



“51 MW WIND POWER PROJECT AT CHITRADURGA”



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Project Title	51 MW Wind Power Project at Chitradurga
Version	02
Report ID	BELL_CDM_2020_IND WPP Chitradurga_VCS_VER

Report Title	Verification Report “51 MW Wind Power Project at Chitradurga”
Client	M/s. NSL Renewable Power Private Limited
Pages	32
Date of Issue	10/04/2021
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Summary:

LGAI Technological Center, S.A. (Applus+ Certification) has performed the verification of the project “51 MW Wind Power Project at Chitradurga” VCS ID 706, against VCS Standard Version 4. The scope of verification includes confirming the implementation of the monitoring plan of the registered VCS PD (version 03) dated 05/02/2019 and the application of the monitoring methodology “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, ACM0002, Version 19.

The verification is consisted of three phases: i) desk review of the project; ii) Remote assessment iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted following Applus+ Certification internal quality procedures. During the verification process 05 CARs, 03 CL and 00 FARs were raised. All the findings have been closed satisfactorily and the same has been discussed in Appendix 4.

Applus+ Certification confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. The emission reductions from the project activity “51 MW Wind Power Project at Chitradurga” in India during the period 01/11/2019 - 31/10/2020 (including both days) amount to 57,085 tonnes of CO₂e.

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1. INTRODUCTION

1.1 Objective

M/s NSL Renewable Power Private Limited has contracted LGAI Technological Center, S.A. (Applus+ Certification) to perform VCS Verification of the '51 MW Wind Power Project at Chitradurga' in India (hereafter called project). This project has already been registered as a VCS project (VCS ID 706). The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the DOE. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

The Verification is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

1.3 Level of Assurance

The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. Therefore, Applus+ Certification confirms that the verification is conducted with reasonable 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 IndianGrid(previously known as Southern 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 4 WTGs (2.1MW capacity each) and 28 WTGs (1.5MW capacity each), making the total installed capacity to be 50.4 MW at the Bhimasamudra site in Chikkandavadi and Kallavangathihalli village of Chitradurga district in the state of Karnataka, India.

Location of the project was verified through Latlong.net (<https://www.gps-coordinates.net/>) and found consistent with the data provided in the registered PD /01/. The WTGs generate power and it is further stepped up to 33 kV for further distribution by the state utility. This information was verified during remote visit and found to be in line with the details provided in the registered PD /01/.

The Project Start Date is 06-June-2008, when the first WTG No HK 3 of the Project activity was commissioned and started electricity generation. The same was verified against the registered VCS PD/01/ and commissioning certificates/12/. The emission reductions from the project activity during the period 01/11/2019 - 31/10/2020 (including both days) amount to 57,085 tonnes of CO₂e.

2. VERIFICATIONPROCESS

The registered VCS project is undergoing periodic verification under VCS, the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Applus+ Certification assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- Remote site inspection, interview with project representatives and issuance of findings.
- The resolution of outstanding issues and issuance of final report and opinion.

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD, previous MR and Verification report and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, 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.

2.3 Interviews

Due to the current situation with the global COVID-19 pandemic scenario and country wide lock down in India, an on-site inspection has not been performed by the assessment team. However, the representatives of the PP and O&M contractors were interviewed telephonically on 08/12/2020 i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed are mentioned in the table below:

S N	Name	Role	Organization
1	Mr. MRV Ravikiran	Project Coordination	M/s. NSL Renewable Power Private Limited
2	Mr. Deep Borah	Advisor/Consultant	Representative of WeAct Pty Ltd

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

Due to COVID-19 a remote visit is undertaken by members of verification team, involving but not limited to,

- An assessment of the implementation and operation of the proposed VCS project activity as per the approved VCS PD/01/;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources; /08/
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

Verification team has checked the Plant name/GPS Location/date of commissioning/Unique id/project location/Capacity/Monitoring practice etc. and found the information consistent with the registered VCS PD /01/ and the Monitoring report.

