



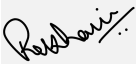
**Verified Carbon
Standard**

VERIFICATION REPORT

Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility



Project Title	Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility
Version	1.2
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Summary:

EcoLance Pvt. Ltd has performed the third verification of the VCS project activity “Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility” VCS ID 1949. The verification is based on the currently valid documentation of the VCS and United Nations Framework Convention on Climate Change (UNFCCC).

The verification was conducted using EPL’s procedures in line with the requirements specified in the CDM M&P, the VCS validation and verification manual version 3.2, ISO14064-3: 2019 and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The Verification has been conducted for the monitoring period 01/01/2022 to 31/12/2022.

The verification process includes three phases:

- Desk review of documents.
- Off-site audit and follow-up interviews with the relevant personnel.
- Resolution of outstanding issues and the issuance of final verification report and opinion.

The project comprises only one activity – a single wind farm with the total installed capacity of 100.5 MW, which was implemented close to the town of De Aar in the Northern Cape Province of the Republic of South Africa (RSA). 67 UP86 turbines, supplied by United Power, are employed by the project.

The wind farm started commercial operation on 31/10/2017 and continues operating. The project lifetime is 20 years.

The total GHG emission reductions covered in this monitoring report are 251,421 tCO₂e.

The project is promoted by Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd.

The project crediting period starts from 31/10/2017 till 30/10/2027, 10 years fixed total period.

4 Clarification Requests (CLs) and 2 Corrective Action Request (CAR) have been raised during verification process has been successfully closed. 0 Forward Action Request (FAR) was raised during this monitoring period.

VVB confirms that the project is implemented in accordance with the registered PD/04/. The monitoring plan complies with the applied methodology ACM0002 version 19.0/02/ and the monitoring has been carried out in accordance with the monitoring plan in the registered PD/04/. The monitoring system is in place and the emission reductions are calculated without material misstatements. The level of assurance of the verification is reasonable. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated VVB confirms that the implementation of the project has resulted in 251,421 tCO₂e emission reductions during period 01/01/2022 to 31/12/2022.

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1 INTRODUCTION

1.1 Objective

VVB has been commissioned by the client to perform an independent verification assessment. The objective of the verification work is to comply with the requirements of Verified Carbon Standards requirements. According to this assessment VVB shall:

- ✓ Ensure that the project activity has been implemented and operated as per the registered PD/04/, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ✓ Ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable VCS and CDM VVS requirements/01/,
- ✓ Ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- ✓ Evaluate the data recorded and stored as per the applicable requirements.
- ✓ Assessment of the sustainability monitoring parameters as per the VCS requirements.

1.2 Scope and Criteria

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of VCS project activities, the scope is set by:

- ✓ VCS Standard v4.4 requirements.
- ✓ Clean Development Mechanism Validation and Verification Standard (VVS) for Project Activities v3.0/01/.
- ✓ VCS VVM V3.2
- ✓ Baselines and monitoring methodologies (including GHG inventories).
- ✓ Current technical and operational knowledge of the specific sectoral scope and information on best practice.
- ✓ Stakeholder consultation and feedback.

The verification process is not meant to provide any form of consulting for the Project Participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for the improvement of the project design.

1.3 Level of Assurance

The verification has been carried out through the review of the monitoring report, PD documents, the supporting documents, and other relevant documents provided to the verification team; please refer to Appendix 1. Based on the mentioned documents and the interviews, the verification team has concluded that the level of assurance is reasonable. The errors identified in the project are below the threshold limit of materiality and hence not material. Therefore, the GHG emission reductions are calculated without material misstatements.

The technical review was performed by a technical reviewer qualified in accordance with EPL's qualification procedure. The validation & verification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name
VCS Team Leader, VCS Validator, verifier & Technical Expert	Kewat	Shailendra
Local Expert	Waggie	Tariq
Technical Reviewer	Buragohain	Champok

The VVB confirms that a reasonable level of assurance has been achieved during the verification process.

1.4 Summary Description of the Project

The project comprises only one activity – a single wind farm with the total installed capacity of 100.5 MW, which was implemented close to the town of De Aar in the Northern Cape Province of the Republic of South Africa (RSA). 67 UP86 turbines, supplied by United Power, are employed by the project. Electricity generated by the project is fed into the electricity grid of the Southern African

The EPC contract was signed on 06/02/2015. The wind farm started commercial operation on 31/10/2017/08/ and continues operating. The project lifetime is 20 years/11/.

