

VALIDATION REPORT FOR LONGYUAN MULILO DE AAR 2 NORTH WIND ENERGY FACILITY



Document Prepared By Carbon Check (India) Pvt Ltd.

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Summary:

Blue World Carbon Asset Management Pty Ltd, herein after referred as BWC (One of the Project proponent), has appointed the validation/verification body Carbon Check (India) Private Ltd. herein after referred as CCIPL to perform validation of the project titled “Longyuan Mulilo De Aar 2 North Wind Energy Facility”, located at Pixley Ka Seme District close to the town of De Aar in the Northern Cape Province of the RSA, (hereafter “project activity”) with regard to the relevant requirements of VCS program guidelines and standard (VCS standard version 3.7, & VCS program guide version 3.7).

The purpose of this project activity is to generate clean form of electricity through renewable energy sources (Wind). Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd. and BWC are the project proponents of the project activity. The project activity involves installations of 96 number of WTG of 1.5 MW capacity each (aggregating to 144 MW) on the approximately 30 km northeast of the Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility of the town of De Aar in the Northern Cape Province of the RSA. The electricity generated from the project activity is sold to the national grid of the host country, RSA which is integrated into the grid of Southern African Power Pool (SAPP), where South Africa is represented by Eskom.

The purpose of a validation is to have a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions. CCIPL's objective is to perform a thorough, independent assessment of the validation of the project activity.

The validation scope is defined as an independent and objective review of the VCS PD. The validation team has employed a rule-based approach, focusing on the identification of significant risks for project implementation and the generation of GHG emission reductions. The PD is reviewed against the relevant criteria and guidance documents provided by VCS which included the following: VCS Program Guide, (version 3.7), VCS Standard, (version 3.7), Program Definitions, (version 3.7), Registration & Issuance Process, (version 3.8) and in line with the VCS Validation and Verification Manual, (version 3.2, 19 October 2016) applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring methodology, ACM0002, version 19.0 and also assess the claims and assumptions made in the PD without limitation on the information provided by the project participants.

The validation consisted of the following four phases: i) a desk review of the VCS PD and supportive documents/data/information ii) cross checks between the provided information in the VCS PD, provided supportive documents/data/information with all necessary means without limitations to the information provided by the project proponent iii) On-site Visit and follow up interview with relevant stakeholders cross checking information provided by the interviewed stakeholders; iv) the resolution of outstanding issues and internal technical review followed by the issuance of the final validation report and opinion.

In the course of the validation process 04 CARs, 09 CLs and 00 FARs were raised, all have been successfully closed. The list of Clarification and Corrective Actions Requests (CL and CAR) is presented in this report.

The VCS PD, IRR calculation and estimation of emissions reductions along with the supporting documents provided are considered to be in line with the VCS version 3 requirements /B01/. The verification team has detected no further uncertainties or quality restriction.

Carbon Check (India) Private Ltd. hereby confirms that:

- (i) the PA is in accordance with all relevant host country criteria (RSA) and VCS rules and requirements;
- (ii) the PA is in accordance with all conditions of the latest version of the applied methodology ACM0002, “Grid-connected electricity generation from renewable sources” version 19.0,
- (iii) the local stakeholder consultation has been performed in accordance with host country and VCS requirements
- (iv) the environmental assessment is appropriate and sufficient as per host country requirements
- (v) the monitoring plan is transparent and adequate
- (vi) all information has been consistently applied in the VCS PD.

The implementation of the project has been done as per the description in the VCS PD. CCIPL confirms a positive validation opinion confirming the project complies with the applicable VCS requirements, thus recommending the project for registration.

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1 INTRODUCTION

1.1 Objective

BWC has commissioned the validation/verification body CCIPL /18/ to perform validation of the project activity. The objective of the validation is to have an independent third party assessment of the VCS PD /01/ and supporting documentation on the basis of the VCS Program Guide, version 3.7 /B01.a/, VCS Standard, version 3.7 /B01.b/, VCS Program Definitions, version 3.7 /B01.c/, Registration & Issuance Process, version 3.8 /B01.d/ VCS Validation and Verification Manual, version 3.2 /B01.e/ and CDM approved methodology ACM0002, version 19.0 /B02/ This report contains the findings and resolutions from the validation of the project activity.

1.2 Scope and Criteria

The scope of validation and verification scope is defined as an independent and objective review of the VCS PD /01/ against the relevant criteria and decisions of the VCS, CDM including the approved baseline and monitoring methodology. CCIPL has employed a risk-based approach in the validation, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The validation is not meant to provide any consulting towards the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 Level of Assurance

The validation of the project activity aims to achieve a reasonable level of assurance.

1.4 Summary Description of the Project

The project activity is a wind power project, which comprises installations of 96 number of WTG of 1.5 MW capacity each (aggregating to 144 MW) at approximately 30 km northeast of the Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility of the town of De Aar in the Northern Cape Province of the RSA /10/.

The electricity generated by the project activity is sold to the national grid of the host country, RSA which is integrated into the grid of Southern African Power Pool (SAPP), where South Africa is represented by Eskom.

Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd. and BWC both are the project proponents of the project activity /03/, /10/, /18/.

The total estimated GHG emission reductions expected from the project activity are 4, 339,290 tCO₂e during the crediting years and average of 433,929 t CO₂e.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation includes a thorough and independent assessment of the proposed project activity against VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS, compliance with applicability conditions of applied baseline and monitoring methodology and host Party criteria and also assess the claims and assumptions

made in the PD without limitation on the information provided by the project participants. The overall validation was conducted using CCIPL’s internal procedures.

No sampling plan has been used to conduct validation of the project activity.

2.2 Document Review

The VCS project description, emission reduction calculation spread sheet and supporting documents related to the project design and baseline were reviewed as per VCS Standard, version 3.7 /B01/ requirements. The desk review included:

- A review of the data and information presented to assess its completeness and consistency in accordance with VCS version 3.0 requirements;
- A review of the project description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and baseline and additionality related requirements.
- A review of the monitoring plan and the project’s compliance with relevant VCS criteria.

Furthermore, the validation team used additional documentation by third parties like host-party legislation, technical reports referring to the project design or to the basic conditions and technical data.

A Complete list of documents/evidences reviewed is included in Appendix 3.

2.3 Interviews

A site visit to the project activity was undertaken from 27/09/2019 to confirm the information as outlined in the table below and to resolve issues identified in the document review. The site visit was conducted to assess the implementation and operation of the project activity and to review evidence, and interview key personnel to confirm evidence associated with the project design, implementation, plant operations, environmental impacts, stakeholders etc.

The key personnel interviewed and the main topics of the interviews are summarized in the table below:

	Date	Name	Organisation	Topic
/a/	27/09/2019	Bertus van Niekerk, Ilya Goryashin	Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd BWC	<ul style="list-style-type: none"> • Project Design, • Project Implementation status • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality • Qualification and Training • Plant Operations • Monitoring and reporting documentation

				<ul style="list-style-type: none"> • Quantification of emission reductions • Monitoring and measuring system • Monitoring parameters • Emission factor for the grid • Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Sustainability criteria • Compliance with relevant laws • Roles and responsibility • Observations of established practices
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2.4 Site Inspections

As a part of validation assessment, an on-site inspection was carried out by the assessment team to check the project design, and confirm that the project is implemented and operated as described in the PD. The project, site visit at wind farm located at approximately 30 km northeast of the Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility of the town of De Aar in the Northern Cape Province of the RSA was carried out on 27/09/2019. The following points have been assessed during the site visit at project site and PP’s office.

Implementation of the project, technical aspects and VCS aspects, environmental impacts, sustainable development, monitoring plan, additionality assessment, Management and operational system, roles and responsibility, training records of monitoring personals, data recording and archiving, calibration records, emergency preparedness procedures, local stakeholder’s consultation process, review of ER calculations, physical inspection of site, geographical coordinates of WTGs, assessment of supportive documents etc.

2.5 Resolution of Findings

The findings found during the assessment of desk review of documents, compliance with VCS version 3.0 requirements /B01/ and applied baseline and monitoring methodology /B02/, site visit and stakeholder’s interview has been summarised in this section.

The finding/material discrepancies identified during assessment has been addressed either as CAR or CL or FAR. The classification is as based as follows:

Sr. No.	Discrepancies identified during assessment	Addressed as
1	i. mistakes have been made with a direct influence on project results requiring adjustments of the VCUs monitoring report or will influence the ability of the project to achieve real, measurable additional emission reductions;	Corrective action request (CAR)

	<ul style="list-style-type: none"> ii. applicable methodological specific requirements have not been met. iii. The VCS requirements have not been met. iv. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR. 	
2	If additional information is needed to fully clarify an issue or where the information is not transparent/adequate enough to establish whether a requirement is met.	Clarification request (CL)
3	<ul style="list-style-type: none"> i. the identified risk in actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or ii. an adjustment of the MP is recommended for subsequent/next consecutive verification period 	Forward action request (FAR)

During the validation process, total 04 CARs and 09 CL were raised and resolved satisfactorily.

The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix 4 of this report.

2.5.1 Forward Action Requests

No Forward action requests have been raised during validation of the project activity.

