WIND BASED POWER GENERATION BY PANAMA WIND ENERGY PRIVATE LIMITED IN MAHARASHTRA, INDIA

By KBS Certification Services Pvt. Ltd.

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Summary:

KBS Certification Services Pvt. Ltd. has been contracted by, "EKI Energy Services Limited." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'WIND BASED POWER GENERATION BY PANAMA WIND ENERGY PRIVATE LIMITED IN MAHARASHTRA, INDIA' for the monitoring period 01/03/2020 to 31/12/2020 (Inclusive of both days), under the crediting period 05/12/2012 to 04/12/2022, in the initial monitoring report version 01 dated 28/01/2021, with regard to the relevant requirements of VCS Standard Version 4.

The WIND BASED POWER GENERATION BY PANAMA WIND ENERGY PRIVATE LIMITED IN MAHARASHTRA, INDIA also known as Project Sky with a total capacity of 100.8 MW is located in Satara district, within state of Maharashtra, India. The Wind power plant is designed to convert the wind potential energy into kinetic energy using Wind turbines. The electricity generated is exported to the regional grid system which is under the purview of the NEWNE grid of India.

The project activity has been operational since commissioning (22-February-2013) and the project initially aimed to install 100.8 MW by March 2012, however, till now only 72 MW (45 WTGs in number) is implemented in different phases and are in operation. The remaining 18 WTGs are halted due to various reforms by the Maharashtra state regulatory bodies. The PPA are still not signed for them.

The verification is based on the VCS PD, Monitoring report (MR), Emission reduction calculation spread sheet (ER sheet), proof of title, proof of right, additional documents related to baseline and monitoring

methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the verification team by project proponent.

A risk based approach has been followed to perform the verification of the project activity. In the course of verification, 06 Corrective Action Requests (CARs) and 02 Clarification Requests (CLs) have been raised. All the CARs and CLs have been closed out successfully. One FAR has been raised during previous verification (refer to appendix 2 for further details).

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/03/2020 to 31/12/2020 (Inclusive of both days) based on the reported emission reductions in the final monitoring report version 2 dated 08/02/2021 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

As a result of the verification, the verification team confirms that:

- The project fulfils criteria of VCS Standard Version 4.
- The project is in line with all relevant VCS requirements /5/.
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board and VCS Association;
- All information and references relevant to the project activity resulting in emission reductions;

The monitoring is transparent, adequate and in line with applied baseline and monitoring methodology of ACM0002: Grid-connected electricity generation from renewable sources --- Version 12.3.0 /10/.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 100,473 tCO2e emission reductions during the monitoring period (01/03/2020 to 31/12/2020 (Inclusive of both days)), under the first crediting period (05/12/2012 to 04/12/2022).

Contents

1 INTRODUCTION

1.1 Objective

KBS Certification Services Pvt. Ltd. has been contracted by, "EKI ENERGY SERVICES LIMITED." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'WIND BASED POWER GENERATION BY PANAMA WIND ENERGY PRIVATE LIMITED IN MAHARASHTRA, INDIA' for the monitoring period 01/03/2020 to 31/12/2020 (Inclusive of both days), under the crediting period 05/12/2012 to 04/12/2022, in the initial monitoring report version 01 dated 28/01/2021, with regard to the relevant requirements of VCS Standard Version 4. The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of monitoring report, CDM and VCS project description (VCS PD), including the monitored data, and other relevant documents made available to verifier and information collected through performing interviews during Remote assessment(interviews) of the project activity.

The project is assessed against the requirements of VCS standard version 4 and related rules and guidance /5/. KBS has, based on the recommendations in the latest version of Verified Carbon standard, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

The aspects to be covered under the purview of verification are:

- Ensure that the project activity has been implemented and operated as per the registered VCS PD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place as per the documents provided by the client and during remote audit;
- Ensure that the monitoring report and other supporting documents provided are complete
- Ensure that the practiced monitoring system and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved CDM methodology /10/;
- Evaluate the data recorded and stored are as per the monitoring methodology.

1.3 Level of Assurance

☑Reasonable level of assurance

The verification is based on the VCS PD, MR, proof of title, proof of right, additional documents related to baseline and monitoring methodology, the subsequent background investigation, monitoring plan, follow-up interviews and supporting documents made available to the verification team by project proponent. The information in these documents is reviewed against the requirements of VCS Standard Version 4.0. KBS has employed a risk-based approach in the verification, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions.