The total GHG emission reductions covered in this monitoring report are 251,421 tCO₂e.

The project is promoted by Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd. and Blue World Carbon Asset Management (Pty) Ltd. is the focal point and project proponent.

Location of the project was verified through Google Map, Geographical latitude: - 30.7278. Geographical longitude: 23.8831. (<https://www.google.co.in/maps/>)12/. The emission reductions from the project activity during the period 01/01/2022 to 31/12/2022 (including both days) amount to 251,421 tons of CO₂e.

The assessment team has checked the verification records and interviewed the PPs representatives (telephonically) to verify the project details. Based on the assessment of the documents and remote interviews with PPs representatives, the assessment team is able to confirm that the project activity is fully functional and implemented.

This project adopts the fixed crediting period of 10 years.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The information provided by the project participants is assessed by applying the means of verification specified in the VCS Standard v4.4/03/, VCS Validation and Verification Manual Version 3.2, and the CDM VVS V3.0/01/.

A competent assessment team is selected prior to the start of the verification. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the VCS project activity. Additionally, a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by a remote audit, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the VVB before submission to the VCS.

2.2 Document Review

Documents provided by the PP including the monitoring plan, monitoring report, project design document, monitoring methodology, and the supporting documents have been reviewed to verify the materiality and suitability of the project. The documents referred to during this verification period are provided in Appendix 1.

2.3 Interviews

As per section 4.1.9 of the VCS standard version 4.4/03/, a site visit is not must in the current project case. However, VVB has conducted telephonic interviews and video calls to discuss with the client regarding the data and documents pertaining to the current verification period. The interviews and discussions were conducted successfully. Moreover, VVB has engaged a local expert who has visited the site physically and assured following points:

The main topics covered during the interview are as follows:

- ✓ General Aspects of the project
- ✓ Project Implementation
- ✓ Equipment and operation
- ✓ Staff Training procedures
- ✓ Calibration procedures
- ✓ Monitoring & Measuring System
- ✓ Data collection, recording and archiving procedure
- ✓ QA/QC procedures
- ✓ VCS documentation
- ✓ SDG monitoring

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Galant	Frank	Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd	24/03/2023	Plant technology and monitoring Plant operation, Stakeholder grievance mechanism.	Shailendra Kewat / Tariq waggie
2	-	Daixioming	Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd	24/03/2023	Plant technology and monitoring Plant operation, Stakeholder grievance mechanism.	
3.	-	Shengbin	Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd	24/03/2023	Plant technology and monitoring, Plant operation, Stakeholder grievance mechanism.	
4.	-	Joost.van.lie	Blue World Carbon Asset Management (Pty) Ltd	24/03/2023	Plant technology and monitoring, Plant operation, Stakeholder grievance mechanism.	
5	Goryashin	Ilya	Blue World Carbon Asset Management (Pty) Ltd	24/03/2023	Monitoring, ER calculations	

2.4 Site Visits

As per section 4.1.9 of the VCS standard version 4.4/03//, a site visit is not must in the current project case. Therefore, VVB has conducted telephonic interviews and video calls to discuss with the client

regarding the data and documents pertaining to the current verification period. The interviews and discussions were conducted successfully.

VVB has checked the monitoring data to date supplied by the PP, application of methodologies, appropriateness of monitoring plan. In addition, as mentioned in Section 4, all the monitoring parameters furnished by the PP have been cross-checked with the electronic records and operational logbooks for the entire monitoring period. Section 3.3.1.1 of the VCS Validation and Verification Manual v.3.2 classifies the types of evidence in order of decreasing reliability as physical, documentary and testimonial¹. Accordingly, VVB has ensured a reasonable level of assurance through examination of documentary evidence and testimonials from responsible personnel throughout the monitoring period. Thus, VVB has concluded that a reasonable level of assurance was provided for the current monitoring period.

2.5 Resolution of Findings

As an outcome of the verification process, the 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:

- a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- b) Modifications to the implementation, operation and monitoring of the project activity has not been sufficiently documented by the project participants;
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- d) 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.

There are 04 CLs and 02 CARs raised during the verification process. Please see Appendix-2 for the details.

2.5.1 Forward Action Requests

¹ https://verra.org/wp-content/uploads/2018/03/VCS_Validation_Verification_Manual_v3.2.pdf (Accessed on 30/01/2023)

There was no pending FAR to be addressed in this monitoring period. No FAR has been raised in this monitoring period.