3 VALIDATION FINDINGS

3.1 Project Details

Project type:

As per the project type defined by the UNFCCC and VCS standard version 3.7 Guidelines, the project activity is falls under type-I (Renewable energy projects) and the list of Sectoral scope 1 - Energy Industries (renewable/ non-renewable sources).

Technologies and measures implemented, and eligibility of the project:

The project activity is electricity generation using renewable energy source (wind). The wind turbine manufactured and supplied by United Power. The project activity consist of installation of 96 nos. of wind turbines (UP86 model) each of 1.5 MW capacity were employed by the project /05/,/10/. The details of the wind turbines are as follows.

Wind Turbine model	No. of wind turbines	Capacity (MW)
UP 86	96	144

The detailed technical specification of the turbines has been mentioned in the section 1.8 of the VCS PD/01/ and same has been further cross verified with the supplier's technical certificates/09/.

The annual electricity generated by the project activity of 144 MW total capacity is estimated P50 about 439,600 MWh and at P90 about 361,400 MWh /04/ is supplied to national grid of RSA which is integrated into the grid of Southern African Power Pool (SAPP), where South Africa is represented by Eskom.

For IRR calculation PP has used 361,400 MWh /year generation value based on P90 estimation/04/ which is used for securing finance from the banks; and P50 estimate/04/ value of 439,600 MWh/year for GHG emission reduction calculations.

Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd. and BWC both are the project proponents of the project activity.

The project activity start date is actual date of project commencement/commissioning from which project starts generating electricity and achieving emission reductions. The project activity was commissioned on 31/10/2017 at wind farm located at approximately 30 km northeast of the Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility of the town of De Aar in the Northern Cape Province of the RSA. This has been further cross checked with the Eskom's notice of commencement letter /08/. The defined start date for the project activity is found in line with the VCS Program Definitions/B01.c/,version 3.7

The project crediting period start date is 31/10/2017 and end date is 30/10/2027 The total crediting period is of 10 years for the project activity.

The estimated annual emission reductions for the project activity are 433,929 tCO₂e per year which is above than 300,000 tCO₂e per year. Hence the category is applicable under "Large Project", as defined in the VCS Program definitions/B01.c/,version 3.7.

The total estimated GHG emission reductions expected from the project activity are 4,339,290 tCO₂e during the crediting years and the estimated average emission reduction during the crediting period is 433,929 t CO₂e.

Project location-

The wind power project is located at approximately 30 km northeast of the Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility of the town of De Aar in the Northern Cape Province of the RSA:

Geo-coordinates of the project location are verified as:

Latitude- 30.538320 S,
Longitude- 24.262329 E

The project locations for all 96 wind turbines has been provided by PP same has been checked and further cross verified during site visit and found ok.

The project activity is Greenfield project. There was no project installed on the location prior to the commissioning of this project/04/,/05/.

The project is a voluntary initiative by the project proponent and has not been implemented to meet any local / national laws or regulatory compliances. The project activity is in compliance with current applicable laws and regulations of the host country and there are no legal and/or regulatory requirements that prevent the project implementation. Also the validation team has confirmed that there is no such compliance requirement with an emission trading program or any binding limits on GHG emissions for the project activity in RSA (host country) as it is a non-annex 1 country /16/. The project has obtained valid consents /06/, /07/, for the installation and operation from the concerned regulatory authorities in compliance with local laws and regulations. The same has been confirmed by reviewing VCS PD/01/ and interview during site visit.

PP has conducted environmental impact assessment for the project activity. Environmental clearances /06/,/07/ has been provided to the validation team.

Right of use

The project activity is owned by Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd. The ownership of the project activity is verified through the following documents:

- Notice of Commencement issued to PP by RSA's electricity utility/08/
- PPA signed with the concerned RSA's electricity utility /10/
- EPC contract issued by the PP to technology suppliers /03/

Emissions trading programs and other binding limits

The project is not participating in other emission trading programs or any other GHG program and has not sought or received any other form of environmental credit the same has been confirmed through the review of VCS PD/01/ and interview during the site visit. The letter of undertaking/16/ has been furnished by project participant confirming that 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. Further, the validation team has confirmed that there is no such compliance requirement with an emission trading program or any binding limits on GHG emissions as applicable under current Carbon Tax Bill for the project activity in RSA (host country)/23/.

Eligibility criteria for grouped projects

The project activity is not a grouped project, hence is not applicable to the project activity.

Leakage management for AFOLU projects commercially sensitive information

Project is not AFOLU project, thus leakage management is not applicable.

Commercially sensitive information

No commercially sensitive information has been excluded from the public version of the project description.

Sustainable development contribution:

In the VCS PD under section 1.13, PP has mentioned the sustainable development taking place due to the implementation of the project activity in terms of Environmental, Social, Economic and Technological wellbeing. This has been cross verified through the stakeholder's interview during site visit.

In view of the assessment of VCS PD /01/ and supporting documents as listed in Appendix 3 of this report, the validation team is able to confirm that the description contained in the VCS PD 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.

Thus, CCIPL confirms that the project description of the project contained in the VCS PD to be complete, accurate and it complies with the relevant forms and guidance for completing the VCS PD.

3.2 Application of Methodology

3.2.1 Title and Reference

The project activity has applied CDM approved methodology /B02/ ACM0002 version 19.0 titled, “Grid-connected electricity generation from renewable sources”.

Tools referenced in the applied methodology:

- “Tool to calculate the emission factor for an electricity system”, Version 07.0 /B03/
- “Tool for the demonstration and assessment of additionality”, Version 07.0 /B05/
- “Investment analysis”, version 09.0/B06/
- “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” ,Version 03.0 /B07/
- “Common Practice”, version 03.1 /B08/

3.2.2 Applicability

PP has used latest version on approved consolidated baseline and monitoring methodology ACM0002, version 19.0 /B02/ which is valid and applicable for the project activity. All applicability conditions has been completely included and justified in the VCS PD. The same has been confirmed by the validation team through document review and interview.

Applicability criteria as per methodology	Validation team assessment
<p>This methodology is applicable to grid-connected renewable energy power generation project activities that:</p> <p>(a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).</p>	<p>Project activity is Greenfield wind power project, supplying electricity to national grid of host country. This is verified thorough the PPA /10/ and notice of commencement /08/.</p> <p>Thus the criterion is fulfilled by the proposed project activity. This was confirmed by the validation team during the on site visit interview and review of various documents like VCS PD, EPC contract, on site visit and interview /01/, /03/. Hence the applicability criterion is met.</p>
<p>The methodology is applicable under the following conditions: (a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;</p> <p>(b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.</p>	<p>The project activity is the installation of a new wind power plant. This is confirmed through the EPC contract /03/ and notice of commencement /08/.</p> <p>Thus, the criterion (a) is applicable.</p> <p>The project is greenfield project, thus (b) is not applicable for the project activity.</p>
<p>In case of hydro power plants, one of the following conditions shall apply:</p>	<p>The project is wind power project; it is not a hydro Project. Thus all conditions related to</p>

<p>(a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or</p> <p>(b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (3), is greater than 4 W/m²; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m²; or</p> <p>(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m², all of the following conditions shall apply:</p> <ul style="list-style-type: none"> i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m²; ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: <ul style="list-style-type: none"> a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project. 	<p>hydro power plants are not applicable to the project activity.</p>
<p>In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or</p> <p>(b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.</p>	<p>The project is wind power project; it is not a hydro Project. Thus all conditions related to hydro power plants are not applicable to the project activity.</p>
<p>The methodology is not applicable to:</p> <p>(a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;</p>	<p>The project is greenfield wind power project. Thus this criteria is not applicable.</p>

(b) Biomass fired power plants/units.	
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”	The project is greenfield wind power project. Thus this criteria is not applicable.

As stated in the above table, it can be concluded that the selected baseline and monitoring methodology ACM0002, version 19.0 is applicable for the project activity.

The project also applied latest version following tools referred in the applied methodology.

- 1) “Tool to calculate the emission factor for an electricity system”, Version 07.0 /B03/

As justified in the section 2.2 of VCS PD /01/, as the project is implemented and supplying the generated electricity to the national grid of RSA. PP has not applied this tool, since ASB0040-2018: Standardized baseline “Grid emission factor for Southern African Power Pool” (Version 01.0) /B04/ is used to determine the value of the emission factor for an electricity system. The applicability has been confirm through document review and site visit interview. Thus, CCIPL confirms that PP has correctly applied the referred tool for grid emission factor calculation for the project activity.

- 2) “Tool for the demonstration and assessment of additionality”, Version 07.0 /B05/

This tool is applicable as per paragraph 8 of the tool itself and section 5.3.2 of applied baseline and monitoring methodology ACM0002, version 19.0 to demonstrate the additionality of the project activity. Thus, CCIPL confirms that PP has correctly applied the referred tool.

- 3) “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” ,Version 03.0 /B07/

This tool is applicable as per paragraph 6 (a) of the tool itself and paragraph 68 of applied baseline and monitoring methodology ACM0002, version 19.0 to determine baseline emissions from electricity consumption by the project activity. The project is Greenfield electricity generation using wind turbine and thus as per the applied methodology project and leakage emissions is equal to zero. Thus, grid emission factor of connected national grid is equal to the emission factor for the electricity consumption. Thus, CCIPL confirms that PP has correctly applied the referred tool.

