VERIFICATION REPORT FOR "RENEWABLE POWER PROJECT BY DEVARAHIPPARIGI WIND POWER PRIVATE LIMITED"

Document Prepared By Earthood Services Private Limited

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Summary:

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by Infinite Solutions to conduct the verification of the project - "Renewable Power Project by Devarahipparigi Wind Power Private Limited", VCS ID 1793 with regard to the relevant requirements of VCS programme guidelines and standard (VCS standard version 4.0, & VCS program guide version 04.0). Relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for verification.

The monitoring period covers under this verification are from 02/10/2019 to 31/12/2020(both days included). The verification includes confirming the implementation of the monitoring plan of the registered VCS PD and MR (VCS ID 1793) and the application of the monitoring methodology as per ACM0002 version 18.1: "Grid-connected electricity generation from renewable sources".

The project activity involves installation of 100 MW wind power project at the Shivanagi, Hadagali & Neginal villages, Vijayapur district in the state of Karnataka in India, and supplying the electricity to the integrated Indian grid. Thus, the project aims to displace electricity produced by fossil fuel power plants harnessing wind energy. The energy produced is supplied to the regional 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 verification, 02 Corrective Action request (CARs), 00 Forward Action request (FARs), and 01 Clarification request (CLs) were raised and successfully closed. The review of the project design documentation, monitoring report and additional documents related to baseline and monitoring methodology; the subsequent

background investigation, follow-up interviews (telephonic) and stakeholders have provided ESPL with sufficient evidence to validate the fulfillment of the stated criteria.

ESPL confirms that the project is implemented in accordance with the registered VCS PD. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the emission reductions from the project activity "Renewable Power Project by Devarahipparigi Wind Power Private Limited" in India during the period 02/10/2019 to 31/12/2020 (including both days) amount to 268,604 tons of CO2e.

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1 INTRODUCTION

1.1 Objective

Earthood Services Private Limited (ESPL) has been contracted by Infinite Solutions, to undertake the verification of the renewable energy project titled "Renewable Power Project by Devarahipparigi Wind Power Private Limited" (VCS ID-1793) The verifiers have reviewed the GHG data collected to date for the monitoring period from 02/10/2019 to 31/12/2020 (both days included) covered in this verification. The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the VVB. 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 level of assurance of the verification report falls under reasonable assurance engagements as selected by the VVB. Reasonable assurance is a high level of assurance regarding material misstatements, but not an absolute one.

Reasonable assurance includes the understanding that there is a remote likelihood that material misstatements will not be prevented or detected on a timely basis. To achieve reasonable assurance, the auditor needs to obtain sufficient appropriate audit evidence to reduce audit risk to an acceptably low level. This means that there is some uncertainty arising from the use of sampling, since it is possible that a material misstatement will be missed.

The evidence used to achieve a reasonable level of assurance is specified in section 2.3 and 2.4 of this report. Materiality for the project is 5%.

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 50 WTGs (2000 kW capacity each), making the total installed capacity to be 100 MW at the Shivanagi, Hadagali & Neginal villages, Vijayapur district in the

state of Karnataka in India.

Location of the project was verified through Google Map (https://www.google.com/maps) and found consistent with the data provided in the MR/04/.

The WTGs were commissioned on 25/03/2017. The same was verified against the registered VCS PD/01/ and commissioning certificate/13/. The emission reductions from the project activity during the period 02/10/2019 – 31/12/2020 (including both days) amount to 268,604 tonnes of CO2e.

The verification team has also verified the latest photographs/12/ of all the equipment's (WTGs and transformers, energy meters) installed at site and SCADA monitoring system submitted by the project proponent. The project activity is undergoing third verification and the implementation of project activity was also verified during second verification through on-site visit by ESPL team on 19/02/2020. Based on the assessment of the documents, the assessment team is able to confirm that the project activity is fully functional and implemented as described in the registered VCS PD.

2 VERIFICATION PROCESS

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

2.1 Method and Criteria

The verification approach consists two phases.