2.6 Eligibility for Validation Activities

Project is not a validation activity.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The VVB confirms that the project is registered only under VCS and not registered in any other GHG program, such as CDM, JI, the Climate Action Reserve, Biocarbon Registry, International Carbon Registry, Gold Standard for Global Goals (GS4GG), and Global Carbon Council (GCC).

The details of the registries checked are as follows:

1. <http://cdm.unfccc.int/>
2. <http://www.goldstandard.org/>
3. <https://verra.org/>
4. <https://www.globalcarboncouncil.com>
5. <https://www.irecstandard.org>
6. <https://biocarbonregistry.com/en/>
7. <https://ji.unfccc.int/index.html>
8. <https://carbonregistry.com/>

3.2 Methodology Deviations

No deviation has been sought from the methodology during current monitoring.

3.3 Project Description Deviations

No deviation has been sought from the project description during current monitoring.

3.4 Grouped Project

The project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project was implemented without any changes comparing with the VCS PD. The wind farm started commercial operation on 31/10/2017/08/ and has been operating without events that could impact the GHG emission reductions or removals and monitoring. This is not an AFOLU project.

The audit team has checked the commissioning certificates dated 31/10/2017/08/ to confirm the location and the implementation of the project.

The technical specification of the project activity equipment's has been checked through the photographs of all the equipment's installed at site and checked by the local expert physically and are found to be consistent with the mentioned under section 3.1 of MR. The current status of the project activity is verified through the screen shots of SCADA system, indicating the real-time generation data and hence it is confirmed that the project is fully functioning.

The current monitoring period is from 01/01/2022 to 31/12/2022 (start and end dates included). The total GHG emission reductions or removals generated in this monitoring period are 251,421 tCO₂. The Project Proponent plans to avail the VCS benefits for the project.

Parameters Available at Validation and Data Fixed Ex-ante:

Data/ parameter	Unit	Value applied	Assessment
$EF_{grid,CM,y}$	tCO ₂ /MWh	0.9871	VVB has cross verified the Standardized baseline ASB0040-2018/06/ which was selected for the project. Table 1 of this standardized baseline provides the value of the combined margin CO ₂ emission factor for the project electricity system applicable to wind and solar power generation for the determination of baseline emissions.

The VVB has checked that all ex-ante parameters were fixed in accordance with the VCS Standard 4.4/03/ and the applied methodology and the registered PD. The consistency of the ex-ante values throughout the ER was also checked and confirmed.

Monitoring parameters:

Means of verification	Referring to VCS v4.4 and p.360, p.361, p.363 and p.364 of CDM VVS PA, v3.0, the below tables provide a summary on the verification of each monitoring parameter listed in the registered monitoring plan.																																									
	Data / Parameter:	EG _{PJ, y}																																								
	Data unit:	MWh																																								
	Description:	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project in year y																																								
	Source of data used:	On-site measurement by electricity meters, yielding the net electricity supplied to the grid of the RSA. There are two main meters installed in the Maanhaarberg IPP Substation on 132kV side. Each meter is accompanied with the check meter. Monthly reports with the records for delivered electricity to Phiri Eskom 132kV Switching Station are submitted by the Eskom to PP. Value monitored: <table><tr><th>Month</th><th>Month</th><th>Value</th></tr><tr><td>January</td><td>1</td><td>18,197.807995</td></tr><tr><td>February</td><td>2</td><td>16,244.712000</td></tr><tr><td>March</td><td>3</td><td>16,660.560000</td></tr><tr><td>April</td><td>4</td><td>18,595.967996</td></tr><tr><td>May</td><td>5</td><td>14,964.384000</td></tr><tr><td>June</td><td>6</td><td>18,992.279990</td></tr><tr><td>July</td><td>7</td><td>22,269.143985</td></tr><tr><td>August</td><td>8</td><td>25,005.384002</td></tr><tr><td>September</td><td>9</td><td>25,596.264000</td></tr><tr><td>October</td><td>10</td><td>23,851.607994</td></tr><tr><td>November</td><td>11</td><td>27,387.791998</td></tr><tr><td>December</td><td>12</td><td>26,945.880002</td></tr></table>		Month	Month	Value	January	1	18,197.807995	February	2	16,244.712000	March	3	16,660.560000	April	4	18,595.967996	May	5	14,964.384000	June	6	18,992.279990	July	7	22,269.143985	August	8	25,005.384002	September	9	25,596.264000	October	10	23,851.607994	November	11	27,387.791998	December	12	26,945.880002
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December	12	26,945.880002																																								
Means of verification/Comments:	PP has taken the lowest value of generation between the Maanhaarberg IPP Substation and at Eskom 132kV Switching Station. Eskom 132kV Switching Station has the lowest value and the difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project																																									

