

VALIDATION REPORT FOR THE RENEWAL OF THE CREDITING PERIOD WIND POWER PROJECT AT ANTHIYUR, TAMIL NADU



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Summary:

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Windage Power Company Private Limited (Project proponent) to conduct validation of the renewal of the crediting period of the Project - "Wind Power Project at Anthiyur, Tamil Nadu", with regard to the relevant requirements of VCS program guidelines and standard (VCS standard version 3.7, & VCS program guide version 3.7). Relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for validation.

The purpose of this project activity is to generate electricity using renewable sources (wind) and export it to Indian grid, Thereby displacing the grid generated electricity. Thus, the project aims to displace electricity produced by fossil fuel power plants harnessing wind energy. The energy produced is supplied to the Indian grid. Therefore the project reduces greenhouse gas emissions and thereby contributes to sustainable development.

A risk based approach has been followed to perform this verification. In the course of the validation 00 Corrective Action Requests (CARs), 00 Clarification Requests (CRs) were successfully closed. 00 Forward Action Request (FAR) were raised during the validation.

Project activity was operational during the first crediting period from 01/04/2006 to 31/03/2016. Operation of the project will remain the same for the second crediting period from 01/04/2016 to 31/03/2026.

The review of the project design documentation and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided the Applus+ Certification with sufficient evidence to validate the fulfilment of the stated criteria.

The assessment team is able to conclude that:

- i. A reasonable level of assurance has been applied.
- ii. All data and information used for ex-ante calculation of emission reductions is correctly applied.
- iii. The project is in line with all relevant host country legislation.
- iv. The project additionality is not required to be reassessed, however it is sufficiently justified in the VCS-PD.
- v. The monitoring plan is in accordance with the approved methodology, transparent and adequate.
- vi. Project deviations have sufficiently been addressed and justified.
- vii. The calculation of the baseline emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 309,280 tCO₂e are most likely to be achieved within the 10 year renewable crediting period.
- viii. The conclusions of this validation report show, that the project, as it was described in the updated project documentation, is in line with all criteria applicable for the validation against the VCS standard Version 3.7 standard without any qualifications or limitations.

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1 INTRODUCTION

1.1 Objective

Applus+ Certification has been contracted by Windage Power Company Private Limited to perform an independent validation of renewable crediting period of the VCS project title "Bundled Wind Power Project at Anthiyur, Tamil Nadu" (VCS ID 682). In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- The applicable requirements of the VCS standard Version 3.7;
- The requirements of the applied methodology;
- Relevant legal and regulatory requirements, including the host country legislation

To be validated in order to confirm that the revised project design as documented is sound and reasonable and meets the stated requirements and identified criteria.

Particularly, *inter alia*, the validity of project's baseline and regulatory surplus are validated in order to confirm the compliance as outlined under paragraph 3.8.5 for the renewal crediting period. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Verified Carbon Units (VCUs) / Emission reductions.

1.2 Scope and Criteria

The validation assessment was carried out in accordance with the requirements of VCS standard version 3.7 and included an assessment but not limited to, of the following:

Demonstration of the regulatory surplus, in reference to the additionality of the project, in accordance with the clause 4.6.3 VCS standard version 3.7.

Validity of the original baseline scenario reviewing the following criteria:

- Evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario.
- Assessment of the GHG emissions associated with original baseline scenario using the latest version of the CDM Tool to assess the validity of the original/ current baseline.
- If the original baseline scenario is no longer valid, whether current baseline scenario is established in accordance with the VCS rules.
- The project description, containing updated information with respect to the baseline, the estimated GHG emission reductions or removals and the monitoring plan, submitted for validation is based upon the latest approved version of the methodology or its replacement.

- The updated project description is validated in accordance with the VCS rules.

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

1.3 Level of Assurance

The validation has been planned and organized to achieve a

☒ Reasonable level of assurance

☐ Limited level of assurance.

1.4 Summary Description of the Project

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

The project activity consists of 9 WTGs (1650 kW capacity each), making the total installed capacity to be 14.85 MW at the Anthiyur Village of Udumalpet and Pollachi Talukas of Coimbatore District in Tamil Nadu.

