




**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

Title and UNFCCC reference number of the project activity	Coega IDZ Windfarm UNFCCC reference number: 8954		
Scale of the project activity	<input checked="" type="checkbox"/> Large-scale <input type="checkbox"/> Small-scale		
Version number of the verification and certification report	03		
Completion date of the verification and certification report	29/06/2021		
Monitoring period number and duration of this monitoring period	Monitoring Period #1 01/08/2013 to 29/02/2020 (including both days)		
Version number of the monitoring report to which this report applies	3		
Crediting period of the project activity corresponding to this monitoring period	01/08/2013 to 31/07/2020		
Project participants	Electrawinds Africa and Indian Ocean Islands (Pty) Ltd CO2logic Electrawinds NV Ltd		
Host Party	South Africa		
Applied methodologies and standardized baselines	ACM0002: (Version 12.3.0) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"		
Mandatory sectoral scopes	1-Energy industries (renewable - / non-renewable sources)		
Conditional sectoral scopes, if applicable	-		
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	30,032 tCO _{2e}		
Certified amount of GHG emission reductions or GHG removals for this monitoring period	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	-	29,913	-
Name and UNFCCC reference number of the DOE	E-0052: Carbon Check (India) Private Ltd.		
Name, position and signature of the approver of the verification and certification report	Amit Anand, CEO 		

SECTION A. Executive summary

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The Project Participants, Electrawinds Africa and Indian Ocean Islands (Pty) Ltd (the legal name of the entity has changed to “Avianto Energy (Pty) Ltd” /08/), has appointed the DOE, Carbon Check (India) Private Ltd. (CC IPL) to perform an independent first periodic verification of the CDM Project Activity “Coega IDZ Windfarm” in South Africa (hereafter referred to as “Project Activity”). The project activity is the grid-connected wind farm project that utilize the wind power for generating electricity. The project reduces greenhouse gas emission by replacing the electricity generated from fossil fuel (coal). The project activity involves installation of wind turbine of 1.8 MW capacity /10/. The 1.8 MW was commissioned in October 2010 in Coega Industrial Development Zone (IDZ), in the Eastern Cape Province in South Africa /13/.

This report summarises the findings of the verification of the project, performed on the basis of paragraph 62 of the CDM Modalities & Procedures, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the CDM Executive Board. Verification is required for all registered CDM project activities intending to confirm their achieved emission reductions and proceed with request for issuance of CERs. This report contains the findings and resolutions from the verification and a certification statement for the certified emission reductions.

Verification is the periodic independent review and ex-post determination of both quantitative and qualitative information by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.

Certification is the written assurance by a DOE that, during a specific period, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Coega IDZ Windfarm” in the host country South Africa for the period 01/08/2013 to 29/02/2020 (including both the days).

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in anthropogenic emissions by sources, is sufficient, definitive and presented in a concise and transparent manner. CC IPL’s objective is to perform a thorough, independent assessment of the registered project activity.

In particular, the monitoring plan, monitoring report and the project’s compliance with relevant UNFCCC and host Party criteria are verified in order to confirm that the component project/s has/have been implemented in accordance with the previously registered project design and conservative assumptions, as documented. It is also confirmed if the monitoring plan is in compliance with the revised PDD /10/ and the approved monitoring methodology.

Scope:

The scope of the verification is:

- To verify the project implementation and operation with respect to the revised PDD /10/
- To verify the implemented monitoring plan with the revised PDD and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.

- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

Verification process:

The verification comprises a review of the monitoring report over the monitoring period from 01/08/2013 to 29/02/2020 and based on the revised PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

Remote interviews are also performed as part of the verification process.

Conclusion:

The verification team assigned by the DOE concludes that the monitoring report (Version 3 dated 25/06/2021) /02/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 62 of CDM Modalities & Procedures, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification has been conducted in-line with the CDM VVS for project activities, version 02.0 /B01-a/.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan and the revised PDD /10/. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the review and remote interviews, the verification team confirms that the project activity has resulted in the 29,913 tCO₂e emission reductions during the first monitoring period.

CC IPL as a DOE is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

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.	Team Leader / Verifier / Technical Expert	IR	Agarwalla	Sanjay	CC IPL	X	-	X	X

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	Singh	Vikash Kumar	CCIPL
2.	Approver	IR	Anand	Amit	CCIPL

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: Recording and reporting of the information in the ER spreadsheet.	Medium	According to the monitoring plan and the Monitoring Report, there are QA/QC procedures applied for monitoring parameters and data management/information flow. Calculation spreadsheets are used to determine the emissions reductions. Further data collected are through calibrated meters and automated system.	Procedure of raw data collection/ Monitoring procedures. • Data & information flow with a special focus on any material mistake • Calculation spreadsheets. • Procedures/QA/QC established to detect and correct any error or omission in monitoring parameters. • Quality control for monitored parameters and metering systems. • Complete verification (100 % data) of all the monitoring records (measurement records, invoices and the calibration certificates) is done by the verification team and compared with the values indicated in the emission reduction spreadsheet. No risk identified.
2.	Information System: Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security	Medium	Since the emission reduction calculations are presented in the ER spreadsheet and monitoring database is also reported in a spreadsheet (downloaded from the software-based monitoring system), it needs to be checked if appropriate controls have been established. Otherwise, it could lead to material errors, omissions or misstatements.	The spreadsheets have been used for reporting ER calculations. To check that adequate controls related to data changes/updates, version tracking, traceability security are followed, following details were confirmed: a. Interview with the relevant personnel to ensure that roles and responsibilities according to section B.7.2 of the PDD are being followed. b. Data and information flow procedures to be followed as per PDD and MR. Checked the established controls on the spreadsheets used.
3.	Accuracy of the measuring equipment	Medium	To ensure accuracy in measurements, all the measuring equipment need to be regularly calibrated by	In order to ensure accuracy in measuring equipment the verification team during the remote interview inspection

			an accredited entity.	<p>confirmed whether calibration of each of the measuring equipment is done at intervals specified in the revised PDD. The verification team performed the following tasks:</p> <p>a. Review of all the calibration certificates and taking note of the date of calibration.</p> <p>b. Interviewing the relevant personnel to ensure the calibration procedures are being followed as per the registered monitoring plan.</p>
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C.2. Consideration of materiality in conducting the verification