- 4) Methodological tool: “Investment analysis” (Version 09.0)/B06/

As justified in the section 2.2 of VCS PD /01/,this tool is applicable as per paragraph 30 of “Tool for the demonstration and assessment of additionality”, Version 07.0 /B05/ since the project proponents demonstrate that the proposed project is not economically or financially feasible, without the revenue from the sale of carbon credits. Thus, CCIPL confirms that PP has correctly applied the referred tool.

- 5) Methodological tool: “Common practice” (Version 03.1)/B08/

As justified in the section 2.2 of VCS PD /01/, this tool is applicable as per paragraph 58 of “Tool for the demonstration and assessment of additionality”, Version 07.0 /B05/ since the project

proponents demonstrate that the proposed project is not common practice in the host country. Thus, CCIPL confirms that PP has correctly applied the referred tool.

3.2.3 Project Boundary

In the § 20 of the applied methodology, ACM0002, version 19.0 /B02/, the project boundary is defined as “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.”

The purpose of this project activity is to generate electricity using renewable sources (wind) and export it to national grid of RSA which is integrated in to grid of Southern African Power Pool (SAPP), where South Africa is represented by Eskom, thereby displacing the grid generated electricity.

The project boundary includes the wind power project, sub-stations, grid and all power plants connected to grid, which has been illustrated in the Section 2.3 of the VCS PD /01/ and gives clear understanding of the project boundary; thus, it is acceptable.

The consideration, by the PP, of only CO₂ gas for the baseline emissions is conservative and also in line with the methodology. The exclusion of CH₄ & N₂O in the baseline scenario is appropriate. The project activity involves the generation of electricity using wind energy. Hence, there are no project emissions associated with this project activity. Hence, the exclusion of CO₂, CH₄ & N₂O in the project scenario are appropriate. There are no other sources of project emissions. Hence, the project participant has considered the project emissions as zero for project activity; this is in line with the methodology. In addition to the table with justification for each GHG included or excluded, a diagram of the project boundary, showing the physical locations of the various installations as part of the project activity are included in the PD. The same has been confirmed during the site visit and is found to be appropriate.

The assessment team is able to conclude that the project boundary and selected sources are applied as per the methodology and the applicable VCS criteria.

3.2.4 Baseline Scenario

PP has determined baseline as defined in the § 22 of the applied baseline and monitoring methodology, “If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in “TOOL07: Tool to calculate the emission factor for an electricity system” /B03/

The project activity is greenfield wind power project supplying generated electricity to national grid of host country, RSA is integrated into the grid of Southern African Power Pool (SAPP) which otherwise would have been generated by operation of existing and addition of new power plants supplying electricity to SAPP grid. Since, the applied baseline and monitoring methodology ACM0002, version 19.0 /B02/ required to calculate grid emission factor for an electricity system, PP has applied, ASB0040-2018: Standardized baseline “Grid emission factor for Southern African Power Pool” (Version 01.0) /B04/. PP has mentioned the applicability criteria and justification in the section 2.2 of VCS PD/01/ and selected option for ex-ante operating margin and build margin values for the entire crediting period. The same has been checked and CCIPL confirm that the project activity complies with all applicability criteria of ASB0040-2018 /B04/. The scope of this standardized baseline covers the grid emission factor for SAPP.

In the applied ASB0040-2018, the ex-ante Combined margin CO₂ emission factor ($EF_{\text{grid, CM, y}}$) which remains fixed throughout the crediting period for interconnected electricity system of the SAPP for wind power project is 0.9871 tCO₂/MWh.

Based on the requirements of section 3.2.3 of the validation and verification manual version 3.2 /B01.e/, the validation team confirm t

- iii. (a) All the assumptions and data used by the PP are listed in the VCS PD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

3.2.5 **Additionality**

The proposed project activity is a large scale project and the additionality of the project activity was demonstrated by applying methodological tool, "Tool for the demonstration and assessment of the additionality", version 7.0 /B05/ as of the applied approved methodology ACM0002, version 19.0 /B02/ PP has adopted the step-wise approach for demonstrating and assessing the additionality of the project activity as follows:

- Step 0 Demonstration whether the proposed project activity is the first-of-its-kind;
- Step 1 Identification of alternatives to the project activity;
- Step 2 Investment analysis;
- Step 3 Barriers analysis; and
- Step 4 Common practice analysis.

a) Step 0 Demonstration whether the proposed project activity is the first-of-its-kind

The proposed project activity is not the first-of-its-kind. Hence not applicable.

b) Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity

The project activity involves the generation of renewable energy delivered to the grid using wind resources. The following alternative scenarios are identified:

- (i) The proposed project activity undertaken without being registered as a VCS project activity;
- (ii) Continuation of the current situation (no project activity or other alternatives undertaken), i.e., electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations

Having regard to the fact that the project activity under consideration is a wind power project, validation team is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- The implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- The applicable environmental regulations do not restrict the use of wind energy; and
- There is no legal requirement on the choice of a particular technology.

However, of the two alternatives identified, alternative (i) cannot be considered realistic as further analysis in the following paragraph reveals that it is not economically feasible option. Hence, alternative (ii) alone could be justified as realistic, credible and plausible alternative to the PP.

Validation team is, therefore, convinced that the project developer has taken into consideration all realistic and credible alternatives in accordance with the applied methodology including the project being undertaken as a non-VCS activity and continuation of current scenario. The identification of alternatives is in conformity with the guidance given by the tool Identify the method used by the applied methodology to demonstrate additionality.

Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above.

Sub-step 1b: Consistency with mandatory laws and regulations:

The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.(This sub-step does not consider national and local policies that do not have legally-binding status) Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- The implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- The applicable environmental regulations do not restrict the use of wind energy; and
- There is no legal requirement on the choice of a particular technology.

Moreover, Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and CDM EB's decisions on national and/or sectoral policies and regulations. However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity.

Step 2: Investment analysis

Sub-step 2a: Determine appropriate analysis method

Since wind farms generate benefits from the sale of electricity amongst the three options permitted by “Methodological tool: Tool for the demonstration and assessment of additionality” ,version 7.0.0”/B05/, –ption I - Simple Cost Analysis does not apply. Option II also does not apply since any investment alternatives exist, just the supply of electricity from a grid. Also in the

absence of the project activity grid electricity would have been the obvious choice for the project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity. Therefore, benchmark analysis (Option III) is used for the project activity.

Benchmark Selection:

PP has chosen to apply the benchmark analysis method and identified Project IRR as the most suitable financial indicator. Methodological tool: Tool for the demonstration and assessment of additionality”, version 7.0.0”/B05/ recommends a financial/economic indicator such as IRR for demonstrating the additionality using benchmark analysis.

CC IPL consider benchmark analysis and project IRR to be suitable indicator on account of the: (i) the project generates revenues from the sale of electricity, (ii) the alternative to the project activity is supply of electricity from the grid and (iii) Project IRR is one of the most commonly used financial indicator used to identify the financial attractiveness/unattractiveness of a project.

Accordingly, PP has chosen option (b) of § 38 of the “Methodological tool: Tool for the demonstration and assessment of additionality”, version 7.0.0”/B/05/ to derive the benchmark i.e. Commercial lending rate has been selected as benchmark for the project activity, which is in conformity with paragraph 15 of investment analysis tool/B06/ PP has selected prevailing commercial lending of 12.98% as benchmark/12/ for the project activity. (source: South African Reserve Bank, Quarterly Bulletin, June 2013, Statistic–I“Table - “Term lending rates and amounts paid out”by banks" (p. S-11).

CC IPL has verified the above benchmark and confirms that it was calculated in accordance with the best financial practice and correctly calculated.

Input Parameters

Parameter	Unit	Value	Assessment
Capacity of the wind farm	MW	144	The installed capacity of the project is 144 MW (96*1.5 MW). The project capacity has been cross checked with provided third party due diligence report/04/, EPC contract/03/, Eskom’s notice of commencement /08/, physical site visit and found ok.
Load factor of the wind farm (PLF)	Ratio	0.2865	PP has derived this PLF from estimated electricity generation of 361,400 MWh/year at P90 in the third party due diligence report/04/. Thus, CC IPL confirms that the PLF was determined by an official third party /04/ and thus complies with the requirements of Guidelines for the reporting and validation of plant load factors option (b). PP has submitted the financials with the same PLF to banks for securing finance for the project activity/01/. CL 9 was raised regarding electricity generation and successfully closed.