The items covered in the verification are described below:

- Criteria of VCS Version 4 (VCS Program guide Version 4 & VCS Standard Version 4)
- Criteria of CDM approved methodology, ACM0002- Version 12.3.0
- VCS Monitoring Report
- Monitoring Plan
- Background investigation and follow up interviews
- Stakeholder feedback
- Registered VCS and CDM PDD and Validation Report
- project's compliance with other relevant rules, including the project country (India) legislation and assurance to stakeholders of the quality

Furthermore, the verification team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data available on public domain. A desk review is carried out to assess the following:

- Compliance with relevant law and regulations

- Stakeholder comments (If any)
- Proof of title
- Single line diagram and site location map
- Technical specifications of turbines, meters etc.
- Power Purchase Agreement
- Commissioning Certificate
- Remote auditing (05/02/2021) for verification
- Invoices
- Export/Import data records
- Calibration Certificates

The Verification team has checked all the above-mentioned details and confirms that all the information provided is accurate.

Through the remote interviews host country rule and regulations related to project activity, Project description, technological measures, Implementation, Operation, Management of project activity and Training of personnel, Baseline and Monitoring plan, Stakeholder consultation etc. has been checked and found appropriate.

KBS applies the risk-based approach aimed at focusing on high risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the findings were submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions.

Hence the above steps were followed for achieving the level of assurance in verification report. Based on the process and procedures conducted, KBS confirms that the information in the MR:

- is materially correct and is a fair representation of the actual project details, and
- is prepared in accordance with VCS requirements /4//5/ and the applied CDM methodology for information pertaining to GHG qualification, monitoring and reporting.

The verification work is carried out as per this requirement and the verification opinion is assured, provided the credibility of all above. Details are presented in the Verification statement in section 5 below.

1.4 Summary Description of the Project

The project activity with a total capacity of 100.8 MW is located in the Satara district, state of Maharashtra, India. The wind based power plant is designed to convert the wind potential energy into kinetic energy which produce electricity by generators this process includes Wind Turbine Generators (WTGs). The electricity generated is sold the regional grid system which is under the purview of the NEWNE grid of India.

The project activity has been operational since commissioning (22/02/2013) and during the monitoring period i.e. from 01/03/2020 to 31/12/2020 (Inclusive of both days), it has generated 105,917.69 MWh net electricity, thereby resulting in emission reduction of 100,473 tCO2e. The monitoring period subject to this monitoring report is inclusive of first and last day of period

During the remote audit inspection /11/, location (as mentioned in section 1.7 of MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned in the PD /03/ have been verified. The same was also crosscheck during the desk review of supporting documents like technical specification /6/, single line diagram/7/, PPA/8/ and commissioning certificates /9/.

Project entity information as verified is presented below:

Item	Data
Project Entities	Panama Wind Energy Private Limited (Project Owner)
	EKI Energy Services Limited (Project consultant)

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process was carried out in line with the requirements of VCS Version 4 /4/. In addition, the verification team followed the guidelines of the CDM Validation and Verification Standard. Standard auditing techniques and KBS's CDM Procedures were also applied during

the verification. A risk-based approach was followed to carry out verification and access all the factors and concerns that relate to the issuance of emission reductions from a project activity. They include:

- Identification of all the sources contributing to the project emissions and emission reductions.
- Authenticity of the provided data is checked.
- A risk-based analysis is carried out to ensure a clear and transparent assessment. The risks involved in this process are mainly with the informational flows and data recording.

KBS follows a risk-based verification approach, wherein a desk review of the project documentation is undertaken, which is followed by a remote discussion/video inspection by the members of verification team. The verification protocol is filled by the verification team that is based on standard auditing practices and VCS requirements. The verification protocol provides transparent means to record the observations by the verification team members and the non-conformities, if any. The verification protocol is an internal document, and available on request.

Duration of Verification:

Verification Contract	28/01/2021
Remote audit	05/02/2021 (Justification section 2.4 below)
Draft Verification Report	11/02/2021
Final Verification Report	16/02/2021

2.2 Document Review

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'References'.

2.3 Interviews

Please refer section 2.4, where complete list of interviewed personnel and key points discussed is provided.

2.4 Site Inspections

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects https://verra.org/covid-19-travel-guidance/ and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. Further Email from VERRA dated 24/03/2020 from "Andrew Beauchamp" has been referred as per which "*The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.0). Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from Verra is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the validation/verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit*".