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The identified threshold for materiality is 5% in accordance with paragraph 326 (c) of CDM VVS for project activities, version 02 /B01-a/. At the beginning of the verification the team leader has assessed the nature, complexity of the verification tasks by carrying out a strategic analysis of all activities relevant to the project activity. The team leader has collected and reviewed the information relevant to assess that the designated verification team is sufficiently competent to carry out the verification and to ensure that it is able to conduct the necessary risk analysis. As explained above, the potential sources of error were:

- Human error: This could be on account of erroneous recording and reporting of the information in the ER spread sheet.
- Information System: Use of spreadsheets without adequate controls related to data changes/ updates, version tracking, traceability and security.
- Accuracy of the measuring equipment: The measuring equipment does not provide accurate reading as calibration is not conducted at regularly defined intervals as per the revised PDD.

The verification team performed the following checks in order to mitigate the effects of the above identified sources of error:

- Mitigation of Human error risks: The verification team mitigated the risk by checking the training records of the personnel and also remote interviews. These records have been provided to the verification team by the PP. Further, data was crosschecked with the ER calculation spreadsheet /04/ and the raw data spread sheet (downloaded from the software-based monitoring system) /06/. The Verification team, based on the above, confirms that the risk is appropriately mitigated.
- Mitigation due to error in Information system: Validation team by conducting interviews with the personnel responsible for such activities mitigated the risk due to error in information system. Further, the traceability and security of the spreadsheet is being maintained by keeping a protected copy of the files in the PP's network. The data and information flow requirements are being followed as stated in the revised PDD and the MR. Interviews with the monitoring personnel were conducted to confirm the established procedures. Verification team confirms that the information system risk is appropriately mitigated.

Accuracy of the measuring equipment: The risk due to inaccuracy in measurements was assessed by reviewing calibration certificates of all the project measuring equipment. The verification team reviewed the dates of calibration and to check whether all equipment is being calibrated at regularly defined intervals as per the revised PDD /10/.

SECTION D. Means of verification**D.1. Desk/document review**

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The verification was performed primarily based on the review of the Monitoring report /01/ /02/ 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. Documents reviewed or referenced during the verification are listed in Appendix 3 below.

D.2. On-site

On-site visit for the current verification was avoided due to travel restrictions imposed globally due to COVID-19 pandemic impact. DOE also noted CDM EB's decision to relax mandatory site visits by DOEs for the period 23 March 2020 to 31 December 2021 because of COVID-19 /B06/. In view of the notification, DOE could not further postpone the site visit due to the fact that the DOE has a signed verification contract along with timelines with the project participant /16/.

The alternative means used for the purpose of verification are demonstrated as follow:

The verification team has carried out remote interviews in order to assess the information included in the monitoring report and monitoring measurement procedures adopted during the monitoring period on 04/12/2020. During the desk review, the relevant monitoring records were checked. Previous periodic monitoring reports and verification reports, photographs of the instruments used for monitoring were used to cross check consistency of information.

Through the review of validation report, comparing the relevant evidence and interview with the PP's representatives, CCIPL has confirmed that the project is implemented in line with the revised PDD /10/ during the monitoring period.

Remote interviews were performed by verification team in order to assess the following:

Duration of on-site inspection (remote interviews were conducted): 04/12/2020				
No.	Activity performed on-site	Site location	Date	Team member
1.	An assessment of the implementation and operation of the registered project activity as per the revised PDD	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla
2.	A review of information flows for generating, aggregating and reporting the monitoring parameters	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla
3.	Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the revised PDD	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla
4.	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	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla
5.	A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the revised PDD and the selected methodology and corresponding tool(s), where applicable	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla
6.	A review of calculations and assumptions made in determining the GHG data and emission reductions	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla
7.	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	Remote interviews	04/12/2020	Sanjay Kumar Agarwalla

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	D'Oliviera	Trevor	Avianto Energy	04/12/2020	Project implementation and operation, monitoring procedure, data and information flow, QA/QC Procedures, Quality Assurance – Management and operating system	Sanjay Kumar Agarwalla
2.	Macgillivray	John	Fluopro/Africa Energy	04/12/2020	Project implementation and operation, monitoring procedure, data and information flow.	Sanjay Kumar Agarwalla
4.	Mpepele	Precious	South32/BHP Billiton/Hillside	04/12/2020	Operation, monitoring procedure, data and information flow.	Sanjay Kumar Agarwalla
5.	Tuchten	Oliva	Promethium Carbon	04/12/2020	Project implementation and operation, monitoring procedure, data and information flow, CER calculation and completeness of monitoring report, QA/QC Procedures, Quality Assurance – Management and operating system	Sanjay Kumar Agarwalla
6.	Naidoo	Johara	Promethium Carbon	04/12/2020	Project implementation and operation, monitoring procedure, data and information flow.	Sanjay Kumar Agarwalla

D.4. Sampling approach

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Not applicable

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	-	01	-

report form			
Compliance of the project implementation and operation with the registered PDD	-	-	-
Post-registration changes	01	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	01	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	01	-
Assessment of data and calculation of emission reductions or net removals	01	01	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	03	03	-

SECTION E. Verification findings

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

Means of verification	Document Review, Interview
Findings	CAR 01 had been raised and successfully resolved. Please refer to Appendix 4 for further details.
Conclusion	<p>The verification team has determined whether the monitoring report was completed using the valid version of the applicable monitoring report form /B03/. The verification team has checked whether all the sections of the monitoring report follow the guidelines provided in the template and instruction text requirement. Verification team confirms that the latest available version of monitoring report template /B03/ has been used by the PP and the MR /02/ is in compliance of the monitoring report form and instructions therein. The published MR /01/ was in version 07 of the MR template (latest available at the time of publication of MR) and during the course of verification, PP has adopted the latest MR template (version 08).</p> <p>CC IPL, had made the version 01, dated 19/10/2020 of the Monitoring report /01/, covering the monitoring period from 01/08/2013 – 29/02/2020 (both days inclusive) publicly available on 26/10/2020 through its dedicated interface on the UNFCCC website /B06/.</p> <p>This confirms compliance with the §352 and §353 of CDM VVS for project activities, version 02.0 /B01-a/.</p>

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

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This is 1st periodic verification of the project activity. No FAR was raised during the validation of the project activity.