Location of the project was verified through Google Map (<https://www.gps-coordinates.net/>) and found consistent with the data provided in the registered PD /01/. The WTGs generate 3-phase power at 400 V ($\pm 12.5\%$) in the frequency range of 47.5 – 51.5 Hz. It is further stepped up to 33 kV for further distribution by the state utility. This information was verified during physical site visit and found to be in line with the details provided in the registered PD /01/.

The WTGs have been commissioned between 26/03/2005 and 17/05/2005. The same was verified against the registered VCS PD/01/, revised VCS PD/05/ and commissioning certificates/09/.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation process is undertaken by validation team that involves the following:

- i. The desk review of documents and evidences submitted by the project proponent in context of the reference VCS rules and guidelines,
- ii. Interview or interactions with the representative of the project proponent,
- iii. Reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- iv. Preparing a draft validation report
- v. Resolution of outstanding issues and the issuance of final verification report and opinion

In order to ensure transparency, a validation protocol was prepared for the project according to the VVS for PAs version 1.0 verification requirements and VCS Standard version 3.7.

The Clarification Requests (CR) were issued where additional information was needed to clarify issues, and Forward Action Requests (FAR) for issues relating to project implementation that required review during the first verification of the project activity.

The validation process includes the following steps and same is described in the subsequent sub-sections.

2.2 Document Review

The validation team has conducted the validation using the VCS Standard and the AMS I.D version 18 methodology as the reference criteria.

The validation team had done the completeness check of updated VCS PD submitted by the PP as per the VCS standard Version 3.7 requirements was reviewed. Furthermore a desk review was also carried out to assess the following:

- i. Information of project details in compliance with VCS PD template
- ii. Appropriateness of methodology AMS I.D version 18 applied to the project activity
- iii. Compliance with relevant laws and regulations
- iv. Correctness of application of baseline and monitoring methodology
- v. Monitoring plan described in the updated VCS PD
- vi. Proof of listing of project ownership
- vii. Calculation of grid emission factor, etc. where applicable.

The validation is performed primarily as a document review of the registered VCSPD/01/, updated VCS PD/05/, VCS validation report/02/ and previous verification report /03/. The assessment team also reviewed the documents related to project design like commissioning certificates/09/, and PPA/10/.

The assessment is performed by a validation team using a protocol. The cross checks between information provided in the updated VCS PD and information from sources other than those used,

if available, the team's sectoral or local expertise and, if necessary, independent background investigations. The details of the documentation reviewed during the validation are provided under Appendix 2 of this report.

2.3 Interviews

During the site visit on 04/04/2017, Applus+ Certification held discussions with the following personnel during the verification process including discussions during the site visit:

S N	Name	Role/position - Organization
1	Mr. E. Sathish Kumar	Senior Field Engineer - Windage Power Company Private Limited
2	Mr. K. Ramesh Kumar	Senior Account - Windage Power Company Private Limited

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording and archiving procedures. The assessment was drawn based on the feedback received during interview coupled with the documentation and on-site observations.

2.4 Site Inspections

As part of preliminary risk assessment, Applus+ Certification determined that a site visit was not required to provide a reasonable level of assurance for the validation of the implementation and actual operations of the project during the second crediting period under consideration. However, assessment team has conducted the on-site visit assessment of project activity.

The site visit for the project location is conducted by the assessment team on 04/04/2017 and the following stakeholders were interviewed.

Sr. No	Name	Topic covered	Role/position - Organization
1	Mr. K. Ramesh Kumar	Project deviations, applicability of methodology, calculation of EF Monitoring and calibration procedure	Senior Field Engineer - Windage Power Company Private Limited
2	Mr. E. Sathish Kumar	Ownership of project activity , Eligibility of project for RCP validation	Senior Account - Windage Power Company Private Limited

Interviews with the project stakeholders and representatives of Windage Power Company Private Limited were conducted to confirm the selected information and to resolve the issues identified in

the document review. The site visit activities included a physical inspection of the project implementation and actual operations and a review of the monitoring system, data recording and archiving, QA/QC activities, and meter calibration frequency/responsibility.

During site visit, it was confirmed that the implementation and actual operation of project activity was in compliance with the registered PD.

2.5 Resolution of Findings

As an outcome of the validation process, the team can raise different types of findings:

A Clarification Request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met

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

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The VCS requirements have not been met;
- There is a risk that emission reductions cannot be monitored or calculated.

FAR (Forward Action Request):

- A Forward Action Request (FAR) will be issued when certain issues related to project implementation should be reviewed during the first verification.

