b> 31/08/2021
<ul style="list-style-type: none"> <li>PP has now submitted the commissioning certificate of TWG. The WTG was commissioned on 30/03/2009. Assessment team checked the commissioning certificate and found that the commissioning date of WTG mentioned in MR is corrected.</li> <li>PP has also submitted the technical specification of WTG provided by Suzlon. Assessment team confirms that technical specification mentioned in MR is consistent with the registered PDD. The same is verified with the technical specification provided by the manufacturer of WTG and found correct.</li> <li>PP has now submitted Power Purchase Agreement signed with the Maharashtra State Electricity Distribution Company Limited on 23/06/2009.</li> <li>Break Down/Plant log book is now submitted by PP to assessment team and also included break down in in Annexure 2 of revised monitoring report. Verification team confirms that no major breakdown was found. Scheduled &amp; preventive maintenance were carried out as per manufacturer specification for the power plant. No unforeseen activity observed during the present verification that can alter the applicability or additionality of the applied methodology.</li> <li>PP has also submitted the Operation and Maintenance Agreement signed with the Suzlon Global Services Limited on 30/06/2016. Suzlon is overall responsible for O &amp; M services including metering.</li> </ul>	
<b>CAR closed.</b>	

CAR ID	03	Section no.	E.6.2	Date: 24/08/2021
Description of CAR				
During desk review, assessment team found that PP has not submitted the copies of monthly JMRs/credit notes and invoices/receipts to DOE for verification of net electricity exported to grid and emission reduction achieved by the project activity during the current monitoring period. Corrective action is sought.				
Project participant response				Date: 30/08/2021
The Credit notes and the Invoices for the complete monitoring period are now submitted to the DOE assessment team.				
Documentation provided by project participant				
1. JMR's and Invoices for the complete monitoring period				
DOE assessment				Date: 31/08/2021
PP has submitted the Joint Monthly Readings (JMRs) and invoices of project activity for complete months to DOE. Assessment team checked electricity export and import data in provided in ER sheet with the JMRs and found correct. The same is also cross checked with Invoices and found consistent. <b>CAR closed.</b>				

CAR ID	04	Section no.	E.6.2	Date: 24/08/2021
Description of CAR				
Information of “monitoring equipment” such as type, accuracy class, serial number, calibration frequency, date of last calibration and validity of calibration are missing in Section D.2 of MR; Corrective action is sought.				
Project participant response				Date: 30/08/2021
The Meter serial No, Type, Calibration frequency are now added in the D.2 section of revised MR. The calibration details are mentioned in the Annex 1 of the revised MR.				
Documentation provided by project participant7				
Calibration Certificate				
DOE assessment				Date: 31/08/2021
PP has now added details of meters like serial number, make, calibration date and validity of calibration in Annex 1 of revised monitoring report. Thus, CAR is closed.				

<b>CAR ID</b>	05	<b>Section no.</b>	E.7	<b>Date:</b> 24/08/2021
<b>Description of CAR</b>				
<p><i>During desk review, assessment team found that PP has not submitted calibration certificate of electricity meters. PP requested to submit the same to assessment team for verification</i></p>				
<b>Project participant response</b>				<b>Date:</b> 30/08/2021
<p><i>Calibration Certificates are now submitted to the DOE assessment team</i></p>				
<b>Documentation provided by project participant</b>				



<i>Calibration certificates</i>	
<b>DOE assessment</b>	<b>Date:</b> 31/08/2021
PP has now submitted the calibration certificates of all meters used during this monitoring period. Assessment team checked the calibration date with the certificate and found that main and check meter is not covered under calibration from 01/12/2015 to 01/04/2019 as per calibration frequency. Last calibration was done on 01/12/2014 which was valid upto 30/11/2015. However, the results of delayed calibration are within permissible limit of accuracy class and PP has applied maximum permissible error 0.2% in electricity exported and imported for the delayed period for the conservativeness. This is in line with the requirement of paragraph 366(a) of VVS 02.0. Thus, acceptable to assessment team. <b>CAR closed.</b>	