Furthermore the project activity already verified under VCS previously and currently undergoing third verification, hence based on the information's available through approved documents (VCS verifications), it can be confirmed that project is implemented and being operated as described in the registered PD.

The assessment team has verified sufficient appropriate audit evidences, to reduce audit risk to an acceptably low level as requisite to achieve reasonable level of assurance for the current verification.

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and Telephonic Interview of site personnel. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the Applus+ Certification during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

During the verification process 04 CARs, 03CL and 00 FARs were raised. All the findings that are raised and communicated to project participant during the verification are included under Appendix 4. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise.

2.5.1 Forward Action Requests

The project activity is undergoing periodic verification under VCS; there were no FARs raised during the validation or previous verification/2.1/.

2.6 Eligibility for Validation Activities

Not applicable, as Applus+ holds the accreditation to perform validation activities in this Sectoral Scope.

3. VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity is registered under the VCS only (VCS Project ID 706). The project proponent has provided a self-declaration in this regard which confirms that project proponent will not claim Emission reductions for current monitoring period 01/11/2019 to 31/10/2020 under any other GHG program except VCS, hence accepted by the assessment team.

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period.

3.3 Project Description Deviations

There is no project description deviation identified during the current monitoring period and also during previous all monitoring periods. This has been verified during remote audit and also from previous approved monitoring reports and verification reports and found to be correct, hence accepted.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project

4. VERIFICATION FINDINGS

4.1 Project Implementation Status

The verification team during the remote assessment and telephonic interview with the PP and O&M confirmed the consistency of project implementation with the project description. It has been observed by the verification team that the project involves the installation of 28 numbers of 1.5 MW WTGs of ReGen make and 4 numbers of 2.1 MW WTGs of Suzlon make in Chikkandavadi and Kallavangathihalli Village of Chitradurga district in the state of Karnataka, India. All the 32 WTG's are leading to a cumulative capacity of the project as 50.4 MW, which is same as described in the registered VCS PD/01/. The entire power generated by the project activity is exported to the Indian Grid (previously known as Southern Grid) through locally available sub-stations owned and maintained by the state electricity utility with a firm energy purchase agreement with the Karnataka Power Transmission Corporation Limited (KPTCL).

The installation and specification of WTGs has been checked with commissioning certificates/12/ and remote audit. The commissioning has also been duly validated in the VCS validation report of the project activity/02/. There was no major breakdown or shutdowns during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

Assessment team concludes the following:

- a) The implementation status of project activity was found to be in compliance with registered PD
- b) DOE has conducted the remote visit to confirm the implementation status of the project.
- c) The commissioning date of the project activity was found to be accurately and consistently recorded.
- d) The actual operation of project activity was found to be in compliance with the flow diagram provided in registered PD.
- e) There was no increase in emission reduction from estimates made in registered PD, and hence no further justification to be provided for the same.
- f) The project is registered under VCS program only. The project proponent provided self-declaration which confirms that project proponent will not claim Emission reductions for current monitoring period 01/11/2019 to 31/10/2020 under any other GHG program except VCS.

4.2 Safeguards

4.2.1 No Net Harm

Not Applicable for this verification.

Being renewable wind power generation project there is no negative environmental and socio-economic impacts in fact project activity contributes positively by providing environment friendly power generation leading to sustainable development of the region. Also, the generation of employment supports uplift of socio-economic status of region.

4.2.2 Local Stakeholder Consultation

The Project is already registered with VCS. No comment has been received during regular communication with local stakeholders.

As a part of continuous feedback from stakeholders, there were no other major comments or protest raised by the stakeholders and they were totally in support for setting up of these kinds of projects in the region.

For ongoing communication, the PP has also placed a grievance register onsite where in the stakeholder can put down his/her complain and the same if found genuine will be addressed immediately. However, being renewable wind power generation project there is no feedback/grievance has been reported within this monitoring period and it is verified from the photographs provided by the PP.