The validation process may be halted until this information has been made available to the team leader's satisfaction. Failure to address a CR may result in a CAR. Information or clarifications provided as a result of a CR may also lead to a CAR. No CR has been raised during the validation of the project activity.

During the validation process, 00CRs, 00 CARs and 00 FARs were raised and resolved satisfactorily. The list of CARs/CRs/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 3 of this report.

2.5.1 Forward Action Requests

No FAR was raised during validation assessment of RCP.

3 VALIDATION FINDINGS

3.1 Project Details

Project type, technologies and measures implemented, and eligibility of the project:

Same as described in the registered VCS PD and updated PD.

Project proponent and other entities involved in the project-

Name of the project proponent is changed as Windage Power Company Private Limited as a replacement of Nuziveedu Seeds Limited from 01/01/2013 onwards. The assessment has verified this through the "Name change consent" /19/, found to be satisfactory, hence accepted. Remaining information about the project proponent is same as mentioned in the registered VCS PD/01/.

Project start date-

Start date of project activity is 26/03/2005, which was the date on which project has begun generating emission reductions. Same as mentioned in the registered VCS PD.

Project crediting period-

As per the registered PD, crediting period was considered from 01/04/2006 to 31/03/2016 which can be renewed twice for the duration of ten years each. However the project technical life is 20 years, hence only once the crediting period can be renewed.

The first crediting period considered was 01/04/2006 to 31/03/2016 and the second crediting period is from 01/04/2016 to 31/03/2026.

Project scale and estimated GHG emission reductions or removals-

The estimated annual emission reductions for the project activity are 30,928tCO₂e which is less than 300,000 tCO₂e. Hence the category is applicable under "Project".

Project location-

Same as in registered PD/01/.

Conditions prior to project initiation-

Same as in registered PD/01/.

Project compliance with applicable laws, statutes and other regulatory frameworks:

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 laws and regulations 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 India (host country) as it is a non-annex 1 country. The project has obtained valid consents for the installation and operation from the state nodal agencies/17&18/ and is in compliance with local laws and regulations.

Ownership and other programs-***Right of use***

Same as in the registered PD. In addition the validation team reviewed the PPA/10/, commissioning certificates/09/ issued by state utility. .

Emissions trading programs and other binding limits-

The project is not participating in other emission trading programs. The letter of undertaking/12/ 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.

Other forms of environmental credit sought or received and eligible to be sought or received:

The project is registered under the VCS (ID 682) and not listed under REC mechanism/16/ as verified from https://www.recregistryindia.nic.in/index.php/general/publics/registered_regens.

Participation under other GHG programs:

The project is registered only under VCS project activity

Project ID: 682

Rejection by other GHG programs:

The project has not been rejected by other GHG programs.

Additional information relevant to the project, including:

- ***Eligibility criteria for grouped projects***

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

- ***Leakage management for AFOLU projects***

Not applicable to the project activity.

- ***Commercially sensitive information***

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

Conclusion:

In view of the assessment of VCS PD/05/ and supporting documents as listed in Appendix 2 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. Consequently, Applus+ Certification confirms that the project description

of the project contained in the VCS PD/05/ to be complete and accurate. The VCSPD 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 was registered using CDM approved methodology for small-scale, AMS I.D, Version 14.0.

For the renewal of the crediting period, the PP updated the applied methodology from version 14.0 to 18.0, which is the latest available and valid version of the methodology.

Since the new version of the methodology refers to the “Tool to calculate the emission factor for an electricity system”. Thus, the following methodological tool is being applied:

- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period.” Version 03.0.1
- Tool to calculate the emission factor for an electricity system, version 06 (<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v6.pdf>)

Assessment team has checked the UNFCCC website it is confirmed that the selection of the applied methodology and methodological tool has been done correctly in line with the applicable requirements for the RCP.

3.2.2 Applicability

Project activity was initially registered applying the methodology AMS I.D version 14 in the registered VCS PD and the methodology is still applicable.

All applicability conditions of the updated version of the methodology (AMS I.D version 18) are met. Thus the methodology is deemed fully applicable for the new crediting period and no request for deviation with regards to the applicability of the methodology is required. All applicability conditions are completely and correctly included in the revised PD.