In the first phase, ESPL completed a strategic review and risk assessment of the project's activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the Monitoring Report.

At the end of this phase, ESPL produced a Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the second phase using the Verification checklist, ESPL verified the implementation of the monitoring plan and the data presented in the VCS MR/04/ for the period in question. This involved telephonic interviews of project proponent representative's and a desk review of the Monitoring Report. This verification report describes the findings of this assessment.

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD/01/,

previous verification report/02/ and associated documents as stated in details 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

During the current verification, on-site inspection has not been performed by the assessment team. However, the representatives of the PP were interviewed telephonically on 18/02/2021 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:

Name	Organization	Topic covered
Mr. Murali Krishnam Raju M	Greenko Group (Senior Manager)	Project implementation, start date as per the VCS requirements. Electricity Generation Records (monthly energy statements/JMRs, Invoices) Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure
Mr. Samarth Barve	Infinite Solutions (Assistant Manager	Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations
Mr. U Mallikarjuna -	Plant Head – Operation	Monitoring and measuring system, Collection of measurements. QA/QC procedures, data management, internal audits to maintain data quality & reliability, maintenance Practices.

2.4 Site Inspections

Due to the current situation with the global COVID-19 pandemic scenario physical site inspection is not done for the current verification. Although domestic travel has resumed in India, it is still not recommended until absolutely necessary and considering health and safety a top priority, physical site visit for verification audit is not conducted. However, to achieve a reasonable level of assurance, the assessment team has followed the alternative means to substantiate the verification criteria as described in the below table:

Assessment Criteria	**Means of verification/source documents**	**Assessment opinion**
Description of project	Commissioning certificates	The information's with

Assessment Criteria	Means of verification/source documents	Assessment opinion
activity	/13/ PPA signed with state utility (BESCOM) /14/ Latest VCS verification report /09/. Telephonic interview on 18/02/2021	reference to project capacity, technology, plant equipment's and commissioning dates as provided in section 1.1. of MR are found consistent with the documents.
Compliance of the project implementation with the registered project design Document	Monthly JMRs (Form B) issued by BESCOM /08/ Geographical co-ordinates (Location of WTGs) verified through Google Map[1] Latest VCS verification report /09/. PPA signed with state utility (BESCOM) /14/ Telephonic interview on 18/02/2021 Photograph of all the WTGs, energy meters installed at site and screen shots of online monitoring system /12/	JMRs (Form-B) issued by BESCOM indicate the following information: • Commissioning date • Date of PPA signed with BESCOM • Serial number of energy meters • Capacity of project • Name of project participant Location of each WTG is verified through Google Map. Daily generation records are verified to check the operational status of project activity. Grid connectivity of the project is confirmed through the PPA. All the information's regarding the project implementation as discuss above are further verified

[1] https://www.gps-coordinates.net/

Assessment Criteria	Means of verification/source documents	Assessment opinion
		through VCS verification report along with latest and found consistent.
Compliance of the registered monitoring plan with applied methodologies and standardized baselines	Telephonic interview on 18/02/2021 PPA signed with state utility (BESCOM) /14/ Monthly JMRs (Form B) issued by BESCOM /08/ Invoices raised by project developer to state utility/07/ Photograph of all the WTGs, energy meters installed at site and screen shots of online monitoring system /12/	The organizational structure, responsibilities and competencies of the personnel confirmed through telephonic interview. Frequency of monitoring of parameters listed under approved monitoring plan is verified through JMRs (Form-B)/Invoices. The methods used for measuring, recording, storing, aggregating, and reporting the data on monitored parameters are verified though PPA and interactions with site personnel. Procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mentioned in the MR is confirmed through policy documents/20/ and found satisfactory.
Compliance with the calibration frequency requirements for measuring instruments	Calibration certificates of instruments/06/ Monthly JMRs (Form B) issued	Calibration frequency and energy meter specifications (Sr.No, make accuracy class) is verified through calibration