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

Means of verification	Document Review, Interview
Findings	-
Conclusion	<p>CC IPL by means of remote interviews and document review, assessed that all the features (technology, project equipment and monitoring) of the revised PDD /10/ are in place and that the project participants have operated the project as per the revised PDD /10/.</p> <p>The project activity is the grid-connected wind farm project that utilize the wind power for generating electricity. The project reduces greenhouse gas emission by</p>

replacing the electricity generated from fossil fuel (coal). The project activity involves installation of wind turbine with the total capacity of 1.8 MW. The 1.8 MW wind turbine was commissioned in October 2010 in Coega Industrial Development Zone (IDZ), in the Eastern Cape Province in South Africa /13/.

The details of installed turbine with respect to installation and capacity have been verified by verification team through checking the wind turbine nameplate during remote interviews and found it to be consistent with description indicated in the revised PDD /10/. The electricity generated by the project activity was supplied to the National grid of South Africa, which can be confirmed by the Power purchase agreement (PPA) signed between PP and PowerX (formerly known as Amatola Green Power) /05/. All the monitoring system in operation period is consistent with the description in the revised PDD /10/.

The verified timeline of the project's implementation is as follows:

Milestone of the project activity	Timeline	Assessment by the verification team
Starting date of operation	October 2010	The starting date of operation of the project activity is the date of commissioning of the 1.8 MW turbine. This was verified after reviewing the commissioning certificate issued by /13/.
Registration of the project activity	24/12/2012	Verified from UNFCCC website /B06/.
Crediting Period		
1 st monitoring period	01/08/2013 – 29/02/2020	This is the first monitoring period

Although the crediting period and also the current monitoring period of the project activity starts from 01/08/2013, emission reductions are claimed from 01/03/2014 due to unavailability of data prior to this date. CCIPL's verification team considers the project description to be complete and accurate.

CCIPL's verification team confirms that the project activity is implemented within the boundary of the project activity as described in the revised PDD /10/ and the implementation and operation of the project activity has been conducted in accordance with the description contained in the revised PDD /10/.

In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the revised PDD /10/.

There were no changes observed during remote interviews from the technology stated during the validation. CCIPL's verification team considers the project description to be complete and accurate. The verification team took cognizance of §338 (b)(i), §354, §355 and §356 of CDM VVS for project activities, version 02 /B01-a/.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents¹

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Not applicable

¹ 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.4.2. Corrections

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The following corrections are being proposed in the issuance track along in the current verification (Revised PDD version 16, dated 25/06/2021; PRC Validation Report version 02, dated 29/06/2021):

1. Changes were made to reflect the new content or structure required by the new PDD template.
2. The electricity purchaser was expected to be, Nelson Mandela Bay Metropolitan, as per the original PDD. The PDD has been revised to reflect the actual scenario, where the power purchaser is PowerX (formerly known as Amatola Green Power). PowerX is an electricity trader, which on-sells the electricity to third parties through the grid. Hence, this correction is aligned with the methodology, ACM0002, version 12.3.0, which requires that the generated power be grid-connected.
3. The broken weblink references included in the PDD at registration (referenced in the fixed and monitored parameter tables) were corrected or revised.
4. A typographical error relating to the calculated grid emission factor was amended. The $EF_{grid,CM,y}$ (for wind and solar power generation project activities for the first crediting period and for subsequent crediting periods) was calculated at the time the project was registered and recorded in the ex ante emission reduction calculation sheet. The $EF_{grid,CM,y}$ was erroneously recorded in the PDD as 0.8834 tCO₂e/MWh in section B.6.1 and as 0.8975 tCO₂e/MWh in section B.6.3 of the PDD. The correct value for $EF_{grid,CM,y}$ is 0.9099 tCO₂e/MWh, as per the ex ante emission reduction calculation sheet that was validated at registration. The $EF_{grid,CM,y}$ value has been corrected which required amendments to the related emission reduction calculations. Note that the ex ante emissions have increased due to both the correction of the $EF_{grid,CM,y}$ value, as well as the increased expected electricity generation value described further below.

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

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Not applicable

E.4.4. Inclusion of a monitoring plan

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Not applicable

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

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The following permanent changes in the registered monitoring plan are being proposed in the issuance track along in the current verification (Revised PDD version 16, dated 25/06/2021; PRC Validation Report version 02, dated 29/06/2021):

1. The monitoring plan, in Section B.7.1 was revised to allow for the application of electricity meters that have accuracy classes that are aligned with the national standard SANS 474 (also known as NRS 057). Furthermore, the manufacturers of the installed electricity meters do not specify a calibration frequency and hence the national standard, SANS 474, has been applied. The national standard provides for a calibration frequency of 10 years. The use of the national standard related to the accuracy and calibration frequency of the electricity meters is compliant with the local laws.
2. The QA/QC procedure in the parameter table in section B.7.1 has been revised to be aligned with the methodology, which requires QA/QC against the invoices of sold electricity.
3. The original PDD, section B.7.3, contained the name of the installation company and the brand and type of electricity meter that was expected to be commissioned. This did not occur as originally planned, hence the references to company name and meter brand have been removed.