Sr.No	Criteria	Means of verification	Conclusion
1	This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass : (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	Project activity is Greenfield wind power project, supplying to national grid through a power purchase agreement. This is verified thorough the PPA/10/,commissioning certificates/09/.	Criteria (a) fulfilled

2	As per Appendix table 1 of AMS.I D version 18 is applicable for following project types: a. Project supplies electricity to a national/regional grid b. Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling) c. Project supplies electricity to a mini grid system where in the baseline all generators use exclusively fuel oil and/or diesel fuel d. Project supplies electricity to household users (included in the project boundary) located in off grid areas	The electricity generated by the project being supplied to national grid through a power purchase agreement/10/.	Criteria (a) fulfilled
3	This methodology is applicable to project activities that (a) install a Greenfield plant); (b) involve a capacity addition in (an) existing plant(s); (c) involve a retrofit of (an) existing plant(s); or (d) Involve a rehabilitation of (an) existing plants(s)/unit(s); or (e) Involve a replacement of (an) existing plant (s).	Project activity Project activity is Greenfield wind power project/10/.	Criteria (a) fulfilled
4	Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: • The project activity is implemented in an existing	Project activity is Greenfield wind power project/10/.	Criteria are not relevant to the project activity.

	reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project emissions section, is greater than 4 W/m²; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m².		
5	If the new unit has both; renewable and non- renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	This project activity includes only the renewable generation component and capacity is 14.85 MW /10/.	Criteria fulfilled
6	Combined heat and power (co-generation) systems are not eligible under this category.	Project activity is Greenfield wind power project. The project activity is not a co-generation system	A criterion is not relevant to the project activity.
7	In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	Project activity doesn't involve capacity addition /10/.	Criteria are not relevant to the project activity.
8	In the case of retrofit,	This condition is not	Criteria are not relevant

	rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement unit shall not exceed the limit of 15 MW.	applicable to the project activity.	to the project activity.
9	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	This condition is not applicable to the project activity.	Criteria are not relevant to the project activity
10	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	This condition is not applicable to the project activity.	Criteria are not relevant to the project activity

The project activity is in line with the applicability criteria of the applied baseline methodology AMS I.D version 18.

Similarly, the applicability of the used tool to calculate the emission factor for an electricity system was assessed and the assessment team concluded it is appropriate to the project activity, since according to the tool:

"This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects)."

In view of the above consideration, the assessment team is able to conclude that the used methodology and tool is applicable for the project activity.

3.2.3 Project Boundary

The project boundary is given by the applied methodology, AMS-I.D, version 18.0:

"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."

Regarding the GHG sources, as per the used methodology:

"Baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity."

"For most renewable energy project activities, P_{Ey} = 0."

The above is correctly justified and included in the revised PD, specific for the project activity.

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

The project activity involves the installation of a newly built and grid-connected renewable power plant that wheeled for captive consumption by using the state transmission system of the Maharashtra state electricity grid which part of Indian grid, hence, according to the applied methodology AMS-I.D, version 18.0, the baseline scenario is determined properly as:

"The baseline scenario is that the 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 into the grid."

This is correctly included in the revised PD.

According to VCS Standard, v3.7, paragraph 3.8.5-2) the validity of the original baseline scenario shall be demonstrated when renewing the project crediting period, by means of impacts of new relevant national and/or sectoral policies and actual circumstances.

Paragraph 3.8.5, Clause (2-a) *"The validity of the original baseline scenario shall be assessed. Such assessment shall include an evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario".*

VVB assessment:

Relevant mandatory national (ref: <http://www.cercind.gov.in/>) & sectoral policies in Tamil Nadu state (ref: <http://www.tnerc.gov.in/>) and confirmed that there are no national or local laws or regulations that entail the installation of wind power project in Tamil Nadu. Thus it can be concluded that original baseline scenario will remain valid for next crediting period.

Paragraph 3.8.5, Clause (2-b) *"Where it is determined that the original baseline scenario is still valid, the GHG emissions associated with the original baseline scenario shall be reassessed"*

using the latest version of the CDM Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period”.

VVB assessment:

The project participant has included the assessment of the validity of the original baseline in line with UNFCCC in section 2.4 of the revised VCS PD, including the assessment of original baseline as per the ***“Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period, Version 3.0.1”***, which has been concluded to be still valid and applicable for the project.