Assessment Criteria	Means of verification/source documents	Assessment opinion
	by BESCOM /08/ PPA signed with state utility (BESCOM) /14/ Central Electricity Authority (Installation and Operation of Meters) Regulations/16/	certificates and further verified through monthly JMRs and found consistent. Responsibility of calibration and maintenance of energy meters is solely under control of BESCOM; this is verified through the PPA.
Assessment of data and calculation of emission reductions or net removals	Monthly JMRs (Form B) issued by BESCOM /08/ Invoices raised by project developer to state utility/07/ CEA CO_2 Baseline Database for the Indian Power Sector /11/ Latest VCS verification report /09/	Monthly values of monitoring parameters used in ER calculation are verified through JMRs and cross verified with the invoices. Methods, formulae and emission factor for calculating baseline emissions have been followed are in accordance with the applied methodology and as described in the approved VCS verification report.

It is noteworthy that no sampling plan for verification is applied as 100% data is verified for the current monitoring period. Most of the reference document referred by the assessment team (above table) are either issued /endorsed by state utility (KPTCL/BESCOM), an external government agency, hence is deemed authentic.

Based on the above assessment it can be concluded that 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

interaction with site personnel over phone. 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 ESPL 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 current verification there are 02 CARs and 01 CL raised and resolved. All the findings that are raised and communicated to project participant during the verification are included under Appendix 3. 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 third verification in VCS; there were no FARs raised during the validation or previous verification/02/.

2.6 Eligibility for Validation Activities

The project activity is undergoing third period verification and no validation activities undertaken as part of the verification.

3 VALIDATION FINDINGS

The project is undergoing verification; hence this section is not applicable.

3.1 Participation under Other GHG Programs

The project is registered under VCS only (Project ID-1793) with 10 years crediting period (renewable twice) from 25/03/2017 to 24/03/2027/01/. As verified through the records available at VCS registry, VERs for the period from 25/03/2017 to 01/10/2019 are already issued. The PP has submitted the declaration/19/ which states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring

period.

3.2 Methodology Deviations

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

3.3 Project Description Deviations

As per the monitoring plan as outlind in the registered PD ,the net electrcity supplied to the grid ($EG_{PJ,y}$) is calculated as the difference of electrcity exported and imported from the grid, however as per the actual monitoring practice followed at site ,parameter ($EG_{PJ,y}$) is calcualted as the difference of electrcity export ,import after deducting the transmission losses.Hence the project proponent has corrected the formula used in the calculation of $EG_{PJ,y}$ and considered this change as project deviation in the current monitoring period.

The assessment team is able to confirm that the deviations identified during the current monitoring period is appropriately described and justified in section 3.2 of the monitoring report and the project remains in compliance with the VCS rules. Also, the deviation does not have an impact on the applicability of the methodology, additionality or the appropriateness of the baseline scenario.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity consists of 50 WTGs installed at Shivanagi, Hadagali & Neginal villages, Vijayapur district in the state of Karnataka in India. All the WTGs were commissioned on 25/03/2017.

The WTGs are Gamesa (model-G114) make with an individual capacity of 2 MW, summing up to 100 MW of total installation capacity. The installation and specification of WTGs has been checked with commissioning certificates/13/. The commissioning has also been duly validated in the VCS validation report of the project activity/02/. There was no major breakdown or shut downs during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

The power generated through the proposed project activity being supplied to the Indian grid through a contractual arrangement (PPA). The technical specification of the project activity equipment's has been checked through the photographs of all the equipment's installed at site and are found to be consistent with the mentioned under section 3.1 of MR. The current status of the project activity is verified through the screen shots of SCADA system/12/, indicating the real-time generation data and hence it is confirmed that the project is fully functioning.

The monitoring plan of registered VCS PD/01/ includes the parameter "Quantity of net electricity

generation supplied by the project plant/unit to the grid in year y" ($EG_{PJ,y}$). This parameter being measured by energy meters of accuracy class 0.2s located at 220/33 kV Kumatagi pooling substation. This parameter is measured continuously and follows at least monthly recording. This is in line with methodology and is accepted.