		activity and same value is considered for ER calculations. Verification team has checked the monthly reports to check net generation value and same has been cross verified with sales invoices raised by PP.	
	Cross-check	Monthly generation report	
Compliance with the calibration frequency requirements for measuring instruments			
The meter class is 0.2S. Landis+Gyr E650 (or similar) electricity meters are used. Serial numbers of currently installed main meters are: 37108380 and 37108382. Meters are installed at on-site substation. As per the registered monitoring plan, the meters are to be calibrated as per the requirements of the Power Purchase Agreement, clause 12.6.7, when the difference between measurements at the Phiri Eskom Substation and De Aar Maanhaarberg IPP Substation is more than 0.5%. For the current monitoring period it is noted the difference is less than 0.5% hence, calibration was not done. VVB has cross verified the same with the generation data.			
Conclusion	The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD. All parameters were monitored and determined as per the registered monitoring plan. Referring to p.360, p.361, p.363 and p.364 of CDM VVS PA, v3.0/01/, VVB confirms through video call and telephonic interviews and from the document review, the actual monitoring system complies with the registered monitoring plan. The substantiation of this conformity on information flow for these parameters including the values in the monitoring reports is reported in the above section. During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. After appropriate corrections, carried out by the project participant, it is confirmed that all monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements. All parameters required to be monitored are recorded at the intervals required by the registered monitoring plan and the applied methodology. On the basis of review of source and nature of available evidences and records, the verification team confirms the quality of evidence for emission reduction provided is sufficient as per CDM VVS PA, v3.0/01/.		

The assessment team has verified the final VCS MR and confirmed that the procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management

structure are mentioned in the MR. The monitoring plan completely describes all measures to be implemented for monitoring all parameters required. The monitoring plan described the positioning of the equipment.

The information relating to the project implementation, provided in the Monitoring Report is consistent & correct. Total emission reductions achieved under this monitoring period 01/01/2022 to 31/12/2022 (including both days) is 251,421 tCO₂e.

Emissions trading programs and other binding limits:

The assessment team confirms that the Net GHG emission reductions or removals generated by the project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions in any Emission Trading program or other binding limits. Further, the declaration in the effect of the same has been submitted by the project proponent to the audit team and found to be correct.

The project has not been registered under any other GHG and/or Renewable/Green Energy programs. Also, the Project is not rejected by other GHG programs. A declaration for the same is checked and found correct by the assessment team. Also, the assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

9. <http://cdm.unfccc.int/>
10. <http://www.goldstandard.org/>
11. <https://verra.org/>
12. <https://www.globalcarboncouncil.com>
13. <https://www.irecstandard.org>
14. <https://biocarbonregistry.com/en/>
15. <https://ji.unfccc.int/index.html>
16. <https://carbonregistry.com/>

The Project has no intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

Thus, it is concluded that the project activity not involved on other Emissions trading programs and other binding limits.

Sustainable Development

100.5 MW, which was implemented close to the town of De Aar in the Northern Cape Province of the Republic of South Africa. 67 x UP86-1.5MW turbines, supplied by Guodian United Power, are employed by the project.

Electricity generated by the project is fed into the electricity grid of the Southern African Power Pool (SAPP), where South Africa is represented by Eskom, displacing energy that would have otherwise be generated by the operation of the grid-connected power plants of the SAPP and by the addition of new generation sources that is reflected in the combined margin CO₂ emission factor of 0.9871 t CO₂/MWh adopted for the electricity system of the SAPP.

As part of regional development efforts associated with the wind project, Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd (Longyuan Mulilo) has:

- Initiated a Longyuan Mulilo Health Project to provide health services, including primary healthcare, dental, eye clinic and COVID-19 related services to students, educators and community members around the project using a Mobile Health Clinic (MHC), which was donated to the Department of Health to screen up to 8 800 learners annually on a permanent base. In 2022, 5,353 people have been screened. The total number of services is 21,412 which include 5,353 dental, 5,353 optometry screenings, 5,353 primary healthcare screenings, and 5,353 COVID-19 screenings.