The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

As verified above (Para 3.8.5 2-a), there are no national or local laws or regulations that entail the installation of wind power project in Tamil Nadu and electricity could be procured from grid for captive consumption. Hence it can be concluded that current baseline is in compliance with relevant mandatory national and sectoral policies.

Step 1.2: Assess the impact of circumstances

As per the registered PD, the project activity is wind power project, electricity generated from project being wheeled for captive consumption by using the state electricity transmission system of the Tamil Nadu state electricity grid which part of Indian grid, which would have been sourced from grid. Hence grid was considered as appropriate and correct baseline. As discussed under step 1.1 above, there is no change observed in this regard and it can be concluded that the conditions used to determine the baseline emissions in the previous crediting period are still valid.

Complete assessment on the current operation of grid-connected power plants and addition of new generation sources is provided in the revised PD; from which it can be concluded that in the actual baseline scenario it is still predominant the installed capacity based on fossil fuel sources.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

The lifetime of WTGs installed for the project activity is 20 years /01/; hence baseline equipment's(WTGs) continuously used for electricity generation during next crediting period without any investment. The assessment team is able to conclude that an investment is not the most likely scenario for the renewal crediting period under consideration.

Step 1.4: Assessment of the validity of the data and parameter

“Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity”.

In the registered PD, the grid emission factor was calculated as per the combined margin approach described in the “Tool to calculate the emission factor for an electricity system” Version-1.1. The grid emission factor has been calculated as the weighted average of OM & BM; and has been fixed ex-ante for the entire crediting period.

The OM and BM was obtained from a publicly available source i.e. “CEA CO2 Baseline Database” Version 04 latest version published by Central Electricity Authority, Ministry of Power (Government of India) at the time of validation.

Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period as per step 2.

Step 2: Update the current baseline and the data and parameters

“Update the current baseline emissions for the subsequent crediting period, without reassessing the baseline scenario, based on the latest approved version of the methodology applicable to the project activity. The procedure should be applied in the context of the sectoral policies and circumstances that are applicable at the time of request for renewal of the crediting period”.

As demonstrated above the reassessment of baseline scenario is not required. However as per the latest version of applied methodology AMS I.D version 18, data and parameters are updated as following:

As referred in the methodology AMS I.D v18 recommends the latest version of the “Tool to calculate the emission factor for an electricity system” (version 06.0) is used for calculation of emission factor and consequently the baseline emissions.

The Project proponent has adopted the combined margin approach for determination of the grid emission factor as per Tool to calculate the emission factor of an electricity system' Version 6.0. The PP opted for combined margin emission factor ($EF_{grid,CM,y}$) for the project activity and it has been estimated ex-ante as 0.9777 tCO₂/MWh for Indian electricity grid (Formerly known as Southern regional grid) in India. It will remain fixed throughout the crediting period for the project activity as opted by PP. The combined margin emission factor is obtained from the three years generation weighed average of the operating margin emission factor and the latest year build margin emission factors by applying suitable weights (i.e. 75 % to operating margin emission factor ($EF_{grid,OM,y}$) and 25 % to build margin emission factor ($EF_{grid,BM,y}$)) as referred to the EF tool version 6.0.

The simple operating margin value of 0.9941 tCO₂/MWh and build margin value of 0.9285 tCO₂/MWh for Indian electricity grid in India have been referred from CO₂ baseline database

published by Central Electricity Authority, Govt. Of India, version 11 dated April 2016/08/. This is the latest available CO2 baseline database at the time of the VCS PD submission for validation of the project activity. This is found to be appropriate and it is accepted.

It is worthy to note that there is no change in baseline scenario, however updated baseline calculations are provided in section 3.2.6 of this report.

The assessment team is able to conclude that:

- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable.
- Documentary evidence used in determining the baseline scenario is relevant, and correctly quoted and interpreted in the project description.
- Relevant national and/or sectoral policies and circumstances have been considered and are listed in the project description.
- The procedures for identifying the baseline scenario have been correctly followed and the identified scenario reasonably represents what would have occurred in the absence of the project.

Finally it can be concluded that the identified baseline scenario is justified and according to the VCS Standard version.3.7 and the “Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1.

3.2.5 **Additionality**

In accordance with the paragraph 3.8.5 clause 1 of VCS standard v 3.7, “A full reassessment of additionality is not required when renewing the project crediting period. However, regulatory surplus shall be demonstrated in accordance with Section 4.6.3) and the project description shall be updated accordingly”.