Parameter	Unit	Value	Assessment
Electricity tariff	ZAR/MWh	655.1	The tariff rate was not known/defined in the publically available documents at time of investment decision. Thus, PP has sourced electricity tariff value from the NERSA's decision on Eskom's Revenue Application for the Third Multi-Year Price Determination period 2013/14 to 2017/18, 28/02/2013 and Eskom's standard average electricity price /17/. Further, the commercial energy rate/tariff rate has not defined even in the PPA/10/. However, PP has carried out sensitivity analysis for this parameter and IRR will not meet the benchmark even with the highest tariff rate cap of ZAR 1,150/MWh. The same has been checked and found valid and applicable at the time of investment decision and thus acceptable.
Total investment cost	ZAR in million	2,605.588	The total investment cost breakup has been cross checked with provided third party due diligence report/04/, additional pre-project expenses (ZAR 221,011,880) and cost of financing and other expenses (ZAR 366,856,087) has been sourced from PP's board resolutions /11/. Further cross verified with EPC contract/03, interview during physical site visit and found consistent with IRR calculation spreadsheet/02/ and VCS PD/01/.
Debt/Equity ratio	Ratio	70/30	PP has sourced the debt/Equity ratio of 70:30 from Bloomberg New Energy Finance, Research note – Clean Energy/20/
Cost of debt	%	12.98%	PP has sourced the cost of debt from the prevailing lending rate in the host country at the time of investment decision /12/.
Repayment period	Years	15	PP has considered the repayment period, The World bank's typical minimum debt tenor for private sector financing for infrastructure investments.
Initial grace period	Years	1	PP has considered the initial grace period/moratorium period of 01 year which is found conservative and realistic as compare to the provided supportive (The World Bank, Debt Servicing Handbook, June 2009, page 24 The maximum grace period is 3 years). Since in the financial model the implementation of the project is expected to take within one year, moratorium has been assumed for construction period of 01 year only. The same has been found consistent with VCS PD /01/, IRR calculation spreadsheet /02/.
Operations and	ZAR/WTG	280,545	The O & M cost has been cross checked

Parameter	Unit	Value	Assessment
Maintenance (O&M) costs		(year 1-3) 469,177 (year 4 onwards)	with provided third party due diligence report/04/, EPC contract/03/ and found ok.
Escalation for tariff, O&M cost and administrative expenses	%	5.9	PP has considered this escalation as per prevailing inflation rate sourced from the South African Reserve Bank, Quarterly Bulletin, June 2013, CPI inflation the beginning of 2013. The same has checked for consistency and found reasonable.
Lease rent	ZAR /year	7,549,636	PP has sourced this land lease rent, insurance premium, social development fee from the board resolution /11/ note which was the considered for investment decision context. The same has been further cross verified through interview during site visit. The same has been checked and found ok.
Insurance premiums	ZAR /year	3,993,129	
Social Development fee	ZAR /year	8,639,910	
The useful lifetime of the project	Years	20	This has been cross checked with the provided wind turbine manufacture's (United Power) design certificate/09/. The same has been checked and found ok.
The period of assessment	Years	20	PP has considered the period of assessment till operating lifetime of the wind turbine. The same has been cross checked with turbine design certificate/09/. CCIPL confirms that the period of assessment considered for the project activity is in accordance with the applied additionality tool and investment analysis tool.
Depreciation rate (SLM) - I year - II year - III year	Ratio	0.50 0.30 0.20	PP has considered the depreciation rate in the IRR calculation spreadsheet consistent with the applicable host country's requirement/prevaling tax accounting practices for renewable energy projects. This has been cross verified with South African revenue service website /13/. CCIPL confirms that the considered depreciation rate is valid at the time of investment decision. .

Parameter	Unit	Value	Assessment
Salvage value - Land - Other assets	Percent	0 2	Land salvage value is not applicable since the wind farm owner is renting the land. The same has been cross verified through EPC contract/03/ interview during site visit and found ok. Further, PP has considered 2% of the turbine cost as salvage value for other assets which is found consistent with provided source [E.ON Energy Research Center, Repowering of Wind Turbines: Economics and Optimal Timing, November 2011, Table A.4 (2% = 28,500/1,382,531)]. Hence acceptable.
Income tax rate	%	28.00	PP has considered the income tax rate in the IRR calculation spreadsheet consistent with the applicable host country's requirement/prevaling tax accounting practices for renewable energy projects. This has been cross verified with South African revenue service website /21/. CCIPL confirms that the considered income tax rate is valid at the time of investment decision.

Sensitivity Analysis

Methodological Tool: Tool for the demonstration and assessment of additionality, version 7.0/B05/, requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developer has identified Investment cost, Generation and Electricity tariff, O & M cost and administrative cost as critical assumptions. As mentioned above, except O & M cost and administrative cost, rest are critical parameters constitute more than 20% of either total project costs or total project revenues. However, though O&M cost less than 20.00%, PP has done the sensitivity analysis for them as they account for substantial costs. The sensitivity analysis reveals that even under more favorable conditions, the IRR without CDM revenue would not cross the selected benchmark of 12.98% return as given in the following table:

Sensitivity Analysis	Project IRR				
	Variation %	-10%	Normal	10%	Breaching Value
Investment cost	9.40%	8.30%	8.30%	7.36%	-33.6%
Load factor or electricity tariff	6.95%	8.30%	8.30%	9.58%	+39% in load factor/electricity generation
O & M Cost	8.49%	8.30%	8.30%	8.10%	-264%

The result of sensitivity analysis shows that even with variation of +10% & -10% in the total Investment cost, Electricity Generation, Electricity Price and O & M cost, Project IRR is significantly lower than the benchmark of 12.98%. And it is evident from the results given above; the project remains additional even under the most favorable conditions.

Further, even with maximum tariff of ZAR 1,150/MWh under tender mechanism bidders will have to propose tariff which will fall under technology dependent cap for wind power project, the project IRR is well below the benchmark.

Validation team concludes that the result of the IRR comparison with the calculated benchmark, and of the sensitivity and breakeven point analysis without the benefits of the carbon revenue, the project activity is not the most financially attractive option for PP.

Barriers analysis;

Not applicable

Common Practice Analysis

The common practice analysis is proved by following points as per the requirement of Methodological tool “Common Practice”, version 03.1 /B08/:

Step 01 and Step 02 outcome:

Project activity is electricity generation using wind turbines and supply generated electricity to the national grid of RSA. PP has considered all wind power project with total capacity in the range of 72 MW to 216 MW in RSA for demonstration of common practice analysis. CCIPL checked the demonstration mentioned in the VCS PD, similar projects database on approved GHG mechanisms (CDM, VCS) and confirms that in line with §13 and §14 of above mentioned applied tools /B08/.

The start date of the concerned project activity /01/,/08/ is 31/10/2017. Therefore projects, which have started commercial operation before 31/10/2017 (PP has considered wind farm within the capacity range that located in South Africa and started commercial operation before 06/02/2015 i.e. date of EPC contract of the project activity) have been considered for analysis. Numbers of similar projects identified, which fulfil above-mentioned conditioned are given below in Table.

Project	Capacity	COD	CDM/non-CDM
Noblesfontein Wind Farm	75	2014	CDM
Dorper Wind Farm	100	2014	CDM
Red Cap Kouga Wind Farm	80	2014	CDM
Jeffreys Bay Wind Farm	138	2014	CDM
Cookhouse Wind Farm	140	2014	CDM

CCIPL has checked the Eskom website database /14/ and confirms that total 05 projects in same range are under operation.

Step 3: within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all}

Hence, $N_{all}=0$

Step 4: within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff}

$$N_{diff}=0$$

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria:

1. Energy Sources/Fuels- there are only one any different technology project considered out of similar identified projects.
2. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on these criteria, there is only one different technology project out of similar identified projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating N_{diff} projects.

$$N_{diff} = 0$$

Step (5): Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

$$\text{Calculate } F = 1-N_{diff}/N_{all}$$

$$F = 1-0/0 = 1$$

As per methodological tool “common practice” version 03.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 –nd $N_{all} - N_{diff}$ is greater than 3.

Thus if both conditions are fulfilled, then project activity will be a common practice otherwise, the project activity is treated as not a common practice.

Outcome of Common Practice analy:

As,

- iv. i. $F = 1$; which is greater than 0.2
- ii. $N_{all} - N_{diff} = 0$; is not greater than 3

Thus, the proposed project activity is not a “common practice” within a sector in the applicable geographical area.

The above discussions show that wind power development is not a common practice in host country Republic of South Africa and the project activity is not financially attractive; hence the project activity is additional.

3.2.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the § 42 of applied approved monitoring and baseline methodology ACM0002 (version 19.0)/B02/ and all other applied methodological tools are correctly quoted in the section 03 of VCS PD /01/. The emission reductions of the project would be estimated using the formulae mentioned in the applied methodology/B02/.

Validation team based on the review of the VCS PD /01/, confirms that the formulae are correctly presented for the determination of emissions reductions. The parameters and equations presented in the VCS PD /01/, as well as other applicable documents, have been compared with the information and requirements presented in the applied methodology /B01/. All formulae and equations mentioned in the VCS PD/01/ and ER estimation spreadsheet/02/ has also been checked with the applied methodology and methodological tool and found consistent/B01/.

PP has used P50 estimate/04/ value of 439,600 MWh/year for GHG emission reduction calculations which has been checked and found closer with actual generation value. Thus, validation team confirms that it does not result in an overestimation in the quantification of net GHG emission reductions.

Baseline Emissions:

The baseline emissions associated with the applied methodology are calculated as:

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y} \tag{1}$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

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

$EF_{grid, CM, y}$ = 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” (tCO₂e/MWh)

The value of the baseline electricity generation has been sourced from the third party report titled “Technical Due Diligence of the De Aar 2 North Wind Farm in South Africa” /04/. The estimation in the report is based on the total installed capacity of the project activity, yearly generation hour and plant load factor. The project activity involves installation of 144 MW grid connected wind turbines. This was checked for consistency with in third party report /04/, VCS PD /01/ and ER estimation spreadsheet/02/ and found ok.