Hence, the VVB has used other standard auditing techniques for validation or verification as referred to in VCS Rules/requirements, VCS Validation and Verification Manual version 3.2.

Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification. Along with desk review, audit team has conducted remote audit interview as follows:

- A complete desk review of the MR, as well as all applicable country legal requirement and supportive evidences have been checked by the verification team.
- Verification team has performed Microsoft teams Application interview with PP in order to check implementation, project boundary, current situation, monitoring and metering equipment, monitoring procedures, calibration etc.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in MR and supporting documents.
- A check of the monitoring equipment including performance and observations of monitoring practices against the requirements of the registered VCS and CDM PDD and the selected methodology.

Details of interviewees, topics covered and additional information are presented below:

Dates:	05/02/2021 (Microsoft teams)	
Key points discussed:	**Name of person, interviewed**	**Designation, Organization**

Operational data, Calibration, Data collection, QA/QC procedures, Calculation of ERs,	Mr. Prakash Kumar Sahu	Manager, Climate Change Operations EKI Energy Services Limited
	Mr. Nilesh Waghmare	Plant operator, Panama Renewable Energy
	Mr. Ashok Shintre	Head Asset Management, Panama Renewable Energy

2.5 Resolution of Findings

KBS applies the risk-based approach aimed at focusing on high risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the verification report was submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective action request (CAR):

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions
- the Voluntary Carbon Standard's requirements have not been met, or
- there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CL):

- Information is insufficient or not sufficiently clear to determine whether the applicable VCS requirements have been met.

FAR (Forward Action Request):

FARs is to be raised to highlight issues related to project implementation that require review during the first verification of the project activity. FARs does not relate to VCS requirements for registration.

CARs and CLs are to be resolved or closed out if the PP modifies the project description, rectifies the MR or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for issuance under VCS registry.

The monitoring report was revised addressing the CARs & CLs issued by KBS. After reviewing the revised and resubmitted MR/1.2/; resolving the CARs & CLs raised and outstanding concerns, KBS issues this final verification report and opinion.

02 CLs and 06 CARs were found during verification and closed satisfactorily. The list of CARs/CLs raised and the response provided, the means of verification, reasons for their closure and references to correction in the MR are provided in appendix 2 of this report. The revised MR/1.2/ with changes incorporated as per the issues raised were rechecked with the documentary evidences and found to be inline.

2.5.1 Forward Action Requests

01 FAR has been raised during previous Verification. Refer to Appendix 2 for further details.

2.6 Eligibility for Validation Activities

KBS conducted the verification activity; the validation was performed by the other VVB. KBS has a valid UNFCCC accreditation in the sectoral scope from UNFCCC.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The Project has applied for the CDM under the Kyoto protocol and registered with CDM having UNFCCC ref number as UN8524[1].

The project activity will avail GHG emissions reductions for only one program and there will not be any double accounting for the same and it has been verified from the supportive provided by PP/16/.

3.2 Methodology Deviations

The verification team confirms that the registered PDD complies with the requirements in the applied monitoring methodology ACM0002 version 12.3.0/10/.

The following tools have been used for the project activity under consideration –

- Tool to calculate emission factor for an electricity system
  Reference: Version 02.2.1/EB – 63, Annex 19[2]
- Tool for the demonstration and assessment of additionality
  Reference: Version 06.0.0, EB- 65, Annex 21[3]

Therefore, no methodology deviations are applied during the monitoring period.

3.3 Project Description Deviations

The project activity is in compliance with the scenario described at the CDM & VCS Project Design Document, and validated by the CDM validation report dated 07/09/2015/03/.

[1] https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354531234.95/view
[2] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf
[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.0.0.pdf

3.4 Grouped Project

The project is not a grouped project. Therefore, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is in operation stage as evidenced by the remote inspection /11/ of the site. All the physical components and project boundary are in conformity with the description in registered VCS and CDM PDD /03/. The capacity of project equipment's have been confirmed during the remote inspection, also through the technical specifications /06/ and found in-compliance with the registered VCS and CDM PDD/03/. The project activity was commissioned on 22/02/2013 as per commissioning certificates/09/.

On the basis of the remote inspection and the reviewed project documentation like the technical specification, photographs of meters, Wind turbines/6/, single line diagram/7/, power purchase agreement and O&M Contract /08/, commissioning certificate/9/, calibration certificates of energy meters/13/ and invoices/14/ etc. the verification team confirms that the project was implemented and operated as described in the registered CDM and VCS PD/3/. Further, the verification team confirms that-

-There is no any material discrepancy between project implementation and the project description in the registered CDM and VCS PD.