4.3 AFOLU-Specific Safeguards

Not applicable for this verification.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The project monitoring has been carried in accordance with the registered VCS PD/01/ and the monitoring report/05/. The monitoring plan laid in the registered PD is being followed at the site/19/. The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR/05/.

The emission reductions are purely based on the net electricity generated and exported from the machines. PP has provided all the sufficient data for current monitoring period. The values of the parameter net electricity generation supplied to the grid by each phase used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet/06/ provided by PP. the verification of each monitoring parameter has been discussed later in section 4.5.

The calculation method and formulae used in calculating baseline emission is in compliance to the methodology used i.e. ACM0002 version 19.0.0 /10/. Since project activity is a wind power project, leakage emission and project emission has been considered as zero.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The below tables describe how the parameter, that is to be measured according to the monitoring plan, has been verified to confirm that the actual monitoring complies with the monitoring plan, monitoring data has been thoroughly assessed and that the calibration requirements are met.

Parameter	Electricity supplied by the plant to the grid, EG_y (kWh/Year)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The electricity exported and imported by all 32 WTGs of the project activity at each of the 4 metering points (namely NSLC III, NSLC IV, NSLC V, NSLC VI) is recorded monthly by representatives of the BESCO and Project Participant. Based on the monthly electricity export recorded at group controller station meter and at the substation meter (TEGy), the BESCO determines the transmission line loss, in accordance with the conditions

		stipulated in the PPA signed between them and the Project Participant. Based on this, the BESCO issues line loss calculation sheets, for the every month. The Joint Meter Reading Statements (known as Form B) is then submitted by the BESCO to the Project participant which indicates the electricity export, electricity import, transmission line losses and the net electricity exported value at individual grid controller station.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	The electricity exported and imported from the grid is recorded through metering points installed at grid controller station. There are 4 controller station points viz., NSLC III, NSLC IV, NSLC V and NSLC VI used to measure the net electricity supplied to the grid by all the 32 WTGs. All the WTGs are not provided with metering location and hence each controller points measure electricity supplied by more than one WTG. All meters are of bi-directional tri-vector type with an accuracy class of 0.2s. Apart from the readings taken at group controller points, the electricity export readings are also taken at the grid interconnection point or 66 kV substation namely NSLC I and NSLC II. Based on the two readings taken at group controller points and substation, state electricity utility prepares a monthly statement namely Form B of electricity supplied through each WTG after accounting for the transmission loss and import of electricity. The transmission loss has been calculated by the BESCO/KPTCL personal based on electricity export readings measured at the group controller points and at the 66 kV substation and the same is

		provided along with the Form B.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is higher than accuracy mentioned in the monitoring plan as outlined in the registered PD.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
	Calibration frequency /interval:	Annual
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	The registered monitoring plan indicates the frequency of accuracy testing/ calibration of the main and check meters as Annual.
	Is the calibration of measuring equipment carried out by an accredited person or	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility/07/

	institution?	
	Is (are) calibration(s) valid for the whole reporting period?	Calibration of energy meters recording energy exported is valid for whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried.
	How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly Joint Meter Reading Statements (known as Form B)/08/during remote audit and desk review .Value of this parameter for the current monitoring period is verified as 11,631 MWh (for Year 2019 i.e. 01/11/2019–31/12/2019) and 48,618 MWh (for Year 2020 i.e. 01/01/2020–31/10/2020), therefore total value is 6,02,48,856KWh. Furthermore monthly values of this parameter is reported in the ER calculation sheet/06/ are also verified with the monitoring report/05/ and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter as reported in the ER calculation sheet were further cross checked with the monthly invoices raised by the PP /09/ and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: The readings at the Metering Point are undertaken every month jointly by the representatives of the BESCOM/KPTCL and NSL representative.