E.4.6. Changes to the project design

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1. Decrease in capacity (type b change as per § 241 of CDM PS for Project Activities v 02.0): the original PDD envisaged that the total project capacity would be 73.8 MW, generated by 25 wind turbines. The design has been revised to reflect the actual 1.8 MW during the first crediting period. The design has also been revised to reflect that electricity generation will occur in phases, with Phase 1 entailing the installed 1.8 MW turbine. The installed 1.8 MW turbine is the only turbine commissioned during the first crediting period. Phase 2 entails construction of further turbine/s, which may become operational in the second crediting period. The second crediting period starts on 1 August 2020. The addition of the further turbine/s may be included in the PDD during the second crediting period, using the process for applying for post registration changes. The revised capacity impacted on the additionality assessment. However, the revised IRR was below the benchmark value, even when stressed and hence additionality was not adversely affected by the change in project design. Changes to the technology descriptions have also been made in section A.3. The original PDD specified the type and size of the expected additional 24 wind turbines. These details which have been deleted. Only the details of the installed 1.8 MW turbine have been retained.
2. Increase in expected electricity production of the 1.8 MW turbine from 4 GWh/year to 5.5 GWh/year, based on a conservative average of the renewable electricity generation of the installed 1.8 MW turbine between the full years of 2015 – 2019. The increase in expected annual electricity generation has not increased the equity IRR above the benchmark of 13.9%. The ex ante emission reductions have been revised accordingly. The ex ante emissions have therefore increased due to both the correction of the EF_{grid,CM,y} value described above, as well as the increased expected electricity generation value.

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

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Not applicable

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

Means of verification	Document Review, Interview
Findings	CL 02 had been raised and successfully resolved. Please refer to Appendix 4 for further details.
Conclusion	<p>The verification team is able to confirm that the monitoring plan contained in the MR /02/ is in accordance with the monitoring plan contained in the revised PDD /10/ and the approved methodology applied by the project activity, i.e. ACM 0002, version 12.3.0 /B02/. The calculation of emissions has been done in accordance with the formulae and methods described in monitoring plan and the applied methodology. The required information provided in the monitoring report has been cross-checked against the data provided in the ER sheet, monitoring database and the PP.</p> <p>The verification team took cognizance of §357, 358 and §359 of CDM VVS for project activities, version 02 /B01-a/.</p>

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**

Means of verification	Document Review, Interview
Findings	-
Conclusion	Verification team confirms that the data and parameters fixed ex ante are in compliance with the revised PDD and monitoring plan /B05-a/. Please refer to the Annex 1 for assessment of each parameter.

	The verification team took cognizance of §357 of CDM VVS for project activities, version 02 /B01-a/.
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E.6.2. Data and parameters monitored

Means of verification	Document Review, Interview
Findings	CAR 01 had been raised and successfully resolved. Please refer to Appendix 4 for further details.
Conclusion	<p>The verification team confirms that the data and parameters monitored are in compliance with the revised PDD and the monitoring plan /10/.</p> <p>It is confirmed that the verification team assessed the data / information flow from the point of monitoring to emission reduction calculation and found no gap in the same.</p> <p>Detailed assessment of the monitoring parameter has been provided in Annex 2.</p> <p>The verification team took cognizance of §360, §361 and 364 of CDM VVS for project activities, version 02 /B01-a/.</p>

E.6.3. Implementation of sampling plan

Means of verification	Not Applicable
Findings	-
Conclusion	Not Applicable

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

Means of verification	Document Review, Interview
Findings	CAR 02 had been raised and successfully resolved. Please refer to Appendix 4 for further details.
Conclusion	<p>The verification team confirms that the monitoring equipment have been installed in the project activity as per the monitoring plan of the revised PDD /10/.</p> <p>As the revised PDD /10/, "<i>The calibration requirements will be in accordance with the manufacturer specifications or the national standard, SANS 474-2009, if manufacturer specifications are not available</i>". The verification team noted that the manufacturer specifies that the meter does not require additional calibration within its lifespan /09/. The energy meter installed was calibrated on 11/09/2013 /09/. Furthermore, the verification team noted that as per the National Standard, calibration frequency of energy meters is 10 years /15/. Although the crediting period and also the current monitoring period of the project activity starts from 01/08//2013, emission reductions are claimed from 01/03/2014 due to unavailability of data prior to this date. Hence the verification team deemed the energy meter to be duly calibrated during the monitoring period (i.e. for the period emission reductions are being claimed: 01/03/2014 to 29/02/2020).</p> <p>In summary, the verification team is able to verify that the accuracy of the monitoring equipment was set according to the revised monitoring plan and relevant SANS 474-2009 standard. Furthermore, the verification team confirms all calibration procedures were carried at the frequency as specified by the methodology, monitoring plan of the revised PDD /10/ and aligned with the manufacturer specifications. Therefore, the accuracy of the monitoring equipment is assured.</p> <p>The verification team took cognizance of §365 of CDM VVS for project activities, version 02 /B01-a/.</p>

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	Document Review, Interview
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Findings	CAR 03 had been raised and successfully resolved. Please refer to Appendix 4 for further details.
Conclusion	<p>The equations for baseline emissions, as provided in the Monitoring report /02/ and confirmed with the revised PDD /xx/, the methodology ACM0002 (version 12.3.0) /B02/ and supporting tools are:</p> $BE_y = EG_{PJ,y} * EF_{GRID,CM,y}$ <p>Where:</p> <p>BE_y = Baseline emissions in year y (tCO₂)</p> <p>EG_{PJ,y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)</p> <p>EF_{grid,CM,y} = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the Tool to calculate the emission factor for an electricity system. (tCO₂/MWh)</p> <p>EF_{grid,CM,y} was fixed ex-ante as 0.9099 tCO₂e/MWh.</p> <p>Calculation of EG_{PJ,y}</p> <p>As the project activity is installation of a new grid -connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity</p> $EG_{PJ,y} = EG_{facility,y}$ <p>Where:</p> <p>EG_{facility,y} = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)</p> <p>EG_{PJ,y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)</p> <p>From the above equations and parameter values, the total baseline emissions for the monitoring period are calculated as:</p> <p>BE_y= 32,875 MWh x 0.9099 tCO₂/MWh = 29,913 tCO₂e</p> <p>The verification took cognizance of § 372 of CDM VVS for project activities, version 02.0) /B01-a/.</p>