- The monitoring plan is completely implemented and is suitable with actual monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters)

- The project has applied for the CDM under the Kyoto protocol and registered with CDM having UNFCCC ref number as UN8524. However, project activity will avail GHG emissions reductions for only one program and there will not be any double accounting for the same

- There is no methodology deviation applied to this project.

The total generation capacity of the power plant due to 45 WTGs (72 MW) is 100.8 MW which was verified during the remote audit.

Further it was noticed that during the monitoring period the project activity operated under normal conditions and no significant event that may have impact on monitoring of GHG emission reductions was observed. Same has been checked from the operational data during remote auditing.

<u>Ownership and other programs:</u>

PP has declared that the project is registered in CDM, however project activity will avail GHG emissions reductions for only one program and there will not be any double accounting for the

same; Thus emission reductions generated by project will be solely claimed by PP and PP has the right of use, which is acceptable. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions as the host country i.e. India is not a participant in any emission trading programs or nor does it have any binding limits.

PP will not claim any other the environmental/carbon credits under any other GHG emission reduction scheme for the crediting period under VCS and PP has provided declaration on the same during the validation. Hence, there is no possibility of double counting.

Sustainable Development Contributions:

As confirmed during the remote audit, the project displaces electricity produced in fossil fuel based power plants, by using clean renewable source to generate electricity and thereby contributes to sustainable development through reduction in greenhouse gas (GHG) emissions. It has also been confirmed that the project implementation has led in significant environmental and socio-economic benefits (as stated in section 1.11 of the submitted MR) and contributes to the social, economic, technological and environmental well-being. The project supplies clean, affordable and renewable energy (105,917.69 MWh net electricity under the monitoring period) without reliance on fossil fuels for generation of electricity to meet the growing demands in the region. Also, the implementation of project is providing employment to locals with a decent and secure work environment by reducing emissions otherwise generated by the operation of fossil fuel based power plants and would lead to promotion of wind based power generation and to encourage other entrepreneurs to participate in similar projects as well.

Management and operational system:

Verification team was able to verify that authorities and responsibilities /15/ for monitoring and reporting of all data related to the emission reductions were clearly defined for the monitoring period from 01/03/2020 to 31/12/2020 (Inclusive of both days).

The allocation of the responsibilities is documented in a written form and is followed as described in the registered CDM and VCS PD/03/. Routines for the archiving of data are defined and documented.

The monitoring plan described in section 4.3 of the MR/1.2/ is confirmed to be correct. All the parameters of the monitoring plan are monitored using appropriate metering system.

The verification team has interviewed the plant personnel /11/ who is involved in the monitoring of the parameters that are used to determine the emission reductions of the VER project. It is confirmed based on the interviews /11/ that the plant's team is competent enough to monitor the parameters as described in the monitoring plan.

As discussed above, the verification team concludes that management and operational system of the project is implemented and operated well. Thus, it ensures the quality of data which is required in calculating the emission reductions.

Implementation status of the monitoring plan:

Verification team confirms through remote inspection /11/ and from the document review like PPA/08/, Commissioning certificates/09/, calibration certificates/13/, Invoices/14/ the actual monitoring system complies with the monitoring plan mentioned in the registered VCS PD /3/ and there is no deviation in monitoring plan and procedures, equipments.

During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method; the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. All monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements. It is confirmed that the monitoring mechanism is effective and reliable.

Therefore, from the document review and remote inspection, it is confirmed that all the parameters were monitored in accordance with the registered monitoring plan during the monitoring period. Following are the details of monitoring in accordance with the monitoring plan of the registered VCS PD/03/:

Data - Parameter	$EG_{facility,y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid during this monitoring period
Source of data	Verification team confirms that the data has been measured directly from meters and recorded on Credit note generated by MSEDCL/12/.
Description of measurement methods and procedures to be applied	During the remote inspection and through document review, it has been confirmed that the net electricity supplied to grid was calculated as the difference of the measured values of “export” and “import” of electricity through the dedicated SEB energy meters installed at the delivery point (i.e. the connected substation). Monthly meter readings are taken from the main and check meters installed at the substation and certified by the representatives of SEB Officials and the representatives of the project proponent.
Frequency of monitoring-recording	Continuous monitoring, hourly measurement and at least monthly recording as verified by the verification team through remote assessment.