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	CAR#4 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology/10/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y, TEG_y(kWh/Year)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Based on the monthly electricity export recorded at group controller station meter and at the substation meter (TEG _y), the BESCO determines the transmission line loss, in accordance with the conditions stipulated in the PPA signed between them and the Project Participant. Based on this, the BESCO issues line loss calculation sheets, for the every month. The Joint Meter Reading Statements (known as Form B) is then submitted by the BESCO to the Project participant which indicates the electricity export, electricity import, transmission line losses and the net electricity exported value at individual grid controller station.
	Is measuring and reporting frequency in	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered

	accordance with the monitoring plan and monitoring methodology? (Yes / No)	PD/01/ and monitoring methodology/10/.
	Monitoring equipment	The electricity exported and imported from the grid is recorded through metering points installed at grid controller station. There are 4 controller station points viz., NSLC III, NSLC IV, NSLC V and NSLC VI used to measure the net electricity supplied to the grid by all the 32 WTGs. All the WTGs are not provided with metering location and hence each controller points measure electricity supplied by more than one WTG. All meters are of bi-directional tri-vector type with an accuracy class of 0.2s. Apart from the readings taken at group controller points, the electricity export readings are also taken at the grid interconnection point or 66 kV substation namely NSLC I and NSLC II. Based on the two readings taken at group controller points and substation, state electricity utility prepares a monthly statement namely Form B of electricity supplied through each WTG after accounting for the transmission loss and import of electricity. The transmission loss has been calculated by the BESCOM/KPTCL personal based on electricity export readings measured at the group controller points and at the 66 kV substation and the same is provided along with the Form B.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with	The energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is higher than accuracy mentioned in the monitoring plan as outlined in the registered PD.

	local/national standards, or as per the manufacturer's specification?	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
	Calibration frequency /interval:	Annual
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	The registered monitoring plan indicates the frequency of accuracy testing/ calibration of the main and check meters as Annual.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility/07/
	Is (are) calibration(s) valid for the whole reporting period?	Calibration of energy meters recording energy exported is valid for whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried.

	How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly Joint Meter Reading Statements (known as Form B)/08/during remote audit and desk review .Value of this parameter for the current monitoring period is verified as 11,630MWh (for Year 2019 i.e. 01/11/2019 – 31/12/2019) and 48,618 MWh (for Year 2020 i.e. 01/01/2020 – 31/10/2020), therefore total as 6,02,47,800KWh. Furthermore monthly values of this parameter is reported in the ER calculation sheet/06/ are also verified with the monitoring report/05/ and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable .
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: The readings at the Metering Point are undertaken every month jointly by the representatives of the BESCO/KPTCL and NSL representative.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.

Findings	CAR#4 was raised and resolved.
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology/10/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

Parameter fixed ex-ante:

$EF_{CO_2,grid,y}$; tCO_2e/MWh : The Combined CO_2 emission factor for the second crediting period of the Project activity has been determined ex-ante in the registered VCS PD/01/. The emission factor value of 0.9475 tCO_2e/MWh used in the monitoring report has been verified against the registered VCS PD/1/ and found it to be consistent.

$EF_{OM,y}$; tCO_2e/MWh : The Operating margin CO_2 emission factor for the second crediting period of the Project activity has been determined ex-ante in the registered VCS PD/01/. The emission factor value of 0.9726 tCO_2e/MWh used in the monitoring report has been verified against the registered VCS PD/01/ and found it to be consistent.

$EF_{BM,y}$; tCO_2e/MWh : The Build margin CO_2 emission factor for the second crediting period of the Project activity has been determined ex-ante in the registered VCS PD/01/. The emission factor value of 0.8723 tCO_2e/MWh used in the monitoring report has been verified against the registered VCS PD/01/ and found it to be consistent.