VVB has verified the records of the same during the verification.

- Launched Maths Enrichment Program aiming at improving the results of the subjects in the local schools through resourcing the learners, stimulating interest in the subjects, and creating opportunities to study further in subject related tertiary courses. The enrichment program also aims to encourage more leaners to take Maths and Science to Grade 12 level. Longyuan Mulilo's funding contributions went for salaries, student allowances, student study sponsorship, running cost and management fees. 1,800 leaners (from grades 1-7 and 10-12) went through the Math enrichment program in 2022, a further 60 leaners added benefit to in the form of exposure to robotics offerings.

VVB has verified the course curriculum and records of the same during verification.

- Launched a Bursary Programme for tertiary studies to support students, which among others includes covering of tuition fees, institution's registration fees and accommodation fees, as well as book allowance per annum, food stipend (if the student applied and qualified) and laptops. Bursary Programme supported 15 students (5 new students) in 2022.. Students are selected based on financial circumstances and targeting those that could not have attended tertiary education without support of the bursary programme. Annual budget of R 1,500,000 was allocated to the Bursary Programme in 2022;

VVB has verified the records of the same during the verification.

- Renovated the 3 Early Childhood Development (ECD) Centres: Kaalvoet Akademie ECD, Karoo Druppels ECD and Mthuthuzeli Daycare ECD, with the long term impact to provide quality early childhood development programmes and services for the benefit of young children, their families and the communities and by also improving quality of early childhood development in Emthenjeni and Renosterberg regions of South Africa. Longyuan Mulilo contributes towards salaries, food and other support. Over 151 underprivileged children attended the ECD from the community due to this Project 1949 in 2022.

VVB has verified the records of the same during the verification.

- Upgraded the house and assisted with reparations of the Safe Haven located in Philipstown, which aim is to serve and help the abused women and children of Philipstown;
- Funded the rehabilitation of the water supply system of Philipstown. The water is provided to 3,251 people due to this Project 1949.
- The project has supplied 254,737 MWh of wind-generated electricity into the grid of South Africa in 2022.

VVB has verified the photographs and necessary documentation during verification.

Conclusion:

In view of the assessment of MR and supporting documents as listed in Appendix 1 of this report, the verification team is able to confirm that the description contained in the MR of the

project activity provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. Consequently, assessment team confirms that the project description of the project contained in the MR to be complete and accurate. The MR complies with the relevant forms and guidance for completing the VCS MR.

4.2 Safeguards

4.2.1 No Net Harm

The wind power is one of the cleanest sources of renewable energy, The project do not have any negative environmental impacts. Project generates permanent and temporary employments.

1) Impact on biodiversity and ecosystems

Reptiles may be forced out of their underground shelters during the construction phase. Birds and bats may be impacted through collision with the blades of the wind turbines as well as collision with the associated power line during the operational phase.

Proposed mitigation measures: Length of road and cable trenches shall be reduced; relocation of facility to a lower sensitivity area; adjusting the schedule of operational turbines according to the results of ongoing monitoring of the bird and bat numbers and movement in the area; minimising the length of any new power lines.

2) Noise impact

The noise from construction machines has some impact on the surrounding area during the construction phase, which will only have a localized effect and is not expected to increase the ambient noise levels in nearest towns.

Proposed mitigation measures: all equipment should be maintained regularly and have appropriately filled silencers; personal should be specially trained. When working near to potentially sensitive receptor, coordinate the working time with periods when the receptors are not at home where possible.

During the operation phase the cumulative contribution of the wind turbines and the transformer substation on the noise environment at the communities around the site will be within acceptable levels.

3) Impact on natural resources

The impact on the natural resources is the loss of arable land due to the construction of the turbines and associated infrastructure. However, most of the current cultivation or grazing practices will still be possible between the structures.

Proposed mitigation measures: Monitoring of the noise level

4) Impact on the atmosphere

The main impact is related to formation of dust during the construction period from land excavation and transportation vehicles. It should be mentioned that combustion of fossil fuels (mostly coal) at the Eskom power stations and hereby emissions of the harmful substances into the atmosphere, such as flue ash, oxides of sulphur and nitrogen will be reduced due to the project implementation.