As per the above guidelines, the assessment team has reviewed the sectoral and national policies implemented for the wind power projects in host country India.

Latest regulatory requirements for the project activity were checked through the official website of the Ministry of New and Renewable Energy, a nodal ministry of Government of India for the matters relating to new and renewable energy/17/ and state policies/18/.

In view of the above assessment, it can be concluded that the proposed project is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework and hence continued to be voluntary.

3.2.6 **Quantification of GHG Emission Reductions and Removals**

The approach followed for calculation of emission reductions is same as described in the registered VCS PD. In accordance with paragraph 3.8.5(2-d), the GHG emission reductions are calculated applying the updated version of methodology AMS I.D version 18.

As per the paragraph 22 of the methodology:

“Baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants”. The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (t CO₂)

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

$EG_{PJ,y} = EG_{facility,y}$ (for Greenfield projects paragraph 26 AMS I.D)

$EF_{grid,y}$ = 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”(t CO₂/MWh)

As reported in section 3.2.4 of this report, combined margin emission factor ($EF_{grid,y}$) is calculated using the “Tool to calculate the emission factor for an electricity system” version 06 and value obtained as 0.9777 tCO₂/MWh.

Value of $EG_{PJ,facility,y}$ is estimated to be 31,634 MWh per year ,which is same as in the registered VCS PD. Hence baseline emission reductions as follows:

$$BE_y = 31,634 \text{ MWh} \times 0.9777 \text{ tCO}_2/\text{MWh}$$

$$BE_y = 30,928 \text{ tCO}_2 (\text{rounded down value})$$

Estimation of Project Emissions (PE_y):

As per the paragraph 39 of applied methodology AMS I.D version 18, for the most renewable energy project activities, PE_y = 0. Except for:

(a) Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption);

(b) Emissions from water reservoirs of hydro power plants.”

Any of the conditions mentioned is not applicable for the project activity, hence PE_y = 0.

Estimation of Leakage Emissions (LE_y):

As per the paragraph 42 of AMS I.D version 18, The only renewable projects that consider leakage are biomass sourced from dedicated plantations, which is not the case of the project activity, thus leakage emissions are zero (LE_y = 0).

Estimation of GHG emission reductions:

Emission reductions are calculated as follows:

$$ER_y = BE_y - LE_y - PE_y,$$

where

ER_y = Emission reductions in year y (tCO₂)

BE_y = Baseline Emissions in year y (tCO₂)

LE_y = Project emissions in year y (tCO₂)

PE_y = Leakage emissions in year y (tCO₂)

$$ER_y = 30,928 - 0 - 0$$

$$= 30,928 \text{ tCO}_2 \text{ per year}$$

Hence total emission reductions estimated for the entire crediting period of 10 year would be as 309,280 tCO₂.

Conclusion:

The assessment team is able to conclude that the calculation of emission reductions is done as per the applied methodology. Changes due to the upgraded version of the methodology and the re-assessment of the baseline have been considered suitably. The calculation of the emission reductions provided in the in the ER spread sheet/06/ and the corresponding calculation in the relevant section of the PD/05/ have been checked and found to be satisfactory. The estimation of emission reductions for the second crediting period is deemed plausible and conservative.

All relevant assumptions and data are listed in the project description, including their references and sources, being CEA database version 11/08/, the main source of data for the emission factor calculation.

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.

The emission reductions were calculated in accordance with the methodology and tool.

3.2.7 Methodology Deviations

No methodology deviations identified.

3.2.8 Monitoring Plan

According to the applied methodology, AMS-I.D, version 18.0, 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 should be either monitored using bi-directional energy meter or calculated as difference between

- (a) The quantity of electricity supplied by the project plant/unit to the grid; and
- (b) The quantity of electricity the project plant/unit from the grid.

In case it is calculated then the following parameters shall be measured:

- (a) The quantity of electricity supplied by the project plant/unit to the grid; and
- (b) The quantity of electricity delivered to the project plant/unit from the grid

It is to be noted that in Tamil Nadu where the project activity located, dedicated energy metering system implemented. Energy meters installed at substation will be calibrated annually.

During the second crediting period aspects of monitoring plan like monitoring procedure, calibration procedure, data recording, monitoring role and responsibility and QA/QC procedure will remain same as mentioned in the registered PD.