Monthly values of $EG_{PJ,y}$ obtained directly from the monthly JMRs (Form-B) issued by state utility (KPTCL/BESCOM)/08/. The invoicing being done against electricity supplied by the project plant to the grid. The measurement results are cross checked with records of invoices and it is in line with applied methodology. Thus, this parameter is considered in emission reduction calculations.

As verified through the calibration certificates and recent photographs of energy meters that there is 4 energy meters (two meters for each Line-1 and Line-2) installed at pooling sub-station and are under control of state utility (KPTCL), sealed in presence of both the state utility official & representative of PP.

Joint Meter Reading is being taken jointly by the officials of state utility and project participant's representative on monthly basis and accordingly monthly Form-B is being prepared. The monitoring methodology applies consistently the choice of the option selected for monitoring of baseline emissions. The monitoring plan provide procedures for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period. This is checked through discussion with consultant and the project participant during the telephonic interview.

The VCS MR/04/ has been reviewed to check that the procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mention in the MR. The monitoring plan completely describes all measures to be implemented for monitoring all parameters required. The monitoring plan described the positioning of the equipment. The information relating to the project implementation, provided in the Monitoring Report /04/ is consistent with that stated in the registered PD /01/. The data and variables provided in the monitoring report are the same as stated in the registered PD/01/. Total emission reductions achieved under this monitoring period 02/10/2019 to 31/12/2020 (including both days) is 268,604 tCO2e.

Assessment team concludes the following:

a) There are no material discrepancies between project implementation and the project description provided in the registered PD/01/.
b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
c) There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/10/.
d) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading/15/.
e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification/19/.

f) The project is registered under VCS only.

g) The project activity is complying with indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under section 1.11 of MR.

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 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 (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 project activity involves generation of power using wind energy which is a clean source of energy. Hence no mitigation measures are required.

4.2.2 Local Stakeholder Consultation

The project activity undergoing third verification and local stakeholder consultation was appropriately conducted prior to validation as a way to inform the design of the project and maximize participation from stakeholders during the validation.

The project proponent has implemented mechanism for ongoing communication with local stakeholders to allow stakeholders to raise concerns about potential negative impacts during implementation and operation of the project activity. The project proponent has placed a grievance register and a grievance box at site office/21/, where the local villagers can register their concerns.

The assessment team has checked the copy of grievance register maintained at site office/21/ and confirmed that no formal complaints were received during the current monitoring period.

4.3 AFOLU-Specific Safeguards

Not applicable to the project activity.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The calculation of the emission reductions is found to be correct. The details of the reported and the verified values for all parameters are listed in section 4.5 of this report.

The parameter $EG_{PJ,y}$ is directly sourced from Form-B issued by state utility. The PP has provided the complete set of data for all the monitored parameters in the ER spreadsheet/05/. This data has been verified as described in section 4.5 below. The formulae & method used to calculate the baseline emissions, project emissions and leakage are appropriate and in line with the approved methodology ACM0002 version 18.1/10/.

The PP has calculated the grid emission factor as per the combined margin approach described

in the 'Tool to calculate the emission factor for an electricity system', version 07.0/10.1/. The grid emission factor has been calculated as the weighted average of OM & BM; and to be monitored ex-post for the entire crediting period.

The OM and BM have been obtained from a publicly available source i.e., "CO2 Baseline Database for Indian Power sector", version 13/11/ published by Central Electricity Authority, Ministry of Power, and Government of India. The OM has been determined as the average of the previous 3 years values obtained from the CEA database/11/. The value of BM has been identified directly from the CEA database. The combined margin emission factor was arrived at by applying weights of 75% for OM and 25% for BM, as specified in the tool. The OM and BM have been calculated to be 0.9726 tCO2/MWh and 0.8783 tCO2/MWh respectively. Applying the weights, the grid emission factor has been calculated to be 0.9475 t CO2/MWh.