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

Means of verification	Document Review, Interview
Findings	-
Conclusion	<p>Verification team reviewed the documents MR /02/, ER spreadsheet /04/ and the revised PDD /10/. Project GHG emissions in the MR, ER spreadsheet is zero, which is in line with that in the revised PDD.</p> <p>The verification took cognizance of § 372 of CDM VVS for project activities, version 02.0) /B01-a/.</p>

E.8.3. Calculation of leakage GHG emissions

Means of verification	Document Review, Interview
Findings	-
Conclusion	As per the applied methodology ACM0002 (version 12.3.0) /B02/ no leakage effects are accounted for. Thus, there will no leakage emissions from the project activity.

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

Means of verification	Document Review, Interview
Findings	-
Conclusion	<p>According to the applied methodology, the emission reductions are calculated as:</p> $ER_y = BE_y - PE_y$ <p>Where:</p> <p>ER_y = Emission reductions in year y (t CO₂e/y)</p> <p>The total emission reductions are:</p> $ER_y = 29,913 \text{ tCO}_2\text{e}$ <p>The verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae from revised PDD /10/. The total number of CERs achieved during the monitoring period is 29,913 tCO₂e.</p>

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

Means of verification	Document Review, Interview
Findings	CL 03 had been raised and resolved successfully. Please refer to Appendix 4 for further details.
Conclusion	<p>The ex-ante estimate value of the emission reductions for the monitoring period as per the revised PDD /10/ is 30,032 tCO₂e and the actual emission reductions achieved for the monitoring period is 29,913 tCO₂e. The actual emission reductions are lower than the estimate of the revised PDD /10/ for the current monitoring period.</p> <p>The verification team took cognizance of §372 of CDM VVS for project activities, version 02 /B01-a/.</p>

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

Means of verification	Document Review, Interview
Findings	-
Conclusion	<p>The ex-ante estimate value of the emission reductions for the monitoring period as per the revised PDD /10/ is 30,032 tCO₂e and the actual emission reductions achieved for the monitoring period is 29,913 tCO₂e. The actual emission reductions are lower than the estimate of the revised PDD /10/ for the current monitoring period.</p> <p>The verification team took cognizance of §372 of CDM VVS for project activities, version 02 /B01-a/.</p>

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

Means of verification	Document Review, Interview
Findings	-
Conclusion	<p>CERs achieved upto 31st Dec 2012 = 0 tCO₂e.</p> <p>CERs achieved from 1st Jan 2013 = 29,913 tCO₂e</p>

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

Means of verification	Not applicable
Findings	-
Conclusion	Not applicable

E.10. Global stakeholder consultation

Means of verification	DR, I
Findings	-
Conclusion	The monitoring report for the project activity was published for the global stakeholder consultation on 26/10/2020. No comments were received. The verification took cognizance of § 370 of CDM VVS PA, version 02 /B01-a/.

SECTION F. Internal quality control

>>

The final verification report passed a technical review before being submitted to the UNFCCC Executive Board. The technical review is performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification.

SECTION G. Verification opinion

>>

Carbon Check (India) Private Ltd. (CC IPL) has performed the first periodic verification of the registered CDM Project Activity "Coega IDZ Windfarm" having UNFCCC reference number as 8954.

The verification team assigned by the DOE concludes that the project activity as described in the revised PDD (Version 16, dated 25/06/2021) /10/ and the Monitoring report (version 3, dated 25/06/2021) /02/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 62 of CDM Modalities & Procedures, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification has been conducted in-line with the CDM VVS requirements for project activities, version 02.0 /B01-a/.

Verification methodology and process

The Verification team confirms the contractual relationship signed on 19/10/2020 between the DOE, Carbon Check (India) Private Ltd. and Avianto Energy (Pty) Ltd (PP). The team assigned to the verification meets the CCIPL's internal procedures including the UNFCCC requirements for the team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and CCIPL's procedures and requirements.

The verification has been performed as per the requirements described in the CDM VVS for project activities, version 02.0 and constitutes the review and completion of the following steps:

- Reviewing the registered PDD /B05/ and the revised PDD (Version 16 dated 25/06/2021) /10/, including the monitoring plan and the corresponding validation report;
- Publication of the MR (Version 01 dated 19/10/2020) /01/ on the UNFCCC website /B06/ on 26/10/2020/;
- Desk review of the MR /01/ /02/ and other relevant documents including documents related to the emission reduction calculations;
- Review of the applied monitoring methodology (ACM0002, Version 12.3.0) /B02/;
- Review of any CMP and EB decisions, clarifications and guidance;
- Remote interviews (04/12/2020)
- Resolution of CARs and CLs raised during verification
- Issuance of Verification Report

The project activity was correctly implemented according to selected monitoring methodology, monitoring plan and the revised PDD /10/. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of

achieved GHG emission reductions. The verification team confirms that the project activity has resulted in the 29,913 tCO₂e emission reductions during the first monitoring period.

The break-up of emission reduction up-to 31/12/2012 and 01/01/2013 onwards as verified during the course of verification are as below:

Item	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
Emission reductions (t CO₂e)	0	29,913	0

CCIPL as a DOE is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

SECTION H. Certification statement

>>

Carbon Check (India) Private Ltd., the DOE, has performed the verification of the registered project activity “Coega IDZ Windfarm” in South Africa having UNFCCC Registration Number 8954. The project activity involves installation and operation of wind turbine of 1.8 MW in the first crediting period. The electricity generated by the project activity was supplied to the National grid of South Africa.