Calibration of meters:

During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate. The installation and working conditions of the meters were checked during the remote inspection and were found to be satisfactory. Details of meters are provided in below table:

Metering Points	Meter Details					Calibration during current MP	Test Result
	Serial no	Make	Type	Accuracy class	Date of Last Calibration		
NSLC I	Main meter – 11071857	L & T	3P4W	0.2s	10-10-2019	27-01-2020	Satisfactory
	Check meter – 15195281					23-04-2020	
						15-07-2020	

NSLC II	Main meter – 11071861 Check meter – 11071863	L & T	3P4W	0.2s	10-10-2019	27-01-2020 23-04-2020 15-07-2020	Satisfactory
NSLC III	Main meter – 07022896 Check meter – 07022921	L & T	3P4W	0.2s	10-10-2019	27-01-2020 23-04-2020 15-07-2020	Satisfactory
NSLC IV	Main meter – 07022985 Check meter – 07022986	L & T	3P4W	0.2s	10-10-2019	27-01-2020 23-04-2020 15-07-2020	Satisfactory
NSLC V	Main meter – 09142342 Check meter – 13191365	L & T	3P4W	0.2s	10-10-2019	27-01-2020 23-04-2020 15-07-2020	Satisfactory
NSLC VI	Main meter – 11071865 Check meter – 13191363	L & T	3P4W	0.2 S	10-10-2019	27-01-2020 23-04-2020 15-07-2020	Satisfactory

The details of monitoring equipment are involved in the project activity and their calibration details/07/ are mentioned in the table under Appendix I of the VCS MR/05/. The meters have been remotely inspected through latest photographs, calibration certificates and the meter details are found to be consistent. There is no delay in calibration of energy meter during this monitoring period.

The assessment team has verified the monthly JMR issued by state utility and confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid by the WTGs belongs to developer and consequently for ER calculations. As verified through the calibration certificates, that meters were working satisfactorily during the current monitoring period. The registered VCS PD/01/ & MR /05/ and remote audit observations confirm that the metering equipment are sealed and maintained by the state utility.

In view of the above discussion the assessment team able to confirm that evidence used to determine the GHG reductions and removals are sufficient and appropriate with respect to quality and quantity.

GHG Calculations

The emission reduction as per the applied methodology equals the baseline emissions (project emissions and leakage emissions for such project activities is considered zero). The formula provided for the calculation of baseline emissions is:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y} \text{ -----Equation 6 of ACM0002}$$

Where:

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

$EG_{PJ,y}$: Electricity supplied by the project activity to the grid in year y (MWh/yr)

$EF_{grid,CM,y}$: Combined Margin (CM) Emission Factor of Southern regional electricity grid (tCO₂e/MWh)

Thus, $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$

Thus, $BE_y = 60,248 \text{ MWh} * 0.9475 \text{ tCO}_2\text{e/MWh}$

$= 57,085 \text{ tCO}_2\text{e}$

The PP has provided a comparison of actual achieved ER and ex-ante estimated value for the equivalent period is included in the ER sheet, under the spreadsheet “Comparison” worksheet. There is no increase in ER, in the contrary there is 55.52% lower ER achieved during the current monitoring period which was caused due to decrease in generation during the current MP because of lower wind availability & unexpected machine down times. This was found to correct and acceptable.

The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The assumptions, emission factors and default values that were applied in the calculations are justified. All the data were made available and have monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above.

4.6 Non-Permanence Risk Analysis

Not applicable for the project activity.

5. VERIFICATION CONCLUSION

LGA Technological Center, S.A. (Applus+ Certification), contracted by M/s NSL Renewable Power Private Limited, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 706) “51 MW Wind Power Project at Chitradurga” in India for the monitoring period 01/11/2019 to 31/10/2020 as reported in the Monitoring Report Version 02 dated 14/12/2020. The M/s NSL Renewable Power Private Limited is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity

Applus+ Certification commenced the verification on the basis of the baseline and monitoring methodology ACM0002 Version 19, the monitoring plan contained in the registered VCS PD Version 03, dated 05/02/2019 and VCS guidelines version 4, Monitoring Report Version 03 dated 08/04/2021 as per the process described under Section 2 of this report.