Grid emission factor assessment:

The Greenfield wind power project supply generated electricity to the RSA grid which is integrated into the grid of Southern African Power Pool (SAPP). Thus, PP has applied, ASB0040-2018: Standardized baseline “Grid emission factor for Southern African Power Pool” (Version 01.0)”. PP has mentioned the applicability criteria and justification in the section 2.2 of VCS PD/01/ and selected option for ex-ante operating margin and build margin values for the entire crediting period. The same has been checked and CCIPL confirm that the project activity complies with all applicability criteria of ASB0040-2018 /B04/. The scope of this standardized baseline covers the grid emission factor for SAPP.

The value sourced from the applied tool/B04/ is 0.9871 tCO₂/MWh. The value will remain fixed throughout the crediting period for the project activity as opted by PP.

Estimation of Project Emissions:

As per § 34 of applied baseline and monitoring methodology, for most renewable energy power generation project activities, PE_y = 0. Except for the following:

- a) Emissions related to fossil fuel combustion for electricity generation in operation of geothermal and solar power project.

Emissions from water reservoirs of hydro power

- b) plants

The project activity is wind power project. Hence any conditions mentioned above are not applicable for the project activity. Thus, PE_y = 0.

Estimation of Leakage Emissions:

As per § 56 of applied baseline and monitoring methodology, ACM0002, version 19.0 /B02/, No other leakage emissions are considered.

Therefore, LE_y = 0.

Estimation of Emissions reductions:

As per § 57 and equation 17 of applied baseline and monitoring methodology, ACM0002, version 19.0 /B02/, emission reductions calculation is calculated as follows:

$$-R_y = BE_y - PE_y$$

- ER_y = Emission reductions in year y (t CO₂e/yr)
- BE_y = Baseline emissions in year y (t CO₂/yr)
- PE_y = Project emissions in year y (t CO₂e/yr)

As PE_y = 0, then ER_y = BE_y

The assessment team confirms that the applied methodology and the referenced tools have been applied correctly to estimate baseline emissions and net GHG emission reductions for the project in a year.

$$ER_y = 433,929 - 0$$

Thus,

$$ER_y = 433,929 \text{ tCO}_2 \text{ e}$$

Accordingly, total emission reductions estimated for the entire crediting period would be 4,339,290 tCO₂ e.

Based on the assessment of VCS PD/01/, ER estimation sheet/02/ validation team concludes the following:

- a) All assumptions and data used by the project participants are listed in the VCS PD, including their references and sources;

All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the

b) VCS PD;

All values used in the VCS PD and ER calculation spreadsheet are considered reasonable in the context of the proposed project a

c) ctivity;

The baseline methodology and corresponding tool(s) have been applied correctly to calculate project emissions, leakage emissions, baseline emissions and emission red

d) utions;

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the VCS PD and ER calculation spre

e) adsheet.

3.2.7 Monitoring Plan

According to the applied methodology, ACM0002, version 19.0/B02/, the only parameter to be monitored is the “Quantity of net electricity generation supplied by the project plant/unit to the grid in year y”. This parameter is directly monitored through the dedicated metering system installed at project site.

Quantity of net electricity generation supplied by the project plant/unit to the grid in year y, ($EG_{PJ,y}$) is being calculated as difference of Electricity exported and import from the grid by the project activity. This is being measured by energy meters of accuracy class 0.2s located at project site. The electricity export meter is backup with check meter. These export and import parameters are measured continuously and at least monthly recording. These energy meters will be calibrated as per the provisions in the section 12.6.7 of PPA/10/. The electricity measurement readings are cross-checked with check meter readings /01/. This is in line with methodology and is accepted.

The monitoring methodology applies consistently the choice of the option selected for monitoring of baseline emissions. The monitoring plan provide procedures for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period.

The project participant has ability to implement the monitoring plan. This is checked through discussion with consultant, the project participant and EPC contractor /03/ of the project activity during the actual physical site inspection to the project activity.

The electricity generation records are prepared and endorsed by RSA grid authority/utility and the PP has no influence in the entire procedure. Hence, the data issued by the RSA grid through the electricity generation report is deemed authentic.

During the site visit, it was further observed that, the project activity is connected to the grid through an appropriate power evacuation system. Appropriate metering system and calculation procedures are transparently described in the monitoring plan to enable accurate determination of emission reductions achieved by the project activity.

Conclusion:

The monitoring plan provide procedures for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period. The staffs at the sub-station and the representative of the technology providers were also interviewed to verify the accuracy in the documents. This has been checked during the site visit and is found to be acceptable.

The final VCSPD /01/ has been reviewed to check that the procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mention in the PD. The monitoring plan completely describes all measures to be implemented for monitoring all parameters required. Based on the above the validation team confirms that:

- 1) The monitoring plan included in the VCS PD is based on the baseline methodology ACM0002 version 19.0.0 which has been applied to the proposed VCS project activity

The monitoring arrangements described in the monitoring plan are feasible within the project

- 2) design.

The PP has the ability to implement the monitoring plan as per the

- 3) VCS PD.

3.3 Non-Permanence Risk Analysis

No non-permanence risk has been identified for the project activity.

4 SAFEGUARDS

4.1 No Net Harm

No negative environmental and socio-economic impacts due to project activity have been identified.

4.2 Environmental Impact

The Environmental Impact Assessment (EIA) of the proposed project was carried out in accordance with the South African legislation /B10/ (National Environmental Management Act 1998 and EIA Regulation 2010). PP has completed the EIA and process the Environmental Impact Report (EIR) as per the EIA Regulation, 2010 requirements. Department of Environmental affairs has issued the environmental authorisation /06/ on 15/08/2011 and its amendment /07/ was issued on 24/10/2011.

The project activity is generation of electricity using wind turbine generators. PP has not identified any significant negative environmental impact due to project activity.

The positive impacts from the project activity were identified that it will lead to the socio economic development of the area by creating employment opportunity to local people, improved infrastructure facilities (like road, power supply etc) leading to improve the livelihood during construction and operation phase of the project activity. However, there are some negative impacts like change in land use, vibration landscape and visual chance, noise, dust, ecological impact during different stages of project activity.

The validation team reviewed the above listed environmental authorisation/06/, /07/issued by Department of Environmental Affairs, Republic of South Africa and further confirm the above environmental impact, implementation of the environmental management plan during the actual site visit and conclude that project complies with environmental regulations of the host country, RSA.

4.3 Local Stakeholder Consultation

In the section 5.3 of VCS PD, PP has mentioned the detailed procedure followed for local stakeholder consultation for the project activity. PP has appointed DJ Environmental Consultants/01/, /22/ to undertake the Scoping and Environmental Impact Assessment and associated Public Participation Process (PPP) in terms of the NEMA EIA Regulations and VCS requirement. The local stakeholders (Interested and Affected Parties) has been informed and requested to register themselves in project database via advertisement/notice published in local news paper Echo and Die Volksblad on 04 November 2011 /19.a/. All local stakeholders (I & APs) who registered were sent a copy of the Background Information Document. Then, findings on Draft Scoping Report (DSR) /19.b/ was made was presented and discussed on 30 November 2011. I & APs has been informed to submit their comments on DAR till 09 January 2012. The Final Scoping Report (FSR) was made available to the public for review and comments/22/ until 07 February 2012. PP had not received any comment neither from the Organs of the state nor from the local stakeholders on the project.

During the site visit, validation team has interview some of the stakeholders who attended the earlier stakeholder consultation meeting. Based on the responses received during the interview, the validation team was confirms that the stakeholder consultation was carried out as per the process mentioned in the VCS PD/02/ and annexure B of EIA report /22/. The stakeholder consultation has been carried out inline with VCS requirement, host country requirements and no negative comments have been received from the local stakeholders on the project activity.

4.4 Public Comments

The VCS PD has been listed on VCS registry for public comment for 30 days during 25/09/2019 to 25/10/2019. The same has been verified from the VCS registry webpage weblink: https://www.vcsprojectdatabase.org/#/pipeline_details/PL1950

No comments have been received during the public comment period.

5 VALIDATION CONCLUSION

PP has contracted CCIPL, to perform independent validation of the project activity titled "Longyuan Mulilo De Aar 2 North Wind Energy Facility". This report summarizes the findings of the validation of the project, performed on the basis of VCS version 3 criteria, applied approved baseline and monitoring methodology ACM0002, version 19.0 which is an approved methodology under the CDM programme and is acceptable under VCS requirements version 3, VCS PD and ER calculation sheet.

The purpose of this project activity is to generate electricity using renewable sources (wind) and being supplied to the national grid of RSA which is integrated into the grid of Southern African Power Pool (SAPP), where South Africa is represented by Eskom.

The baseline has been determined in accordance with the stated approved baseline methodology.

As summary the validation team able to conclude that:

The project is in line with all relevant host country criteria (Republic of South Africa) and all relevant VCS version 3 program guidelines requirements including those specified in the Project Standard, relevant methodologies, tools and guidelines.

- The project additionality is sufficiently justified in the joint VCS PD.

The monitoring plan is transparent and adequate and in line with applied baseline and monitoring methodology of ACM0002, versi

- on 19.0.