The updated PD 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. The assessment team confirm that:

- The monitoring plan included in the PD is based on the approved methodology AMS I.D version 18.0 which has been applied to the VCS project activity
- The monitoring arrangements described in the monitoring plan are feasible within the project design.
- The PP has the ability to implement the monitoring plan as per the PD.

3.3 Non-Permanence Risk Analysis

Not applicable, non-permanence risks were not identified.

4 SAFEGUARDS

4.1 No Net Harm

There is no negative impact to any socio economic conditions of the region due to the project activity. As per the notifications issued by Ministry of Environment and Forest dated 01/12/2009/20/ (ref: <http://moef.nic.in/downloads/rules-and-regulations/3067.pdf>), [Environmental Impact Assessment for the wind projects is not required to be done.](#)

This project activity will not involve any negative environmental or socio-economic impacts, as the WTGs are installed for generation of power using wind which is a clean source of energy. Hence no mitigation measures are required.

4.2 Environmental Impact

The project proponent has mentioned in the PD/01/ that the present project activity does not require EIA to be carried out because as per the schedule 1 of Ministry of Environment and Forest notification dated 14/09/2006/20/ <http://envfor.nic.in/legis/eia/so1533.pdf> and further notification number 3067 from MoEF dated 01/12/2009/20/ <http://moef.nic.in/downloads/rules-and-regulations/3067.pdf> , activities are required to undertake environmental impact assessment studies. The proposed project activity does not fall under the listed categories and hence not required an EIA to be done. The environmental impacts need not to be further assessed during the renewal of the crediting period. However, the assessment team confirmed that EIA study and related permissions are still valid for the second crediting period and the project activity is in line with environmental impact assessment criteria of the VCS.

4.3 Local Stakeholder Consultation

Not applicable since this is validation for renewal of crediting period. It is not obligatory to have a new stakeholders' consultation meeting while renewing the crediting period.

4.4 Public Comments

Not applicable

5 VALIDATION CONCLUSION

Windage Power Company Private Limited has contracted the LGAI Technological Center, S.A. (also referred to as Applus+ Certification) for validation of the renewal of the crediting period of the Project - "Wind Power Project at Anthiyur, Tamil Nadu", with regard to the relevant requirements of VCS programme guidelines and standard (VCS standard version 3.7, & VCS program guide version 3.7) and the information provided by the project proponent related to the project design, operation, monitoring and reporting.

Applus+ Certification has reviewed the project description documents and subsequently carried out telephonic interviews to confirm the fulfilment of stated criteria.

The purpose of this project activity is to generate electricity using renewable sources (wind) and export it to Tamil Nadu state electricity grid which is part of the Indian electricity grid, thereby displacing the grid generated electricity.

A risk-based approach has been followed to perform this validation. In the course of the validation 00 Clarification Requests (CRs) 00 Corrective Action Requests (CARs) were raised and successfully closed. No Forward Action Request (FAR) was raised.

AMS I.D:Grid connected renewable electricity generation, Version 18.0, which is an approved methodology under the CDM programme and is acceptable under VCS standard version 3.7. The

baseline has been determined in accordance with the stated approved baseline methodology. 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 (India) and all relevant VCS standard version 3.7 program guidelines requirements.
- A reasonable level of assurance has been applied.
- The project additionality is not required to be reassessed, however it is sufficiently justified in the VCS-PD.
- The monitoring plan is transparent and adequate and in line with applied monitoring methodology of AMS I.D, version 18.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 30,928 tCO₂e/year are most likely to be achieved within the 10 year renewable crediting period.
- 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 version 3, without any qualifications or limitations.

APPENDIX 1: Abbreviations

Abbreviations	Full texts
ABT	Availability Based Tariff
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
EB	Executive Board
EF	Emission Factor
EPC	Engineering ,Procurement and Construction
ER	Emission Reductions
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GOI	Government of India
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
MGR	Monthly Generation Reports
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
PD	Project Description
PPA	Power Purchase Agreement
PP	Project Participant
PRC	Post Registration Changes
PS	Project Standard
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator
WEC	Wind Energy Convertor