Applus+ Certification verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Applus+ Certification planned and performed the verification by obtaining evidence and other information and explanations that Applus+ Certification considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 01/11/2019 to 31/10/2020 are fairly stated in the Monitoring Report Version 03 dated 08/04/2021. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002, Version 19, and the VCS standard.

Verification period: From 01/11/2019 to 31/10/2020 (including both days)

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2019 (01/11/2019 to 31/12/2019)	11,019	0	0	11,019
Year 2019 (01/01/2020 to 31/10/2020)	46,066	0	0	46,066
Total	57,085	0	0	57,085

APPENDIX 1: <REFERENCES>

S. No	Title of Document	Version	Date
1.	Approved VCS PD	3.0	05/02/2019
2.	VCS Validation Report	2.0	08/02/2019
3.	Previous VCS Verification report (Monitoring period: 01/10/2018 - 31/10/2019)	3.0	22/01/2020
4.	VCS Monitoring Report	1.0	02/12/2020
5.	VCS Monitoring Report (Final)	3.0	08/04/2021
6.	ER Sheet(corresponding to the final monitoring report)	3.0	08/04/2021
7.	Certificates of Calibration for all the meters belongs to project activity	-	-
8.	MonthlyStateEnergyStatements (Form B) issued by BESCO/KPTCL	-	01/11/2019 to 31/10/2020
9.	Copy of all invoices raised to BESCO by Project participant for net electricity exported to the grid for the current verification period	-	01/11/2019 to 31/10/2020
10.	"Consolidated methodology for grid-connected electricity generation from renewable sources", ACM0002,	19.0.0	EB62
11.	CEA Database	13	June 2018
12.	Commissioning certificate for all the WTGs of the project activity issued by state electricity authority	-	-
13.	Power Purchase Agreements signed between Project Proponent and respective state electricity authority	-	-
14.	VCS webpage for the project, VCS ID 706; http://www.vcsprojectdatabase.org/#/project_details/706	-	Last accessed on 16/12/2020
15.	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period	-	-
16.	VCS Standard	Version 4	19/09/2019
17.	VCS Program Guide	Version 4	19/09/2019
18.	Remote assessment –interviews of staff personnel, photographs, remote inspection of monitoring system	-	08/12/2020
19.	Clean Development Mechanism Validation and Verification Standard for Project Activity (CDM-VVS for PA), as per EB 101, Annex 2	2.0	29/11/2018
20.	ER Sheet	1.0	02/12/2020
21.	VCS Monitoring Report	2.0	14/12/2020
22.	ER Sheet(corresponding to the final monitoring report)	2.0	14/12/2020

APPENDIX 2: <COMPETENCY STATEMENT>

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) & Technical Expert (TE)	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 curriculum 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.

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI 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+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 3.5 years.

APPENDIX 3: <ABBREVIATIONS>

ABT	Availability Based Tariff
BEF	Baseline Emission Factor
BM	Build Margin
BESCOM	Bangalore Electricity Supply Company Limited
CAR	Corrective Action Request
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CL	Clarification Request
CMS	Central Monitoring System
CMP	Conference of Parties Serving as Meeting of Parties
CO2	Carbon dioxide
DISCOM	Distribution Company
EB	Executive Board
EPC	Engineering, Procurement and Construction
FAR	Forward Action Request
GHG	Green House Gas
ISO	International Standards Organization
JMR	Joint Meter Reading
KPTCL	Karnataka Power Transmission Corporation Limited
kW	Kilowatt
kWh	Kilowatt hour

MFR	Multi-Function Relay
MR	Monitoring Report
MW	Megawatt
MWh	Megawatt-hour
NEWNE	Northern Eastern Western Northern-Eastern
O&M	Operation and Maintenance
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance and Quality Control
TNEB	Tamil Nadu Electricity Board
TOD	Time of the Day
UNFCCC	United Nations Framework Convention on Climate Change
WEC	Wind Energy Convertor
WEG	Wind Energy Generator
WTG	Wind Turbine Generator
VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCS PD	VCS Project Description
VCUs	Voluntary Carbon Units