The project activity is designed to generate emission reductions by installation wind turbine in Coega IDZ Windfarm in South Africa. The PP is responsible for collection of data in accordance with the monitoring plan and the reporting of GHG emission reductions. It is DOE's responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity. The verification is carried out in-line with the requirements of CDM VVS for project activities, version 02.0.

The verification was performed to identify the compliance with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and information that included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

The verification is based on:

- Registered PDD /B05/ and the revised PDD (Version 16 dated 25/06/2021) and the corresponding validation report;
- Approved monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 12.3.0;
- Monitoring reports versions 1 and version 3 dated 19/10/2020 and 25/06/2021 respectively.

This statement covers verification period from 01/08/2013 – 29/02/2020 (including both the dates).

The DOE had raised 03 clarifications and 03 corrective action requests, all of which have been resolved by the PP.

The DOE considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan contained in the revised PDD are fairly stated.

The DOE, hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 29,913 tCO₂e and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records. The break-up of emission reduction up-to 31/12/2012 and 01/01/2013 onwards as verified during the course of verification are as below:

Item	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
Emission reductions (t CO₂e)	0	29,913	0

Appendix 2. Abbreviations

Abbreviations	Full texts
AEPL	Avianto Energy (Pty) Ltd
BE	Baseline Emissions
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DVR	Draft Verification Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
PE	Project Emissions
PP(s)	Project Participant(s)
PRC	Post registration change
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 3. Competence of team members and technical reviewers



Carbon Check (India) Private Ltd.

Sanjay Agarwalla

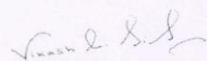
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

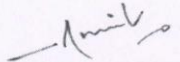
For following functions:

Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Assessor ¹	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input checked="" type="checkbox"/>	TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input checked="" type="checkbox"/>	TA 9.2	<input checked="" type="checkbox"/>	TA 13.2	<input type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 4.1	<input checked="" type="checkbox"/>	TA 8.1	<input type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input type="checkbox"/>
TA 2.1	<input checked="" type="checkbox"/>	TA 5.1	<input checked="" type="checkbox"/>	TA 9.1	<input checked="" type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>		


Mr. Vikash Kumar Singh
Compliance Officer


Mr. Amit Anand
CEO

Date of Approval
24/12/2020

Valid Till
24/12/2021

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2017	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision
01/03/2020	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision

¹ India

CARBON CHECK (INDIA) PRIVATE LIMITED
CIN: U74930DL2012PTC232495

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Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh
Tel: +91 120 4373114 | URL: www.carboncheck.co.in | e-mail: info@carboncheck.co.in



Carbon Check (India) Private Ltd.

Vikash Kumar Singh

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator ☒ Team Leader ☒ Technical reviewer ☒
 Verifier ☒ Technical Expert ☒ Local Assessor¹ ☒

In the following Technical Areas:

TA 1.1 ☒ TA 3.1 ☒ TA 5.2 ☐ TA 9.2 ☐ TA 13.2 ☒
 TA 1.2 ☒ TA 4.1 ☒ TA 8.1 ☐ TA 10.1 ☐ TA 14.1 ☐
 TA 2.1 ☐ TA 5.1 ☐ TA 9.1 ☐ TA 13.1 ☒

Mr. Amit Anand
CEO

Date of Approval
24/12/2020

Valid Till
24/12/2021

Revision History of the Document

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01/03/2020	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision

¹ India, South Africa

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Appendix 4. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/01/	AEPL	Monitoring Report (published MR)	Version 1, 19/10/2020	PP
/02/	AEPL	Final Monitoring Report	Version 3, 25/06/2021	PP
/03/	AEPL	Emission reduction spread sheet corresponding to /01/	-	PP
/04/	AEPL	Emission reduction spread sheet corresponding to /02/	-	PP
/05/	AEPL	Power Purchase agreement in between PP and PowerX (formerly known as Amatola Green Power)	18/07/2013	PP
/06/	AEPL	Raw data for the daily energy supplied records (01/03/2014 to 29/02/2020)	-	PP
/07/	AEPL	Monthly invoices issued by PP to PowerX for cross checking of the energy sold	-	PP
/08/	Companies and Intellectual Property Commission, Republic of South Africa	Evidence for the change in name of the PP from Electrawinds Africa and Indian Ocean Islands (Pty) Ltd to Avianto Energy (Pty) Ltd.	10/08/2017	PP
/09/	Itron	Calibration records for energy meter along with technical specification	-	PP
/10/	AEPL	Revised PDD	Version 16, 25/06/2021	PP
/11/	CC IPL	Validation report for the post registration changes	Version 02, 29/06/2021	PP
/12/	Vestas	Technical specifications of the 1.8 MW Vestas WTG installed in the project activity	-	PP
/13/	Vestas	Project Commissioning Certificate for installed 1.8 MW wind turbine	01/10/2010	PP
/14/	AEPL	Photos of Wind turbine and energy meter	-	PP
/15/	SABS Standards Division	National standard for energy meters SANS 474 (NRS 057)	-	PP
/16/	CC IPL	Contract in between the PP and DOE for verification of the project activity	16/10/2020	DOE
/B01/	UNFCCC	a. CDM Validation and Verification Standard for project activities, version 02.0 b. CDM Project Standard for project activities, version 02.0 c. CDM Project Cycle Procedure for project activities, version 02.0	http://cdm.unfccc.int	Others
/B02/	UNFCCC	Approved consolidated methodology "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" ACM0002, Version 12.3.0	http://cdm.unfccc.int	Others

/B03/	UNFCCC	Monitoring report form and guidelines, Version 07.0 and 08.0	http://cdm.unfccc.int	Others
/B04/	UNFCCC	Guideline on the application of Materiality in verifications, Version 02	http://cdm.unfccc.int	
/B05/	UNFCCC	Registered PDD for CDM project "Coega IDZ Windfarm" Version 14 dated 14/12/2012 and the corresponding validation report	http://cdm.unfccc.int	Others
/B06/	UNFCCC	UNFCCC website: http://cdm.unfccc.int	http://cdm.unfccc.int	Others