APPENDIX 2: Document Reference

S. No	Title of Document	Version	Date
1.	Registered VCS PD	2	27/10/2009
2.	VCS Validation Report	Report No: 53608508- 08/650	15/11/2009
3.	VCS Verification report (Monitoring period: 08/02/2010 – 31/03/2016)	02	13/12/2017
4.	Revised PD	1	01/03/2017
5.	Revised PD(Final)	1	01/03/2017
6.	ER spread sheet (corresponding to the final revised PD)	1	01/03/2017
7.	Methodology AMS I.D, “Grid connected renewable electricity generation”	version 18,	-
8.	CEA Database	version 11	April 2016
9.	Commissioning certificate for all the WTGs of the project activity issued by state electricity authority	-	-
10.	Power Purchase Agreements signed between Project Proponent and state electricity authority	-	-
11.	VCS webpage for the project, VCS ID 682; http://www.vcsprojectdatabase.org/#/project_details/682	-	Last accessed on 29/08/2018
12.	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period	-	-
13.	Central Electricity Authority (Installation and Operation of Meters) Regulations Notified on 17/03/2006 No. 502/70/CEA/DP&D Amendments Notified on 26/06/2010 No. 502/6/2009/DP&D/D-I	-	-
14.	VCS Standard	Version 3.7	21/06/2017
15.	VCS Program Guide	Version 3.7	21/06/2017
16.	Detailed procedure on REC mechanism dated 01/06/2010 by Central Electricity Regulatory Commission (http://www.nerldc.org/Docs/Order_for_Detailed_Procedure_01-06-2010.pdf) REC registry(https://www.recregistryindia.nic.in/index.php/general/publics/accredited_regens)	-	-
17.	Official website of the Ministry of New and Renewable Energy, a nodal ministry of Government of India for the matters relating to new and renewable energy (ref: http://mnre.gov.in/schemes/grid-connected/solar-thermal-2/)	-	-
18.	Sectoral policies in Tamil Nadu state http://www.tnerc.gov.in/	-	-
19.	Name change consent from Nuziveedu Seeds Limited to Windage Power Company Private Limited	-	-

S. No	Title of Document	Version	Date
20.	SCHEDULE (Page no 10) of the notification S.O. 1533 € published by the Ministry of Environment and Forests (MoEF), Government of India Schedule of the notification S.O. 3067 published by the Ministry of Environment and Forests (MoEF), Government of India http://www.moef.nic.in/legis/env_clr.htm	-	Dated 14/09/2006 Dated 01/12/2009
21.	Proof of local stake holders consultation process • Minutes of Public hearing • List of Participants • Extract of feedback from local-stakeholders.	-	-

APPENDIX 3: Resolution of Findings

Table 1. Remaining FAR from previous validation

FAR ID	N/A	Section no.	N/A	Date: N/A
Description of FAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

Table 2. CR from this verification

CR ID	N/A	Section no.	N/A	Date: N/A
Description of CL				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

Table 3. CAR from this verification

CAR ID	N/A	Section no.	N/A	Date: N/A
Description of CAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

Table 4. FAR from this verification

FAR ID	N/A	Section No.	N/A	Date: N/A
Description of FAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

APPENDIX 4: Competency Statements

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

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

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

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

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

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the On-Site Assessment
Vivek Kumar Ahirwar	Lead Auditor (LA)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Vivek Kumar Ahirwar	Technical Expert (TE)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Ajay Singh Thakur	Auditor (A)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Simon Shen	Technical Reviewer (TR)	Yes (1)	Yes (1.2)	N/A	N/A	N/A

The curricula vitae of the DOE's team members are provided below:

Vivek Kumar Ahirwar is a BEE-Certified Energy Auditor by Govt of India with over eight years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the

India. He has done Master in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India.

Ajay Singh Thakur He is a certified lead auditor for ISO 14001 EMS LA. He has more than five years of work experience across Climate Change, Environmental Management & Monitoring, Health & Safety Management, and Statutory Compliance. He was involved in more than 50 CDM validation and verifications activities and Gold Standard, VER projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1 technical area 1.2. he has experience in design and development of Environment Health & Safety Management System (EHS), ISO 14001:2004 (EMS), OHSAS 18001:2007, ISO 14064:2006, ISO 50001:2011 (EnMS) and ISO 9001:2008 (QMS).

Also providing trainings on EHS (ISO 14001:2004 (EMS) & OHSAS 18001:2007) to various industries He has done Master in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Chemical Engineering) from Ujjain Engineering Collage, Ujjain, RGPV, India.

Meng (Simon) Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 5.5 years.

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