As per excel spreadsheet/05/ submitted by the PP, the net emission reductions for the current monitoring period were verified as 268,604 tCO2e for the current monitoring period.

The assessment team able to confirm that the GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The Siemens Gamesa is the O&M contractor and is responsible for the operations, maintenance and monitoring of the project activity, whose operation and maintenance activities are ISO 14001 (Environment Management System) and OHSAS 18001 (Occupational health and safety management systems/20/. Hence it is confirmed that the management system of the VCS project is in place; with the responsibilities properly identified. The same was also verified during the telephonic interview of site personnel.

The monitoring of the project activity is found to be in accordance with the monitoring methodology described in ACM0002, Version 18.1 /10/. The monitoring mechanism is effective and reliable. During the con-call, personnel involved at various levels of the operation of the project activity have been interviewed to confirm that the plant personnel are conscious of the importance of the monitoring activities. The verification of the plant records and latest photographs are also substantiating consistency in recording and reporting of monitored data.

The screen shots of SCADA system/12/ confirms that the monitoring systems have been installed and are operational. The meters comply with appropriate quality standards applicable for the used technology. The accuracy class of the meters installed for the project activity was verified through the registered VCS PD/01/, MR /04/, and calibration certificates, latest photographs of meters and cross-checked against the PPA/14/ signed for the project activity, found to be consistent. The supporting records of monthly JMRs /08/ issued by KPTCL and invoices raised to state utility for the entire monitoring period were checked and found to be sufficient to enable verification of emission reductions.

Parameter	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y, $EG_{PJ,y}$ MWh

Means of verification	

Criteria/Requirements	Assessment/Observation
Measuring /Reading /Recording frequency	The electricity exported and imported by all 50 WTGs of the project activity are continuously measured and monthly recorded at the meters installed at pooling sub-stations, by the representatives of BESCOM and the Project Proponent.
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 being generated by project WTGs is monitored at the dedicated pooling sub-station located at Kumatagi. In the substation, there are four meters namely- Check Meter and Main Meter (static type Trivector meter, Accuracy class: 0.2s)
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?	All the energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is in accordance with 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 of monitoring equipment is valid for the entire range.

	Calibration frequency /interval:	Calibration frequency of the meters is once in 5 years .
	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?	Yes, calibration interval of meters is 5 years, which is in line with the monitoring plan/01/ and national standards/16/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by KPTCL which NABL Accredited Government institution/06/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters are valid for the whole monitoring period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Monthly value of $EG_{PJ,y}$ for entire monitoring period is reported in the monitoring report and in the ER calculation sheet. The monthly values were verified from the Form-B issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 283,489 MWh.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of $EG_{PJ,y}$ were further cross checked with the monthly invoices raised by the PP /07/ to state utility 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 (KPTCL), the PP and the Gamesa (O&M Contractor). The data transfer process for the said parameter is as follows: The Joint meter reading at all the metering points at pooling sub-station is taken by the representatives of KPTCL/HESCOM in the presence of PPs representative officials in the form of JMRs. Monthly Form-B issued by state utility provides the value of $EG_{PJ,y}$ that is directly used for emission reduction calculations.	
	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	CL #1, CAR #1 and CAR #2 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. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameters fixed ex ante:

$EF_{grid,OM,y}$; tCo_{2e}/MWh: it is the operating margin emission factor of Indian grid fixed for the entire crediting period and the value is considered as 0.9726 tCO_{2e}/MWh, that is consistent with the registered VCS PD and MR.

$EF_{grid,BM,y}$; tCO_{2e}/MWh: it is build margin emission factor of Indian grid fixed for the entire crediting period and the value is considered as 0.8723 tCO2e/MWh, that is consistent with the registered VCS PD and MR.

$EF_{grid,CM,y}$; tCO_{2e}/MWh: it is the combined margin emission factor of Indian grid fixed for the entire crediting period and the value is considered as 0.9475 tCO2e/MWh, that is consistent with the registered VCS PD and MR.