Proposed mitigation measures: Dust pollution monitoring and following procedures for dealing with dust pollution

Project activity doesn't have any negative environmental and socio-economic impacts.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. As confirmed by PP during interviews, for on-going stakeholders communication, PP has maintained feedback/complaint register at the site office. Local stakeholders can anytime lodge their grievances if any in the register over the operational lifetime of the project. On going grievances, submitted via letter, e-mail or telephonically, must be captured on the Grievance form by the designated operational representatives defined by the PP. Stakeholders will be encouraged to use a Grievance form that are available on request (via telephone call, e-mail) and at the office address specified above.

During current monitoring period no grievance was received. This has been observed by the local expert on site. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.

4.3 AFOLU-Specific Safeguards

Not applicable since the project is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The assessment of data and the calculation of baseline emission reduction in the MR and the ER excel sheet have been verified as per the following set of supporting documents:
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1. Latest photographs & videos/13/
2. Generation data/09/
3. VER spreadsheets/07/
4. Sales Invoices (as per PPA)/10/

The baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project in year y (MWh)

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y (tCO₂/MWh)

The lowest values between the measured by Eskom and the on-site measured by Tariff Meters/10/ are used for the calculations of the baseline emissions:

Month	Month	Year	KWh used to calculate the baseline emissions		
			Total TRFR1 (main) + TRFR2 (main)	Metered by Eskom	Minimum value
January	1	2022	18,197,808	18,197,808	18,197,807.995
February	2	2022	16,244,712	16,244,712	16,244,712.000
March	3	2022	16,660,560	16,660,560	16,660,560.000
April	4	2022	18,600,864	18,595,968	18,595,967.996
May	5	2022	14,964,384	14,964,384	14,964,384.000
June	6	2022	18,992,400	18,992,280	18,992,279.990
July	7	2022	22,272,744	22,269,144	22,269,143.985

	August	8	2022	25,013,856	25,005,384	25,005,384.002
	September	9	2022	25,596,264	25,596,264	25,596,264.000
	October	10	2022	23,851,608	23,851,608	23,851,607.994
	November	11	2022	27,387,840	27,387,792	27,387,791.998
	December	12	2022	26,954,136	26,945,880	26,945,880.002
Baseline emissions						
Baseline emissions in year y (tCO ₂):						
	Month	Month	Year	Baseline emissions in year y (tCO ₂)		
	January	1	2022	17,963		
	February	2	2022	16,035		
	March	3	2022	16,445		
	April	4	2022	18,356		
	May	5	2022	14,771		
	June	6	2022	18,747		
	July	7	2022	21,981		
	August	8	2022	24,682		
	September	9	2022	25,266		
	October	10	2022	23,543		
	November	11	2022	27,034		
	December	12	2022	26,598		
	Total for 2022:				251,421	
Conclusion	Upon checking the supporting documents and the submitted MR/05/, the verification team confirms that; - PP has provided all required data for the calculations. - The cross-check data is provided for respective parameters so that the verification of calculations is enabled. - Applied formulae and method for calculation of baseline emission are in accordance with the registered monitoring plan and are in line with the requirements of the applied methodology.					

	- Reference and default values used for baseline GHG emission calculations were correctly applied. - The calculations related to baseline GHG emissions were reproducible and correct.
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Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. The following documents were taken into consideration for the verification of project GHG emissions; 1. Monthly generation reports/09/ 2. VER spreadsheets/07/ 3. Sales Invoices /10/
Conclusion	Upon checking the supporting documents and the submitted MR, the verification team confirms that; - PP has provided all required data for the calculations. - The cross-check data is provided for respective parameters so that the verification of calculations is enabled. - The official records such as bills and invoices supports the data used in GHG calculations. - Applied formulae and method for calculation of project emission are in accordance with the registered monitoring plan and are in line with the requirements of the applied methodology. - Reference and default values used for baseline GHG emission calculations were correctly applied. - The calculations related to project GHG emissions were reproducible and correct. There is no project emission from the project

Calculation of leakage GHG emissions

N/A. Leakage emissions are not applicable according to the registered VCS PD.