APPENDIX 4: <FINDINGS OVERVIEW>

Table 1: Remaining FAR from validation and/or previous 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				

Table 2. CL from this verification

CL ID	01	Section no.	1.8	Date : 12/12/2020
Description of CL				
PP is requested to clarify why the tools applied are not mentioned in Section 1.8 of MR.				
Project participant response				Date : 14/12/2020
MR has been revised to update the tools referenced under section 1.8 in line with the registered PD.				
Documentation provided by project participant				
MR Version 02				
DOE assessment				Date: 17/12/2020
Assessment team confirms that PP has provided the reference tool in the revised VCS MR version 02 submitted to DOE. Hence acceptable.				
CL#1 closed				

CL ID	02	Section no.	1.10 , Appendix	Date : 12/12/2020
Description of CL				
PP is requested to provide the:				
1. Declaration document pertaining to section 1.10 of MR 2. Documents regarding the date of last Calibration mentioned in appendix section.				
Project participant response				Date : 14/12/2020
PP has submitted the following documents to DOE:				
1. Declaration document pertaining to section 1.10 of MR. 2. Meter Calibration certificates pertaining to year 2018.				
Documentation provided by project participant				

Declaration	
Meter calibration certificates	
DOE assessment	Date:07/02/2021
1.Assessment team confirms that PP has submitted declaration pertaining to section 1.10 of MR and meter calibration certificate for the year 2018 in the revised MR version 2.0. Hence acceptable. 2.PP is requested to provide the document verifying the last date of calibration as the gap between the calibration is more than a year so, kindly provide the document to verify the detail mentioned in appendix section.	
Project participant response	Date : 08.02.2021
PP would like to reconfirm that the required calibration documents have been submitted to DOE, same is being submitted again for further reference.	
Documentation provided by project participant	
Meter calibration documents for the year 2018, 2019 & 2020	
DOE assessment	Date: 08/04/2021
As per Appendix 1 of MR, the calibration details provided by the PP, it is mentioned that “all the energy meters including pooling station meters should be calibrated once in a year i.e. calibration frequency is “Annual””. The table mentioned “ Date of Last Calibration ” is 24-07-2018 and very next was conducted on 10-10-2019, which shows delay of period from 24-07-2019 to 10-10-2019. Please clarify.	
Project participant response	Date : 08/04/2021
PP would like to clarify that this delay is not valid and applicable to the current MP. This delay was already considered in the previous MP. DOE may please note that the current monitoring period is from 01-November-2019 to 31-October-2020, thus before the start of the monitoring period the latest date of calibration was 10-10-2019. And thereafter three meter testing was performed during the current monitoring period (i.e. 27/01/2020, 23/04/2020 and 15/07/2020), which satisfied the requirement of annual calibration frequency. Thus, no delay in meter calibration is applicable to the current monitoring period. In order to remove any confusion and for better presentation, the date 24-07-2018 has been removed from “Date of Last Calibration” as only the date “10-10-2019” is relevant w.r.t. the current monitoring period. The revised MR and ER is submitted to DOE.	
Documentation provided by project participant	

Revised MR, version 03, dated 08/04/2021	
Revised ER, version 03, dated 08/04/2021	
DOE assessment	Date: 10/04/2021
Assessment team check and confirm that the PP has done appropriate corrections in ER and MR. Hence CL#02 closed.	