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 through calibration certificates, latest photographs and were found to be satisfactory. Details of meters are provided in below table:

Sub-station	Meter Location	Meter Serial No	Calibration Date	Calibration validity date
220/33 kV Kumatagi pooling substation	Line #1	Main meter: 16196503 Check meter: 16196514	17/06/2019	16/06/2024
	Line #2	Main meter: 16196510 Check meter: 16196508	17/06/2019	16/06/2024

It is evident from the above table that calibration of all the existing meters was valid during the current monitoring period, hence no delay in calibration of meters identified. The CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006 and its amendments Notified on 26/06/2010 No. 502/6/2009/DP&D/D-I /16/ which is considered as national standard, mentions that for voltage of 650 V up to 33 Kv, 0.5s accuracy class or above is recommended. Hence, the accuracy classes of 0.2s for the energy meters installed at the project activity site are found to be appropriate.

The details of monitoring equipment are involved in the project activity and their calibration details/07/ are mentioned under Appendix-1 of the VCS MR/04/. The CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/16/ which is considered as national standard mentions that “All interface meters shall be tested at least once in five years.” Hence, the stipulated calibration frequency once in 5 years is appropriate.

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:

$ER_y = BE_y - PE_y$

Where:

ER_y = Emission reductions in year y (tCO_2e/yr)

BE_y = Baseline emissions in year y (tCO_2/yr)

PE_y = Project emissions in year y (tCO_2e/yr)

The formula provided for the calculation of baseline emissions is:

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

Where:

BE_y : Baseline emissions in year y (tCO_2e/yr)

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

$EF_{grid, CM, y}$= Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO2/MWh)

If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$EG_{PJ, y} = EG_{facility,y}$

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

Thus, BE_y = 283,489 MWh * 0.9475 tCO2e/MWh

ER_y = 268,604 tCO_2

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. The actual emission reduction achieved during the current monitoring period are 9.99% higher than the estimated amount of emission reductions at the time of validation, which is due to the high PLF achieved by the project activity during the monitoring period.

It is to be noted that PLF is completely governed by the availability of wind, which is natural phenomenon and same is beyond the control of PP, hence the assessment team has concluded the increase in emission reduction of the project activity is justified and acceptable.

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

The project activity is grid connected wind power plant and not belongs to the category, Agriculture, Forestry, and Other Land Use (AFOLU) hence this section is not applicable for the project activity.

5 VERIFICATION CONCLUSION

Earthood Services Private Limited (ESPL), contracted by Infinite Solutions, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1793) "Renewable Power Project by Devarahipparigi Wind Power Private Limited" in India for the monitoring period 02/10/2019–31/12/2020 as reported in the Monitoring Report Version 02

dated 10/02/2021. The Greenko group 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.

ESPL commenced the verification on the basis of the baseline and monitoring methodology ACM0002 version 18.1, the monitoring plan contained in the registered VCS PD Version 03, dated 14/11/2018 and VCS guidelines version 4.0, Monitoring Report Version 02 dated 10/02/2021 as per the process described under Section 2 of this report.

ESPL 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. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL 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 02/10/2019–31/12/2020 are fairly stated in the Monitoring Report Version 02 dated 10/02/2021. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002, Version 18.1, and the VCS standard.

Verification period: From 02/10/2019 – 31/12/2020 (including both days)

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2019 (from 02/10/2019 to 31/12/2020)	36,207	0	0	36,207
2020 (from 01/01/2020 to 31/12/2020)	232,397	0	0	232,397
Total	268,604	0	0	268,604