Appendix 5. Clarification requests, corrective action requests and forward action requests

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

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of FAR			
-			
Project participant response			Date: DD/MM/YYYY
-			
Documentation provided by project participant			
-			
DOE assessment			Date: DD/MM/YYYY
-			

Table 2. CL from this verification

CL ID	01	Section no.	E.4	Date: 05/12/2020
Description of CL				
Version of the PDD referred in MR is incorrect as PP is applying PRC in issuance track. In this respect names of the PPs also needs to be updated in line with the revised PDD including section B.2 for the PRC being proposed.				
Project participant response				Date: 10/06/2021
The version of the PDD being referenced has been updated to the revised PDD (i.e., version 16). Similarly, the PP names have been corrected. The PRCs in section B.2 of the monitoring report have also been updated to align with the PRCs in the revised PDD.				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date: 12/06/2021
PP has submitted revised MR updating the version of PDD being submitted for PRC in issuance track. There is no change in PPs (only the legal name of the PP "Electrawinds Africa and Indian Ocean Islands (Pty)" has been changed to "Avianto Energy (Pty) Ltd" which has been clarified in the revised MR. PRCs have been stated in section B.2 of the revised MR. The CL is closed.				

CL ID	02	Section no.	E.5	Date: 05/12/2020
Description of CL				
In the section C of the MR, the data management procedure seems to be incomplete. PP needs to provide revised MR with complete details inline with the PDD.				
Project participant response				Date: 10/06/2021
Section C of the MR was updated in accordance with the wording from the PDD.				
Documentation provided by CME				
Revised MR				
DOE assessment				Date: 12/06/2021

PP has submitted revised MR in which the data management has been stated as per the PDD. The CL is closed.

CL ID	03	Section no.	E.8.5	Date: 05/12/2020
Description of CL				
Value of the ex-ante estimated emission reductions for the monitoring period is inconsistent in between the provided MR and ER spread sheet. Clarification is requested.				
Project participant response				Date: 10/06/2021
The values for the ex-ante calculations in the MR have been revised so that they are aligned with the values in the ex ante ER spreadsheet. The discrepancy was fixed by increasing the decimal points and considering each leap year.				
Documentation provided by project participant				
Revised MR and ER spread sheet				
DOE assessment				Date: 12/06/2021
The verification team noted that the Combined margin emission factor for electricity used for ex-ante calculation of emission reductions was 0.8834 tCO ₂ /MWh. It was further observed that although the ex-ante calculation spread sheet for emission reductions presented the various ratios of OM: BM for the calculation of CM, including the applicable one of 75:25 (OM:BM) for the project activity, but inadvertently picked up the wrong ratio of 25:75 (instead of 75:25). The correct value with 75:25 as OM:BM will be 0.9099 tCO ₂ /MWh. PP has submitted revised PDD and ex-ante calculation of emission reductions with this correction and also used this value of emission factor for the calculation of emission reductions for the monitoring period. The estimated ex-ante value of the emission reductions corresponding to the monitoring period have been stated in the revised MR. Also PP is proposing design change in the PDD with respect to decreased capacity (1.8 MW instead of 73.8 MW as stated in the registered PDD). The energy generation envisaged for the 1.8 MW turbine in the registered PDD is also being proposed for change through PRC (from 4 GWh/year to 5.5 GWh/year based on actual historical generation). PP is proposing a PRC in issuance track in this respect. The CL is closed.				

Table 3. CAR from this verification

CL ID	01	Section no.	E.1	Date: 05/12/2020
Description of CL				
Section B.1 of the MR does not comply with the MR completing guidelines. Also in section D.1 of the MR, the MR template has been altered (in the row "purpose of the data").				
Project participant response				Date: 10/06/2021
Section B.1 has been updated in accordance with the Guidance and in light of the PDD v.16. Similarly, the "Purpose of data" under parameters has been corrected to "Purpose of data/parameter".				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date: 12/06/2021
PP has submitted revised MR with appropriate corrections in section B.1 and D.1 complying the MR completing guidelines. The CAR is closed.				

CAR ID	02	Section no.	E.7	Date: 05/12/2020
Description of CAR				
In the section D.2 of the MR, the details of the energy meter provided is incorrect as confirmed during the remote site visit. Also, calibration frequency of the energy meters is stated as 10 years whereas the registered PDD mentions the calibration frequency as 5 years. Clarification is requested.				
Project participant response				Date: 10/06/2021
The energy meter details (Enermax) provided in previous version of the MR was incorrect. The meter identified on the site visit is the correct meter (Itron) and has been reflected in the MR accordingly. The calibration requirements for this meter (Itron) was provided by the manufacturer, as stipulated in supporting evidence stated below. This stated that no calibration is required on this meter over its lifetime. Therefore, the change in the meter calibration frequency is aligned with the revised PDD v.16.				
Documentation provided by project participant				
a. Revised MR b. Supporting documentation on calibration requirements: "Itron meter calibration frequency_email_2020-11-20" – email from Octron (Terence)"				
DOE assessment				Date: 12/06/2021

PP has corrected the energy meter details in the revised MR. In the registered PDD, calibration frequency of energy was stated as “*The method of calibration and frequency of tests shall be done every five years; based on knowledge of the performance and the design of the installed meters and the manufacturers’ recommendations*”. But in absence of calibration frequency from the meter manufacturer, PP has adopted the calibration frequency as 10 years as per the national standard, SANS 474-2009. PP has proposed a PRC in this respect and submitted revised PDD. This is deemed acceptable to the verification team. The CAR is closed.