<b>CAR ID</b>	06	<b>Section no.</b>	E.8.1	<b>Date:</b> 24/08/2021
<b>Description of CAR</b>				
<i>Baseline emission calculation in Section E.1 of MR is not correct as Grid emission factor is varying during this monitoring period (ex-post monitoring parameter).</i>				
<i>Further, estimated emission reduction calculation for the current monitoring period cannot be confirmed as PP has not submitted the JMRs for verifying net electricity exported t grid.</i>				
<i>Corrective action is sought. .</i>				
<b>Project participant response</b>				<b>Date:</b> 30/08/2021
<i>The Baseline calculations are now bifurcated and justified corresponding to yearly Grid emission factors in section E.1 of the revised MR.</i>				
<i>The JMRs for the monitoring period are now submitted to the DOE assessment team.</i>				
<b>Documentation provided by project participant</b>				
1. Revised MR				
2. JMRs for the complete monitoring period				
<b>DOE assessment</b>				<b>Date:</b> 31/08/2021
PP has now corrected the baseline emissions in Section E.1 of revised monitoring report in accordance with grid emission factors. PP has also submitted the JMRs and the same has been checked by the assessment team and found that emission reduction calculation in ER sheet is correct. Thus, <b>CAR is closed.</b>				

<b>CAR ID</b>	07	<b>Section no.</b>	E.8.6	<b>Date:</b> 24/08/2021
<b>Description of CAR</b>				
<i>Emission reductions achieved during this monitoring period is 32.18% higher than estimated. PP shall justify the same properly in Section E.6 monitoring report.</i>				
<b>Project participant response</b>				<b>Date:</b> 30/08/2021
<i>During the current monitoring period, the actual emission reduction achieved is 12,003 tCO<sub>2</sub>e which is 12.63% higher than the estimated emission reduction. The actual PLF during the monitoring period is 22%. At the time of registration, 20% PLF was considered and the IRR was 10.40% with a benchmark of 12.75%. By considering 22% PLF, the IRR comes to 12.06% with benchmark of 12.75%. Hence, it can be seen that, there is no impact on the additionality of the project due to increase in the PLF during the current monitoring period.</i>				
<i>The same is now explained in the section E.6 of the revised MR.</i>				
<b>Documentation provided by project participant</b>				
<i>Revised MR.</i>				
<b>DOE assessment</b>				<b>Date:</b> 31/08/2021

PP has submitted the copies of JMRs/Credit Notes and invoices for the complete monitoring period. PP has corrected electricity export and import data in line with the JMRs and due to impact of delayed calibration and error factor applied from for the delated period. PP has corrected the emission reductions values. Assessment team has checked the electricity export import with the JMRs/Credit notes & cross checked with the invoice and confirms that the electricity export and import data are now correct.

Further, the actual emission reductions achieved during the current monitoring period is 12.63% more than the estimated emission reduction as PLF increased from 20% (ex-ante) to 22% in this monitoring period. Assessment team has also checked the additionality of the project by doing sensitivity analysis and found that increased in PLF from 20% to 22%, the IRR comes to 12.06% which is within the sensitivity range of 10% and below bench mark IRR 12.75%. Further, generation during year 2015-16 was observed higher than others years.

Also, there is neither technological changes nor design changes in the project activity. The values from Credit Note issued by MSEDCL have been checked with the invoice values and found to be perfectly aligned. The high PLF is due to seasonal variation during current monitoring period and not in control of PP. The increase in PLF is purely due to variation in wind pattern which is beyond the control of PP. The project activity is otherwise operated according to its description in registered PDD and no changes observed during the monitoring period.

Wind availability is not an operational parameter within control of project participant. Hence it is concluded that there is no change in registered CDM project activity.

Assessment team has also checked another CDM project UNFCCC ID 2819 (Monitoring report: 01/05/2015 – 30/04/2016) also found that high PLF achieved (around 23%) for that project. Thus, high PLF for proposed project activity during current monitoring period is accepted as this is not considered as changes from registered project activity. **Thus CAR is closed.**

**Table 4. FAR from this verification**

FAR ID	xx	Section no.		Date: DD/MM/YYYY
<b>Description of FAR</b>				
NA				
<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>

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	6 April 2021	Revision to: <ul style="list-style-type: none"> <li>• Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).</li> </ul>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li> <li>• Make structural and editorial improvements.</li> </ul>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		