The calculation of the project emission reductions is carried out in a transparent, reliable and conservative manner, so that the calculated average emission reductions of 433,929 tCO₂e/year is most likely to be achieved within the opted crediting period of 1

- 0 years.

The project has completed the environmental impact assessment which is found appropriate and suf

- ficient.

All information is consistent applied in the VCS PD and the project is implemented as per the description in the

- VCS PD.

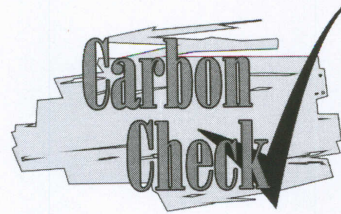
The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation as outlined under VCS ve

- rsion 3.

APPENDIX 1: ABBREVIATIONS

Abbreviations	Full Texts
BE	Baseline Emission
BWC	Blue World Carbon Asset Management (Pty) Ltd
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DR	Document Review
EA	Environmental Authorization
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement, and Construction
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas
GPS	Global Positioning System
I	Interview
IPCC	Intergovernmental Panel on Climate Change
kW	Kilo Watt
kWh	Kilo Watt Hours
LSC	Local Stakeholder Consultation
MW	Mega Watt
MWh	Mega Watt Hours
NEMA	National Environmental Management Act
NERSA	National Energy Regulator of South Africa
OSV	On Site Visit
PE	Project Emission
PP	Project Participant
RSA	Republic of South Africa
t	Tonne
VVS	Validation and Verification Standard
VCS	Verified Carbon Standard

APPENDIX 2: CERTIFICATES OF COMPETENCE



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 Expert¹

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
24/12/2018

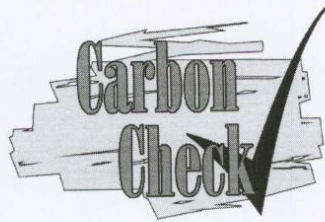
Valid Till
23/12/2019

Revision History of the Document

Date	Description
26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision

¹ India, South Africa

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 Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
 Corporate off: G 49 & 50, 3rd Floor, Sector - 3, NOIDA (Uttar Pradesh) - 201301
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Carbon Check (India) Private Ltd.

Tushar Eknath Choudhari

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator Team Leader Technical reviewer
 Verifier Technical Expert Local Expert¹

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. Vikash Kumar Singh
 Compliance Officer

Mr. Amit Anand
 CEO

Date of Approval
 24/12/2018

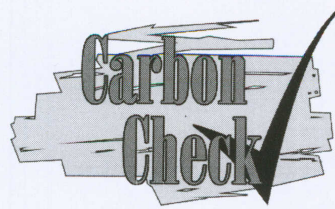
Valid Till
 23/12/2019

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

¹ India

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Carbon Check (India) Private Ltd.

Sanjay Agarwalla

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APPENDIX 3: REFERENCE/SUPPORTIVE DOCUMENTS

Sr. No.	List of pertinent documents
/01/	1) VCS PD, version 01, dated 11/09/2019 2) VCS PD, version 02, dated 26/10/2019
/02/	IRR calculation and Emission reduction estimation spreadsheets corresponding to /01/
/03/	Engineering, Procurement and Construction (EPC) Contract for the project activity signed between PP (Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd.) and EPC contractor (Longyuan Engineering South Africa Pty Ltd.) dated 06/02/2015
/04/	Garrad Hassan's, Technical Due Diligence of the De Aar 2 North Wind Farm in South Africa, dated 26/07/2013
/05/	"Wind Turbine Site suitability Analysis for the De Aar Wind Project Phase II(North District), South Africa" Report prepared by United Power Technology company Ltd.
/06/	Environmental authorization for the project letter issued by Department of Environmental Affairs, Republic of South Africa dated 15/08/2011
/07/	Amendment to the earlier issued letter of Environmental authorization for the project letter issued by Department of Environmental Affairs, Republic of South Africa dated 24/10/2011
/08/	ESKOM's letter dated 30/10/2017, Notice of commencement of the facility on 31/10/2017 (proof of start date of project)
/09/	Evidence for the Technical specifications of the project (UP 86 Design Certificate by wind turbine manufacturer- United Power)
/10/	Power Purchase Agreement between PP (Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd.) and electricity utility (ESKOM Holdings Soc Ltd)
/11/	LMDA's Board Resolutions for investment decision and for various assumption values for IRR calculation
/12/	South African Reserve Bank, Quarterly Bulletin, June 2013, Statistic–I"Table - "Term lending rates and amounts paid out"by banks" (page S-11)
/13/	Depreciation rate (SLM): Income Tax Act of South Africa http://www.saica.co.za/integritax/2011/1927_Renewable_energy_incentives.htm
/14/	Eskom, List of fact sheets, Statistical table 2, 31/03/2015 (Refer for Eskom's power stations) http://www.eskom.co.za/IR2015/Documents/Eskom_fact_sheets_2015.pdf ; and Eskom, Bid Window 1 preferred bidders http://www.eskom.co.za/Whatweredoing/Pages/RE_IPP_Procurement_Programme.aspx
/15/	Electricity meter technical specification and ESKOM's metering functional application guide for IPP for project activity
/16/	Board resolution by Project proponent on the following (for section 1.12 of the VCS PD): Project has never been registered or under process of registration in any other Emissions Trading Programs or any other mechanism that included GHG allowance trading.
/17/	NERSA's decision on Eskom's Revenue Application for the Third Multi-Year Price Determination period 2013/14 to 2017/18, page 2, 28/02/2013
/18/	Validation contract signed between CCIPL and BWC
/19/	Local stakeholders consultation supportive documents a) Invitation public notice/letters advertisement/notice published in local news paper Echo and Die Volksblad on 4 November 2011, project's background information note, attendance sheet, photographs etc. b) Draft Scoping report (DSR)
/20/	Debt/Equity ratio: Bloomberg New Energy Finance, Research note – Clean Energy http://www.energy.gov.za/IPP/BNEF_RN_Southafrica_2011_09_15.pdf
/21/	South African revenue service: http://www.sars.gov.za/
/22/	EIA report by Environmental Consultants for the project activity.

/23/	Carbon Tax Bill, Republic of South Africa, Minister of Finance
/B01/	<p>VCS Requirements:</p> <ul style="list-style-type: none"> a) Verified Carbon Standard Program Guide, version 3.7; b) Verified Carbon Standard, version 3.7; c) VCS Program Definitions, version 3.7 d) VCS Registration and Issuance Process, version 3.8 e) VCS Validation and Verification Manual, version 3.2 f) VCS Project Description Template, version 3.3 <p>CDM Requirements:</p> <ul style="list-style-type: none"> g) CDM Project standard for project activities, version 2.0 h) CDM Validation and verification standard for project activities, version 2.0
/B02/	Approved CDM monitoring methodology: ACM0002: “Grid-connected electricity generation from renewable sources”, version 19.0
/B03/	Tool to calculate the emission factor for an electricity system, version 07.0
/B04/	ASB0040-2018: Standardized baseline “Grid emission factor for Southern African Power Pool” (version 01.0)
/B05/	Methodological Tool: Tool for the demonstration and assessment of additionality, version 7.0
/B06/	“Investment analysis”, version 09.0
/B07/	Methodological Tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0
/B08/	Methodological tool “Common Practice”, version 03.1
/B09/	Tool to determine the remaining lifetime of equipment”, version 01
/B10/	National Environmental Management Act 1998 and EIA Regulation 2010

APPENDIX 4: FINDINGS/OBSERVATIONS TABLE
Table 1. CL from this validation

CL ID	01	Section no.	Section 1.1, 1.5 of VCS PD	Date: 04/10/2019
Description of CL				
<ol style="list-style-type: none"> 1) PP has mentioned the annual average of the GHG emission reductions as 433,929 tCO₂e. However, PP is requested to check and correct the same throughout the VCS PD for the crediting period. 2) PP has provided Notice of Commencement of the Facility issued by ESKOM. However, PP is requested to provide commencement certificate issued by ESKOM to assess the commissioning date and unique ID for all wind turbine in the project activity. 				
Project participant response				Date: 10/10/2019
<ol style="list-style-type: none"> 1) PP has corrected the calculation of GHG emission reductions through the VCS PD. Please also refer to the response to CL09 2) Notice of Commencement of the Facility issued by ESKOM is commencement certificate issued by ESKOM. The unique as build GHG coordinates of the wind turbines were provided in the updated VSC PD 				
Documentation provided by project participant				
Revised VCS PD Unique build Geo-coordinates excel sheet				
DOE assessment				Date: 16/10/2019
<ol style="list-style-type: none"> 1) PP has now revised the estimation of GHG emission reductions based on the P50 electricity generation value of 439,600 MWh/year as mentioned in the third party technical due diligence study report for the project activity. Thus, the resultant estimation of GHG emission reductions is defined throughout the VCS PD is 433,929 tCO₂e. The revised VCS PD, estimation of GHG emission reductions sheet has been checked and found ok. Thus, CL 01.1 has been closed. 2) PP has now provided justification that Notice of Commencement of the Facility issued by ESKOM, is the commencement certificate for the project activity. Further, PP has also provided unique build geo coordinates for each wind turbine in the project activity. The same has been checked and found ok. Thus, CL 01.2 has been closed. 				
CL ID	02	Section no.	Section 1.8 of VCS PD	Date: 04/10/2019
Description of CL				
<ol style="list-style-type: none"> 1. PP is requested to incorporate precise reference (paragraph no., page no) to the referred/provided supportive documents either for mentioned justification or sourced input values/parameters throughout the VCS PD. 2. PP is also requested to provide supportive document with precise reference as referred in the footnote no. 11 of the VCS PD. 3. In the section 1.8 of VCS PD, PP has mentioned technical specification of the wind turbine. However, the mentioned technical specification is not consistent with the provided turbine certificates. 				
Project participant response				Date: 10/10/2019
<ol style="list-style-type: none"> 1. PP has incorporated the precise references accordingly throughout the VCS PD 2. Please refer to "AECOM, De Aar 2 North Wind Farm, Environmental Exclusion Zones, 13/06/2017.pdf". The layout clearly defines the location of all turbines. 3. The reference to the turbine certificate was corrected. The precise reference was given. The VCS PD was updated accordingly. 				
Documentation provided by project participant				
Revised VCS PD Wind farm site layout				
DOE assessment				Date: 16/10/2019