CL ID	03	Section no.	2.2	Date :12/12/2020
Description of CL				
PP is requested to clarify the mechanism for ongoing communication with local stakeholders				
Project participant response				Date : 14/12/2020
MR has been revised to report the mechanism for ongoing communication with local stakeholders under Section 2.2 of the MR and stated that there were no comments has been revised during the current monitoring period.				
Documentation provided by project participant				
MR Version 02 Stakeholder feedback/grievance register				
DOE assessment				Date: 17/12/2020
Assessment team confirms that PP has included the mechanism for ongoing communication with local stakeholders in the revised VCS MR version 02. Hence acceptable CL #3 Closed				

Table 1. CAR from this verification

CAR ID	01	Section no.	MR	Date :12/12/2020
Description of CAR				
According to the instructions mentioned in the MR Template Version 4.0, PP is requested to follow the prescribed instructions regarding the Font size in the entire document.				
Project participant response				Date :14/12/2020
PP has revised MR to follow the prescribed instructions regarding the Font size in the entire document.				
Documentation provided by project participant				
MR Version 02				

DOE assessment	Date: 17/12/2020
Assessment team confirms that PP has updated the font size in the revised MR, now it's in line with VCS MR template Version 4.0 sheet. Hence acceptable	
CAR#1 Closed.	

CAR ID	02	Section no.	Title page	Date :12/12/2020
Description of CAR				
According to the instructions mentioned in the MR Template V4.0, PP is requested to:				
1. Use Franklin Gothic Book font for the logo 2. Complete all items in the table using 10.5 font size 3. Provide website details in the contact section				
Project participant response				Date :14/12/2020
PP has revised MR to follow the instructions mentioned in the MR Template V4.0 and incorporated the following corrections:				
1. Used Franklin Gothic Book font for the logo 2. Completed all items in the table using 10.5 font size 3. Provided website details in the contact section				
Documentation provided by project participant				
MR Version 02				
DOE assessment				Date: 17/12/2020
Assessment team confirms that PP has updated the font size and also provided the website detail in revised MR, now it's in line with VCS MR template Version 4.0. Hence acceptable				
CAR#2 Closed.				

CAR ID	03	Section no.	1.7	Date :12/12/2020
Description of CAR				
PP is requested to use non- Italic font for caption of image and for the table in section 1.7 of MR				
Project participant response				Date :14/12/2020
MR has been revised to not use the Italic font for caption of image and for the table in section 1.7 of MR				
Documentation provided by project participant				
MR Version 02				
DOE assessment				Date: 17/12/2020

Assessment team confirms that PP has revised the MR and now non italic font is used which is in line with VCS MR template Version 4.0. Hence acceptable

CAR#3 Closed.

CAR ID	04	Section no.	ER and 4.2, 5 of MR	Date :12/12/2020
Description of CAR				
PP is requested to update;- 1. The values of October 2020 in ER sheet 2. The values in section 4.2 and 5 in MR in accordance with the ER Sheet				
Project participant response				Date : 14/12/2020
PP has revised MR & ER to update the following request: 1. The values of October 2020 have been updated in ER sheet. 2. The values in section 4.2 and 5 in MR has been updated in accordance with the ER Sheet				
Documentation provided by project participant				
ER Version 02				
MR Version 02				
DOE assessment				Date: 17/12/2020
Assessment team confirms that PP has updated MR and ER and included the values for October 2020 in the revised MR version 2.0 and ER sheet Version 2.0. Hence Acceptable.				
CAR#4 Closed.				

CAR ID	05	Section no.	ER and 4.2, 5 of MR	Date : 07/02/2021
Description of CAR				
The PP is requested to provide comparison on actual achieved ER during monitoring period against estimated ERs as per reg. PD and also justify the difference (if any).				
Project participant response				Date : 08/02/2021
PP would like to reconfirm that the comparison of actual achieved ER and ex-ante estimated value for the equivalent period is included in the ER sheet, under the spreadsheet “Comparison” in the ER excel, version 02, dated 14/12/2020.				
There is no increase in ER, in the contrary there is 55.52% lower ER achieved during the current monitoring period which was caused due to decrease in generation during the current MP because of lower wind availability & unexpected machine down times.				
Documentation provided by project participant				
NA				

DOE assessment	Date:
The PP has explained and included the information in MR , same was found to be correct and accepted. CAR#5 Closed.	

Table 2. 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				