Approved by

Dr. Kaviraj Singh

Managing Director **Date: 05/03/2021**

Earthood Services Privated Limited **Place: Gurugram, Haryana**

APPENDIX 1: DOCUMENT REFERENCES

S.No	Title of Document	Version	Date
1.	Registered VCS PD	03	14/11/2018
2.	VCS Validation Report (ref no CDMMUM-0061741)	02	05/12/2018
3.	VCS Monitoring Report	01	29/01/2021
4.	VCS Monitoring Report (Final)	02	10/02/2021
5.	ER spread sheet (corresponding to the final monitoring report)	02	10/02/2021
6.	Certificates of Calibration for all the meters belongs to project activity	-	-
7.	Invoice issued by PP to state DISCOM for the period 02/10/2019 to 31/12/2020	-	-
8.	Monthly JMRs (Form-B) issued by state DISCOM for the period 02/10/2019 to 31/12/2020	-	-
9.	VCS Verification Report for MP02(for the period 01/08/2018 to 01/10/2019), issued by ESPL	01	09/04/2020
10	"Grid-connected electricity generation from renewable sources", ACM0002,	18.1	-
11	CEA CO_2 baseline Database	version 13	June 2018
	Tool to calculate the emission factor for an electricity system	07	-
12	Latest photographs of SCADA system, WTGs, transformers and energy meters installed at site	-	-
13	Commissioning certificate for all the WTGs of the project activity issued by KPTCL	-	-
14	Power Purchase Agreements signed between Project Proponent and BESCOM	-	27/10/2016
15	VCS webpage for the project, VCS ID 1793; https://www.vcsprojectdatabase.org/#/project_details/1793	-	-
		-	-
16	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	-	-
17	VCS Standard	Version 4.0	19/09/2019
18	VCS Program Guide	Version 4.0	19/09/2019
19	Letter of declaration dated from PP	-	10/02/2021
20	• SGRE-Supplier-Quality-Manual.pdf • Genco Sustainability Report (https://www.greenkogroup.com/assets/Investor%20pdf%27s/SR_2016-17.pdf)	-	-
21	Grievance register placed at site office	-	-

APPENDIX 2: ABBREVIATIONS

Abbreviations	Full texts
ABT	Availability Based Tariff
BEF	Baseline Emission Factor
BM	Build Margin
BESCOM	Bangalore Electricity Supply Company
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
DISCOM	Distribution Company
EB	Executive Board
FAR	Forward Action Request
GHG	Green House Gas
ISO	International Standards Organization
JMR	Joint Meter Reading
KPTCL	Karnataka Power Transport Company Limited
kW	Kilowatt
kWh	Kilowatt hour
MR	Monitoring Report
MWh	Megawatt-hour
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
QA/QC	Quality Assurance and Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCS PD	VCS Project Description
VCUs	Voluntary Carbon Units
WEG	Wind Energy Generator

Abbreviations	Full texts
WTG	Wind Turbine Generator

APPENDIX 3: FINDINGS OVERVIEW

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

FAR ID	NA	Section no.	NA	Date :DD/MM/YYYY
Description of FAR				
No FAR from validation or verification				
Project participant response				**Date :**DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD/MM/YYYY
NA				

Table 1. CL from this verification

CL ID	01	Section no.	2.2	Date : 06/02/2021
Description of CL				
• Please submit the following documents: i. Commissioning certificate for all the WTGs ii. Calibration certificates of the energy meters iii. PPA signed for the project iv. Please submit the JMRs and Invoices for the current monitoring period • Please submit declaration confirming that the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions. • Please clarify why the geographical coordinates of all the WTGs are not reported in the MR.				
Project participant response				**Date :** 10/02/2021
1. The following documents are submitted herewith; v. Commissioning certificate for all the WTGs vi. Calibration certificates of the energy meters vii. PPA signed for the project viii. JMRs and Invoices for the current monitoring period 2. The declaration confirming that the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions is submitted herewith. 3. The geo coordinates for all the individual WTGs are now described in the MR Version 2 section 1.7.				
Documentation provided by project participant				
Commissioning certificate Calibration certificate PPA JMRs & Invoices Declaration - No double counting Revised MR Version 2.0				
DOE assessment				**Date:** 20/02/2021

1. The PP has submitted the requested documents and found to be appropriate, hence accepted. 2. Project proponent has submitted the declaration pertaining to confirmation for the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions, found satisfactory, hence accepted. 3. The PP has reported the geographical locations of all the WTGs in the MR, found to be correct. CL #1 is closed.