1. PP has now incorporate precise reference to all referred documents and footnotes in the revised VCS PD. The same has been checked and found ok. Thus, CL 02.1 has been closed.
2. PP has now provided revised legible supportive document for wind farm layout clearly indicating all 67 wind turbines of the project activity and ecological sensitive places, ESKOM's and site infrastructures, contours, water crossing etc. PP has also provide UP 86 model design certificate and EPC contract to support the statement referred in the revised VCS PD. Thus, CL 02.2 has been closed.
3. PP has now incorporated precise reference for referred technical specification of the WTG model and now technical specification mentioned in the section 1.8 of revised VCS PD are found consistent with the referred UP86 model design certificate. The same has been checked and found ok. Thus, CL 02.3 has been closed.

CL ID	03	Section no.	Section 1.9, 1.12.1, 1.12.2, 1.13 of VCS PD	Date: 04/10/2019
Description of CL				
<ol style="list-style-type: none"> 1. In the section 1.9 of VCS PD, PP has mentioned the geo coordinates and turbine ID for each WTG, however the geo coordinates and turbine ID mentioned on the page 70 of the PPA and supportive excel sheet is not consistent. Further, PP is requested to provide supportive document for the unique turbine ID for all WTG mentioned in the VCS PD. 2. In the section 1.12.1, the justification provided to demonstrate project ownership is inadequate. PP is requested to incorporate the adequate justification and mention/list reference of supportive documents for the same. 3. PP is requested to provide the supportive document for the information mentioned in the section 1.12.2 of the VCS PD. 				
Project participant response				Date: 10/10/2019
<ol style="list-style-type: none"> 1. The VCS PD was corrected. Correct as built wind turbine coordinates were provided. Please refer to confirmation email from the project owner "PP confirmation email - Final as built turbine coordinates.eml" with attached supporting documents. 2. The appropriate references have been inserted into the VSC PD. Please refer to Environmental Authorization by the Department of Environmental Affairs, page 1, 10/06/2013, and Power Purchase Agreement between Longyuan Mulilo De Aar 2 North (RF) (Pty) Ltd and Eskom Holdings SOC Ltd, 2014 3. Please refer to the declaration signed by the PP 				
Documentation provided by project participant				
Revised VCS PD Board resolution supporting declaration by PP				
DOE assessment				Date: 16/10/2019
<ol style="list-style-type: none"> 1. PP has now mentioned corrected, precise geo coordinates in the section 1.9 of the revised VCS PD. Further, PP has now provided referred supportive email communication and excel sheet for the mentioned geo coordinates for each wind turbine in the project activity. The same has been checked and found consistent. Thus, CL 03.1 has been closed. 2. PP has now incorporated justification reference footnote for the project ownership under section 1.12.1 of the revised VCS PD. The referred environmental authorization, power purchase agreement and EPC contract has been checked and found that name of project owner is consistent with defined project ownership entity. Thus, CL 03.2 has been closed. 3. PP has now provided the board resolution to support the claim that, "...project has never been included in an emissions trading program or any other mechanism that includes GHG allowance trading". The same has been checked and found ok. Thus, CL 03.3 has been closed. 				

CL ID	04	Section no.	Section 2.1, 2.2 of VCS PD	Date: 04/10/2019
Description of CL				
PP is requested to clarify the following <ol style="list-style-type: none"> 1) The list of tools referred by the applied methodology ACM0002, version 19.0 in the section 2.1 is not consistent with the section 2.2. 2) The applicability criteria/conditions mentioned in the point no. 5,6,7 under table 2.1 is incomplete. 				

Project participant response	Date: 10/10/2019
<ol style="list-style-type: none"> Only applicable tools are listed in Section 2.1. Table 2.1 was corrected accordingly 	
Documentation provided by project participant	
Revised VCS PD	
DOE assessment	Date: 16/10/2019
<ol style="list-style-type: none"> PP has now mentioned list of applied methodological tool for the project activity in the section 2.1 and section 2.2 of the revised VCS PD. The same has been checked and found consistent. Thus, CL 04.1 has been closed. PP has now incorporated complete applicability criteria/conditions in the table 2.1 under section 2.2 of the revised VCS PD. The same has been checked and found consistent with the applied methodology ACM0002, version 19. Thus, CL 04.2 has been closed. 	

CL ID	05	Section no.	Section 2.5 of VCS PD & IRR sheet	Date: 04/10/2019
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Description of CL				
<ol style="list-style-type: none"> In the section 2.5, the mentioned step 1 of the referred tool is incomplete. Further, PP has demonstrated project additionality as investment analysis approach. However, PP is requested to provide all supportive information/documents and precise reference for all the input values considered for investment analysis (IRR calculation spreadsheet). Moreover, PP is requested to clarify the basis/background supportive information for the values sourced from board resolution. Further PP is also requested to provide copy of referred board resolutions for the assessment. PP is requested to clarify as the project was already commissioned on 31/10/2017, why the actual values of critical assumptions/parameters has not been referred/mentioned in the justification of sensitivity analysis. PP is also requested to clarify why the common practice analysis has been restricted to year 2015, as the project activity start date was of 31/10/2017. Further, PP is also requested to provide supportive documents/information to cross verify the information mentioned to demonstrate the common practice in the VCS PD. 				

Project participant response	Date: 10/10/2019
<ol style="list-style-type: none"> Step 1 was completed in accordance with paragraph 8 of the Tool. "Project activities that apply this tool in context of approved consolidated methodology ACM0002, only need to identify that there is at least one credible and feasible alternative that would be more attractive than the proposed project activity.". Such alternative was identified: "(b) Continuation of the current situation (no project activity undertaken)". The precise references were added. Also the title of Step 1 was corrected. Please refer to the updated VCS PD and IRR calculation Please refer to the Board resolution attached. The VCS PD was corrected accordingly Despite the fact that the project was already implemented, the investment analysis is done based on the assumptions available at the point of decision making – August 2013. In addition, the Sensitivity analysis was further elaborated to include the actual PLF archived during the first year of operation. The project remains additional. The Common Practises analysis was done as per requirements of Guidelines on Common Practice (Version 02.0) which mandate to consider the projects which started commercial operation before the project design document(CDM-PDD) is published for global stakeholder consultation or before the CDM start date of proposed project activity, whichever is earlier. The CDM start date is the date on which the project participants commit to making expenditure for the construction or modification of the main equipment or facility (e.g. a wind turbine), CDM-EB07-A04-GLOS, Version 10, page 20. For this project the date when the EPC contract was signed is 06/02/2015. This explains why the analysis has been restricted to year 2015. References to the supporting documents have been provided in the updated VCS PD. 	