Based on the document review, remote audit, and interviews, VVB confirms that project has been implemented as described in the registered project description document.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team has checked all the reported data, emission factors, and default values used for the net GHG emission reduction calculations and cross-checked where necessary as described in detail in Section 4.1 of this
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	Verification Report. The verification team has also checked whether monitoring methods comply with the monitoring plan, No reporting risks have been identified for the data reported. Troubleshooting procedure, maintenance, and calibration of monitoring equipment, monitoring measurements and reporting, record handling and maintenance, reviewing monitored data are available at the plant. All the monitored data are archived electronically and in paper form. The data will be kept for the whole crediting period and five years after the last crediting period thereby meeting the requirement of the monitoring plan.
Conclusion	The formulae and the methods referred to in the MR and the emission reduction calculation spreadsheet comply with the methods described in the registered PDD. No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the verification team against basic monitored data and the GHG emission calculation is found to be correct and conservative. Eco Lance confirms that all assumptions, emission factors and default values have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report. Calculations applied formulae and method for calculation of GHG emission are in accordance with the registered monitoring plan and are in line with the requirements of VCS, the applied methodology and p. 372, p.373 of CDM VVS PA ver 3.0/01/.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk rating determined by the project proponent.

5 VERIFICATION OPINION

Our verification approach was based on the requirements as defined under the applicable VCS standards and relevant UNFCCC requirements. 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.

It is the responsibility of EPL to express an independent verification opinion about the project's conformity with the requirements of VCS standard, ISO 14064-3: 2019 and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by a remote assessment, EPL can confirm that:

- the project is implemented and operated as per the registered PD/04/;
 - the monitoring plan in the registered PD/04/ is as per the applied Methodology;
 - the monitoring complies with the monitoring plan in the registered PD/04/;
 - the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements;
 - the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
 - the monitoring system is in place and generates GHG emission reductions data;
 - the GHG emission reductions are calculated without material misstatements.
- There is an audit trail that contains the evidence and records that validate the stated figures.

Based on the information we have seen and evaluated, we confirm that the project activity achieved the verified number of reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the project activity.

Verification period: From 01/01/2022 to 31/12/2022 (start and end dates included)

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2022 (01-January-2022 - 31-December-2022)	251,421	0	0	251,421
Total	251,421	0	0	251,421

APPENDIX 1: DOCUMENTS REVIEWED

No.	Author	Title	References to the document
/01/	UNFCCC	CDM VVS for PA v3.0	09/09/2021
/02/	UNFCCC	ACM0002 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 19	31/08/2018
/03/	Verra	VCS Standard v4.4	17/01/2023
/04/	PP	VCS PD – version 2.1	20/11/2019
/05/	Blue World Carbon Asset Management	VCS MR – Version 2	11/04/2023
/06/	UNFCCC	Standardized baseline ASB0040-2018	07/10/2018
/07/	Blue World Carbon Asset Management	ER Calculation sheet Version 2.0	11/04/2023
/08/	ESKOM	Commissioning Certificates of wind power plant	31/10/2017
/09/	ESKOM	Monthly meter readings for the monitoring period • Raw data from tariff meters_De Aar 1	2022
/10/	PP	Tax invoices and Eskom's monthly reports for cross check of the meter readings • Eskom Payment Certificates • Longyuan Mulilo_Tax Invoices	2022
/11/	ESKOM	Power Purchase Agreement between PP (Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd) and electricity utility (ESKOM Holdings Soc Ltd)	-
/12/	Google Earth	GPS coordinates for Solar plant	-
/13/	PP	Site photographs of wind power plant and energy meters	2022
/14/	PP	Declaration for no double counting	20/11/2022
/15/	PP	Grievance Register	2022
/16/	PP	SDG contribution evidences	2022

APPENDIX 2: FINDINGS IN THIS VERIFICATION

CL from this verification

CL ID	01	Section no.	MR	Date: 05/04/2023
Description of CL				
Following documents are need to be submitted: 1. Calibration records 2. Commissioning certificates 3. PPA 4. Scan copy of Grievance register 5. Web link or report for the EF				
Project participant response				Date: 09/04/2023
Please find the supporting documents in the “Supporting documents after the DVR” folder. Regarding document 5: EF is fixed for the whole crediting period as reported in the VCS PD. Please refer to section 4.1 of the VCS PD. Source of date is ASB0040-2018, Table 1, page 5 (https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html)				
Documentation provided by project participant				
1. Calibration Certificates - De Aar 1.pdf 2. Eskom, Notice of Commencement of the Facility (Maanhaarberg – 96.48 MW), 30_10_2017 .pdf 3. Power Purchase Agreement between Longyuan Mulilo De Aar Wind Power (RF) (Pty) Ltd and Eskom Holdings SOC Ltd, 2014.pdf 4. Longyuan Mulilo De Aar Wind Power_Grievance Register.pdf 5. VCS PD_De Aar 1_02.1_20112019_clean.doc and ASB0040_2018_PSB0044.pdf				
DOE assessment				Date: 15/04/2023
Requested documents received. CL is closed				