CAR ID	03	Section no.	E.8.1	Date: 05/12/2020
Description of CAR				
In ER spread sheet, metered energy is calculated as half of the metered power. Clarification is requested. Also the metered energy values do not match with the raw data sheet. PP needs to provide correct data including all the invoices for cross check along with proper justification for any differences if any.				
Project participant response				Date: 10/06/2021
The metered energy, is calculated from the metered power (in kW) from the raw data sheet, which is measured in half an hour interval. In order to get the energy output (in kWh), the values are divided by 2 to get the kW on a “per hour” basis. The metered values used for the ER calculations were revised so that they link correctly to the raw data sheet. The invoices for cross check have been provided and there are minimal differences between the invoice values and the metered data.				
Documentation provided by project participant				
Revised ER spread sheet				
DOE assessment				Date: 12/06/2021
PP has clarified the calculation of metered energy. Also energy values are cross checked with the raw data sheet and the invoice values and found to be correct. Closure of this CAR has resulted in increase of ERs from 29,264 tCO ₂ to 29,913 tCO ₂ . The CAR is closed.				

Table 4. FAR from this verification

FAR ID	xx	Section No.		Date: DD/MM/YYYY
Description of FAR				
-				
Project participant response				Date: DD/MM/YYYY
-				
Documentation provided by project participant				
-				
DOE assessment				Date: DD/MM/YYYY
-				

Annex 1: Assessment of data and parameters fixed ex-ante at the time of validation

Parameter	$EG_{m,y}$
Data unit	MWh
Default values used	PI refer to the spread sheet for ex-ante calculation of emission reductions
Purpose of data	Determination of baseline emissions
Source of verification of the source	The value of the parameter is fixed ex-ante /10/

Parameter	$EF_{EL,m,y}$
Data unit	tCO ₂ /MWh
Default values used	PI refer to the spread sheet for ex-ante calculation of emission reductions
Purpose of data	Determination of baseline emissions
Source of verification of the source	The value of the parameter is fixed ex-ante /10/

Parameter	$FC_{i,m,y}$
Data unit	Mass or volume unit
Default values used	PI refer to the spread sheet for ex-ante calculation of emission reductions
Purpose of data	Determination of baseline emissions
Source of verification of the source	The value of the parameter is fixed ex-ante /10/

Parameter	$NCV_{i,y}$
Data unit	GJ/mass or volume unit
Default values used	PI refer to the spread sheet for ex-ante calculation of emission reductions
Purpose of data	Determination of project emissions
Source of verification of the source	The value of the parameter is fixed ex-ante /10/

Parameter	$EF_{CO2,i,y}$
Data unit	tCO ₂ /GJ
Default values used	PI refer to the spread sheet for ex-ante calculation of emission reductions
Purpose of data	Determination of baseline emissions
Source of verification of the source	The value of the parameter is fixed ex-ante /10/

Annex 2: Assessment of data and parameters monitored

Monitoring Parameter Requirement	Assessment/ Observation by the DOE																
Data / Parameter: (as in monitoring plan of PDD):	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (EGfacility,y)																
Measuring frequency/Time Interval:	Continuous monitoring and aggregated on a monthly basis																
Reported value:	<table border="1"> <thead> <tr> <th>Year</th><th>Electricity generated (MWh)</th></tr> </thead> <tbody> <tr><td>2014</td><td>4,529</td></tr> <tr><td>2015</td><td>5,100</td></tr> <tr><td>2016</td><td>5,292</td></tr> <tr><td>2017</td><td>5,538</td></tr> <tr><td>2018</td><td>5,557</td></tr> <tr><td>2019</td><td>5,918</td></tr> <tr><td>2020</td><td>941</td></tr> </tbody> </table>	Year	Electricity generated (MWh)	2014	4,529	2015	5,100	2016	5,292	2017	5,538	2018	5,557	2019	5,918	2020	941
Year	Electricity generated (MWh)																
2014	4,529																
2015	5,100																
2016	5,292																
2017	5,538																
2018	5,557																
2019	5,918																
2020	941																
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes																
Details of monitoring equipment:	<table border="1"> <tbody> <tr><td>Instrument Name</td><td>Energy meter</td></tr> <tr><td>Manufacturer</td><td>ltron</td></tr> <tr><td>Serial Number</td><td>63054975</td></tr> <tr><td>Accuracy Class</td><td>1</td></tr> </tbody> </table>	Instrument Name	Energy meter	Manufacturer	ltron	Serial Number	63054975	Accuracy Class	1								
Instrument Name	Energy meter																
Manufacturer	ltron																
Serial Number	63054975																
Accuracy Class	1																
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes																
Calibration frequency /interval: Is it as per monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	As pe the revised PDD "The calibration requirements will be in accordance with the manufacturer specifications or the national standard, SANS 474-2009, if manufacturer specifications are not available". The manufacturer specified that the energy meters do not require calibration and the National standard specifies the calibration frequency once in every 10 years. Calibration of the energy meter was done on 11/09/2013 /09/. Although the crediting period and also the current monitoring period of the project activity starts from 01/08/2013, emission reductions are claimed from 01/03/2014 due to unavailability of data prior to this date. Hence the verification team deemed the energy meter to be duly calibrated during the monitoring period (i.e. for the period emission reductions are being claimed: 01/03/2014 to 29/02/2020).																
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes																
Company performing the calibration (internal or external calibration):	ltron (manufacturer)																
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes																
Is (are) calibration(s) valid for the whole	Yes. The verification team noted that although the																

reporting period?	monitoring period starts from 01/08/2013, but the emission reductions are being claimed from March 2014. Hence the verification team deemed the electricity meter to be duly calibrated for the period for which emission reductions are being claimed.
If applicable, has the reported data been cross-checked with other available data?	Yes, the calibration is monitored by the calibration certificate /09/
How were the values in the monitoring report verified?	The values were verified with the raw data sheet and calculations in the ER spread sheets
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place. The energy sold was cross-checked with the invoices /07/.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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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"> • Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN); • Make structural and editorial improvements.
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.
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