Table 2. CAR from this verification

CAR ID	01	Section no.	4.2.2	Date : 06/02/2021
Description of CAR				
Please clarify why the information regarding the ongoing communication with local stakeholders is not provided in section 2.2 of the MR, in line with the guidelines provided under the clause 3.16.3 and 3.16.4 of the VCS standard v 04.				
Project participant response				**Date :** 10/02/2021
The section 2.2 of the MR version 2.0 has been revised to include the details for the grievance register maintained at site. The stakeholders may comment or provide suggestions to the project. There are no comments received in the current monitoring period.				
Documentation provided by project participant				
Revised MR Version 2.0				
DOE assessment				**Date:** 20/02/2021
The PP has described the procedure regarding the ongoing communication with local stakeholders in section 2.2 of the MR, in line with the guidelines provided under the clause 3.16.3 and 3.16.4 of the VCS standard v 04, hence accepted. CAR #1 is closed.				

CAR ID	02	Section no.	4.5	Date : 06/02/2021
Description of CAR				
1. The formula used to calculate the net emission reductions as mentioned under section 5.4 of the MR is not in line with the applied methodology. 2. Value of net emission reductions achieved during the current monitoring period as mentioned in the MR is not consistent with the ER calculation sheet. 3. The actual emission reductions achieved in the current monitoring period are 9.9% more than the estimated ERs in the registered PD for comparable period. Kindly clarify the reason for the same.				
Project participant response				**Date :** 10/02/2021
1. The formula used to calculate the net emission reductions as mentioned under section 5.4 of the MR is now consistent with the applied methodology. Hence Revised MR Version 2.0 2. Value of net emission reductions achieved during the current monitoring period as mentioned in the MR is now consistent with the ER calculation sheet. 3. The actual emission reductions achieved during the current monitoring period is 268,604 tCO_2e which are 9.9 % more than the estimated emission reduction. This is mainly due to the natural wind resource availability, and thus wind power generation, is characterized by high inter-monthly variation (with the difference of good-wind month, average month, and poor-wind month) and yearly variation (with the difference of good wind year, average year, and poor-wind year).				
Documentation provided by project participant				
Revised MR Version 2.0 ER Sheet Version 2.0				
DOE assessment				**Date:** 20/02/2021

1. The PP has corrected the formula used to calculate the net emission reductions as mentioned under section 5.4 of the MR and found to be in line with the applied methodology.
2. Value of the net emission reductions achieved during the current monitoring period is corrected in the MR and found consistent with the ER calculation sheet.
3. The actual emission reductions achieved during the current monitoring period are 9.99% more than the estimated ERs in the registered PD for comparable period, which is due to the high PLF achieved by the project activity during the monitoring period and the updated value of emission factor.
   Since the PLF is completely governed by the availability of wind, which is natural phenomenon and same is beyond the control of PP and increase in the PLF is well within the threshold limits of sensitivity analysis, hence the assessment team has concluded the increase in emission reduction of the project activity is justified and acceptable.

CAR #2 is closed.

Table 3. FAR from this verification

FAR ID	NA	**Section No.**	NA	**Date :**DD/MM/YYYY
Description of FAR				
No FAR rose during the verification.				
Project participant response				**Date :**DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD/MM/YYYY
NA				

APPENDIX 4: COMPETENCY STATEMENTS

Name	Ravi Kant Soni		
Country	India		
Education	B. Tech. (Mechanical Engineering) M. Tech. (Energy Management)		
Experience	8 Years +		
Field	Energy and Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.C., ACM0002		
Local expert	YES (India)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	YES (TA 1.2)		
Reviewed by	Shreya Garg	**Date**	04/06/2019
Approved by	Anshika Gupta	**Date**	04/06/2019

Name	Anshika Gupta		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.A., AMS-II.G., ACM0002, AMS-III.A.V.		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Shreya Garg	Date	12/03/2019
Approved by	Kaviraj Singh	Date	12/03/2019