CL ID	02	Section no.	1.9	Date: 05/04/2023
Description of CL				
What is the status with the CDM registration? How PP is sure that project will not be registered with CDM in future?				
Project participant response				Date: 09/04/2023
The project was seeking registration under the CDM programme, but the project registration was withdrawn. Please refer to the signed registration request withdrawal form.				
Documentation provided by project participant				
- Longyuan Mulilo_registration request withdrawal.pdf				

DOE assessment	Date: 15/04/2023
Withdrawal request form received. CL is closed	

CL ID	03	Section no.	2.1	Date: 05/04/2023
Description of CL				
Study or report which is basis of no net harm has to be submitted for the verification				
Project participant response				Date: 09/04/2023
Please find the supporting documents in the "Supporting documents after the DVR" folder.				
Documentation provided by project participant				
1. Environmental Authorization from the Department of Environmental Affairs, 15/08/2011.pdf				
2. Amendment to Environmental Authorization by the Department of Environmental Affairs, 24/10/2011.pdf				
3. De Aar 1 - Environmental Impact Assessment				
DOE assessment				Date: 15/04/2023
EIA report and approval received. CL is closed				

CL ID	04	Section no.	3.1	Date: 05/04/2023
Description of CL				
PP has to elaborate further the implementing status of the project as VCS standard guidelines.				
Project participant response				Date: 09/04/2023
Section 3.1 of the monitoring report was elaborated further.				
Documentation provided by project participant				
- Monitoring report version 02				
DOE assessment				Date: 15/04/2023
Revised MR received. CL is closed				

CARs from this verification

CAR ID	01	Section no.	1.4	Date: 05/04/2023
Description of CAR				
PP has to submit the documentary evidence for each SDGs contribution.				
Project participant response				Date: 09/04/2023
Please find the supporting documents in the "Supporting documents after the DVR" folder. SDG 6.1 does not have the current project contribution is a correct statement, no contribution was done in 2022				
Documentation provided by project participant				
1. SDG Report Information				
DOE assessment				Date: 15/04/2023
SDG report information submitted by PP. CAR is closed				

CAR ID	02	Section no.	4.2	Date: 05/04/2023
Description of CAR				
Calibration frequency of the energy meters are missing in the section.				
Project participant response				Date: 09/04/2023

The monitoring period is from 01/01/2022 to 31/12/2022. The energy meters were initially calibrated on 08/05/2017 and as per the PPA requirements calibration is not required unless difference between measurements at the Phiri Eskom 132Kv Switching Station and Maanhaarberg IPP Substation is more than 0.5%. For the current monitoring period it was less than 0.5% hence, calibration was not required.

The information on calibration frequency is provided in Section 4.2 of the Monitoring-Report.

Documentation provided by project participant

-

DOE assessment

Date: 15/04/2023

Revised MR received with calibration requirement. CAR is closed

APPENDIX 3: TEAM COMPETENCY



Shailendra Kewat

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert
	☒	☒	☒	☐	☒

Scopes Granted:

- Power Generation and Electric Power Transactions (Fossil fuel thermal/ Renewable energy non thermal)
- Energy Industries (Renewable/Non renewable sources)
- Energy Demand
- Waste handling and disposal

Version	DATE OF APPROVAL	VALIDITY
1	12 December 2022	11 December 2023

Authorized Signatory



Rekha Menon
Director- Technical

EPL/FR/5

ECOLANCE PRIVATE LIMITED

Version 1

Issued: 27-10-2021



Champok Buragohain

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert
	☒	☒	☒	☒	☒

Scopes Granted:

- Power Generation and Electric Power Transactions (Fossil fuel thermal/ Renewable energy non thermal)
- Energy Industries (Renewable/Non renewable sources)
- Energy Demand
- Waste handling and disposal

Version	DATE OF APPROVAL	VALIDITY
1	10 November 2021	09 November 2022
2	09 November 2022	08 November 2023

Authorized Signatory



Rekha Menon
Director- Technical

EPL/FR/5

ECOLANCE PRIVATE LIMITED

Version 1

Issued: 27-10-2021