Documentation provided by project participant			
Revised VCS PD Board resolution for input values of critical assumptions (Pre-operative expenses, interest during construction, rent of land during operation period, insurance premium, social development fee)			
DOE assessment			Date: 16/10/2019
<ol style="list-style-type: none"> 1. PP has now incorporated complete title of the step 1 of additionality tool in the section 2.5 of revised VCS PD. PP has opted benchmark analysis to demonstrate the additionality of the project activity in the section 2.5 of the VCS PD. PP has now selected Project IRR as a suitable financial indicator and commercial lending rate as benchmark for the project activity. The supportive documents for all input values /assumptions for IRR calculation spreadsheet like electricity generation, project cost, electricity tariff, Cost of transportation of electricity to consumer, Administrative expenses, depreciation, income tax has been provided for assessment. Further, PP has used P90 value of electricity generation for IRR calculation as the same has been submitted to bank for securing finance. However, for estimation of GHG emission reductions, PP has used P50 values for realistic estimation, it is closer to the actual generation achieved by the project activity. Hence acceptable and not leads to over estimation of GHG emission reductions. Moreover, the input values have been mentioned in the revised VCS PD are found consistent with IRR calculation spreadsheet. Thus, CL 05.1 has been closed. 2. PP has now provided board resolution copy for following input values/assumptions considered for IRR calculation of the project activity. Pre-operative expenses, interest during construction, rent of land during operation period, insurance premium, social development fee. The same has been checked and found that consistent values has been mentioned in IRR sheet and revised VCS PD. Thus, CL 05.2 has been closed. 3. PP has now incorporated sensitivity analysis justification with respect to actual values for critical parameters/input values in the section 2.5 of VCS PD. The same has been checked with provided supportive document and found ok. Thus, CL 05.3 has been closed 4. PP has now provided supportive database, weblink and incorporated existing projects in RSA information under section 2.5 to demonstrate common practice analysis. The same has been checked and found consistent. Thus, CL 05.3 has been closed 			
CL ID	06	Section no.	Section 4.1, 4.2, 4.3 of VCS PD
Description of CL			
<ol style="list-style-type: none"> 1) The formula notation for the data/parameter mentioned In the section 4.1, is not consistent with the referred tool of applied methodology. 2) In the section 4.2, PP has mentioned the information on $EG_{P,y}$ is in adequate with respect VCS PD template guidelines for following heading. <ol style="list-style-type: none"> a) PP is requested to incorporate more detailed, precise and reliable information on records of delivered electricity under source of data for monitored parameter. b) The description on measurement methods and procedure, person and entity responsible for measurement, relevant information on accuracy of measurements. c) Recording frequency has not been specified. d) In the value applied heading the end date of crediting period is mentioned as 30/11/2018. e) QA/QC procedure:records for sold/purchased electricity, please elaborate/define the document. f) Further, the supportive document for referred footnote no. 28 has not been provided for the assessment. g) Calculation method 			
Project participant response			Date: 10/10/2019
<ol style="list-style-type: none"> 1. The section 4.1 was corrected 2. The section 4.2 was corrected accordingly 			
Documentation provided by project participant			
Revised VCS PD			

DOE assessment	Date: 16/10/2019
<ol style="list-style-type: none"> 1) PP has now mentioned the formula notation for data/parameter in the section 4.1 of revised VCS PD. The same has been checked and found consistent with the applied methodology and methodological tool. Thus, CL 06.1 has been closed. 2) PP has now incorporated information on $EG_{PJ,y}$ monitoring parameter for all observations from a) to g) and also revised end date of crediting period as 30/10/2027 in the section 4.2 of revised VCS PD. The same has been checked and found inline with VCS PD template guidelines for the section 4.2 of VCS PD. Thus, CL 06.2 has been closed. 	

CL ID	07	Section no.	Section 4.3 of VCS PD	Date: 04/10/2019
Description of CL				
In the section 4.3, under data monitored and sources heading PP is requested to mention the actual project monitoring scenario/practice following by PP as project is already implemented. Further, PP has mentioned that, "... the source of data for calculation of GHG emission reductions... shall be internal reports of wind farms". Thus, PP is requested to clarify how the internal reports of wind farm are more reliable, authentic than records for delivered electricity to RSA grid.				
Project participant response				Date: 10/10/2019
Section 4.3 was corrected accordingly				
Documentation provided by project participant				
Revised VCS PD				
DOE assessment				Date: 16/10/2019
The information on monitoring plan has been updated with actual monitoring plan implemented on site. Further, PP has now incorporated the authentic source (i.e. records for delivered electricity to RSA grid) for the data/parameter under data monitored and sources in the section 4.3 of revised VCS PD. The same has been checked and found ok. Thus, CL 07 has been closed.				

CL ID	08	Section no.	Section 5 of VCS PD	Date: 04/10/2019
Description of CL				
<ol style="list-style-type: none"> 1) In the section 5.1, PP has mentioned that "The proposed project activity has no significant impact on the environment...", PP is requested to clarify the statement. Further, PP is requested to define mitigation measures adopted for all the mentioned impacts in the section 5.1. 2) PP is requested to provide supportive document for EIA carried out for the project activity. 3) PP is also requested to provide supportive documents regarding the local stakeholders consultation process and activities mentioned in the table 5.1 4) Further, PP is requested to clarify the period of public comment in the section 5.4 of VCS PD. 				
Project participant response				Date: 10/10/2019
<ol style="list-style-type: none"> 1. The confusing statement was removed from the VCS PD. Proposed mitigation options were inserted. 2. The EIA Report is sent to the Carbon Check for review. 3. Please refer to EIA Report Annexure B Public Participation Process 4. The clarifications was inserted. 				
Documentation provided by project participant				
Revised VCS PD EIA report				
DOE assessment				Date: 16/10/2019

1. PP has now mentioned the clear statements in the revised VCS PD. The same has been checked and found consistent with the provided EIA report. Thus, CL 08.1 has been closed.
2. The provided EIA report for the project activity has been checked and found ok. Thus, CL 08.2 has been closed.
3. The referred EIA report chapter 4 titled “Public Participation” has been checked and confirms that the public participation/ local stakeholders consultation has been completed for the project in line with the existing host country regulatory requirements. Further, the dates of stages for public consultation process mentioned in the section 5.1 of revised VCS PD are found consistent with the provided Annexure B of EIA report. Thus, CL 8.3 has been closed.
4. PP has now incorporated period for which project was listed on VCS registry portal for public comments in the section 5.4 of revised VCS PD. The same has been confirmed from VCS registry database. Thus, CL 08.4 has been closed.

CL ID	09	Section no.	Section 5 of VCS PD	Date: 04/10/2019
Description of CL				
PP is requested to justify the Plant Load Factor (PLF) considered for the emission reduction calculation while doing so please provide a summary of PLF achieved by the project since commissioning.				
Project participant response				Date: 10/10/2019
PLF achieved by the project since commissioning is around 35.5% which is close to P50 Net Energy Output forecast of 34.8% PLF (439,600MWh/144Wh/8760h). Thus, the PP has decided to use P50 Net Energy Output in calculation of GHG emission reductions. The whole VCS PD was updated accordingly. The crediting period was also changed to 10 years. It should be noted that even at PLF of 35.5% the project remains additional. The clarification was inserted into the VCS PD				
Documentation provided by project participant				
Revised VCS PD				
DOE assessment				Date: 16/10/2019
PP has now incorporated justification for P50 value considered for estimation of emission reductions and also provided supportive document for the actual PLF achieved by the project activity. The same has been checked and found ok. Thus, CL 09 has been closed.				

Table 2. CAR from this validation

CAR ID	01	Section no.	Cover page, section 2.3 of VCS PD	Date: 04/10/2019
Description of CAR				
<ol style="list-style-type: none"> 1) On the cover page, PP has mentioned the date of issue as DD-MM-YYYY, however as per template it must be in DD-Month-YYYY format. 2) In the section 2.3, PP is requested to define the project boundary inline with VCS PD template guidelines. Further, the table for GHG sources needs to be corrected as applicable for project activity. 				
Project participant response				Date: 10/10/2019
<ol style="list-style-type: none"> 1) VSC PD was updated accordingly 2) The table was corrected. The diagram was corrected accordingly. 				
Documentation provided by project participant				
Revised VCS PD				
DOE assessment				Date: 16/10/2019
<ol style="list-style-type: none"> 1) PP has now corrected the VCS PD date of issue on cover page. The same has been checked and found in line with the VCS PD template format of dd-month-yyyy. Thus, CAR01.1 has been closed. 2) PP has now corrected the table for GHG sources and boundary diagram is inadequate as per the § 20 of applied methodology ACM0002, version 19 as applicable for the project activity. Thus, CAR 01.2 has been closed. 				

CAR ID	02	Section no.		Date: 04/10/2019
Description of CAR				
The description of the project in the VCS PD should provide information about the generation voltage and also about the step-up voltage, number of feeders, including the voltage level at the metering. Furthermore, the WTGs implemented at site is not the same as referred in the design document.				
Project participant response				Date: 10/10/2019
Section 1.8 of the VCS PD was updated accordingly				
Documentation provided by project participant				
Revised VCS PD				
DOE assessment				Date: 16/10/2019
PP has now incorporated required information on transmission line, feeder, substation and metering point in the section 1.8 and 4.2 of revised VCS PD. The same has been checked and found consistent with PPA and statutory clearances. Thus, CAR 02 has been closed.				

CAR ID	03	Section no.		Date: 04/10/2019
Description of CAR				
The QA/QC of the monitoring parameter must including cross-checking with invoices of sold electricity as required by the applied baseline and monitoring methodology.				
Project participant response				Date: 10/10/2019
The VCS PD was updated accordingly				
Documentation provided by project participant				
Revised VCS PD				
DOE assessment				Date: DD/MM/YYYY
PP has now mentioned the applied QA/QC procedure for the monitoring energy meter calibration frequency in the section 4.2 of VCS PD. The same has been checked PPA and found ok. Thus, CAR 03 has been closed.				

CAR ID	04	Section no.		Date: 04/10/2019
Description of CAR				
The VCS PD should include the actual monitoring metering system (such as number of meters, metering/invoicing and cross check of metering, calibration process etc.) at the site. The present description in the Design document is not the one which is actually implemented. While doing so please also correct the accuracy class of the meters. Furthermore, the calibration frequency should be as per the PPA (section 12.6.7).				
Project participant response				Date: 10/10/2019
The VCS PD was corrected accordingly				
Documentation provided by project participant				
Revised VCS PD				
DOE assessment				Date: 16/10/2019
PP has now mentioned the actual monitoring system as implemented on project site in the section 4.2 and section 4.3 of revised VCS PD. The same has been checked found ok. Thus, CAR 04 has been closed.				