<table>
<tr><td>Value monitored</td><td>105,917.69 MWh</td></tr>
<tr><td>Monitoring equipment</td><td>
During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by tri vector meters of accuracy class 0.2s. There are four feeders each having one main meter and check meter. Monthly joint meter readings of the main meters and check meters located at 4 feeders (sub-station) is taken by the designated officials of the company and MSEDCL as confirmed from the remote inspection. The summation of all 4 feeder meters reading is used for billing and emission reduction calculation purpose.

The Calibration dates of the meters and their validity is as follows:

1. Feeder 01 (WTGs connected - Location no: 4, 8-13, 49):
<table>
<tr><th>Meter Serial number</th><th>Accuracy class</th><th>Calibration done on</th><th>Valid Until</th></tr>
<tr><td>16595568 (Main meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
<tr><td>13813597 (check meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
</table>
2. Feeder 02 (WTGs connected - Location no: 14-17, 19-20, 22-23, 25-28, 34,38,43):
<table>
<tr><th>Meter Serial number</th><th>Accuracy class</th><th>Calibration done on</th><th>Valid Until</th></tr>
<tr><td>16595569 (Main meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
<tr><td>13813601 (check meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>
3. Feeder 03 (WTGs connected - Location no: 5-6, 32, 40-42, 45-48):
<table>
<tr><th>Meter Serial number</th><th>Accuracy class</th><th>Calibration done on</th><th>Valid Until</th></tr>
<tr><td>13813599 (Main meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
<tr><td>13132610 (check meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
</table>
4. Feeder 04 (WTGs connected - Location no: 7,18,31,37,50-52,55-56,61-63):
<table>
<tr><th>Meter Serial number</th><th>Accuracy class</th><th>Calibration done on</th><th>Valid Until</th></tr>
<tr><td>13132640 (Main meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
<tr><td>13813602 (check meter)</td><td>0.2s</td><td>06-June-2018</td><td>05-June-2021</td></tr>
</table>
The meters are calibrated once in three years by the MSEDCL. It is found to be in line with the registered CDM and VCS PD/03/.

Both the meters are in compliance with the host country calibration regulations and had valid calibrations during the entire monitoring period.
</td></tr>
<tr><td>QA-QC procedures to be applied</td><td>There are four feeders each having one main meter and check meter as confirmed during remote inspection and through photographs provided by PP/06/. The generation values has been also cross-checked with the invoices/14 / and was found to be consistent.</td></tr>
<tr><td>Purpose of the data</td><td>Calculation of Baseline emissions</td></tr>
<tr><td>Calculation method</td><td>During the remote inspection and through document review, it has been confirmed that the net electricity supplied to grid was calculated as the difference of the measured values of “export” and “import” of electricity</td></tr>
</table>

	through the dedicated SEB energy meters installed at the delivery point (i.e. the connected substation). Monthly meter readings are taken from the main and check meters installed at the substation and certified by the representatives of SEB Officials and the representatives of the project proponent. Further, the readings of each of the main meters located at 4 feeders are used for emission reduction calculation purpose.
Comments	As confirmed during the remote inspection, the readings of each of the main meters located at 4 feeders are used for emission reduction calculation purpose. These 4 feeders are connected to the WTGs covered in the project activity only.

Finding: CL 01, CL 02 and CAR 01 were raised and successfully closed. Refer to appendix 2 for further details.

Opinion:

The verification team confirms that

- The project activity has been implemented and operated as per the registered CDM and VCS PD /3/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place, as per the documents provided by the PP and remote audit /11/;
- The monitoring complies with the requirement of the applied methodology /10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD /3/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheets /2.2/ are verified and included under each monitoring parameter.

4.2 Safeguards

4.2.1 No Net Harm

The project activity is grid connected wind power plant and does not involve any negative impact. Assessment team confirms it based on its local and sectoral expertise.

4.2.2 Local Stakeholder Consultation

The local stakeholder consultation meeting for the project activity was conducted at Karad, District Satara on 07/05/2011 and the process was validated during the registration of project activity in CDM. CDM validation report /3/ was verified to confirm the same. The PP had invited identified stakeholders well in advance by invitation letters and newspaper advertisements to local villagers, panchayat members and representatives of PWEPL with details of venue and time of meeting. Also, PP has grievance register maintained at site for complaints (if any).

During the monitoring period there were no complaints about or demands from the project. The same was confirmed through the remote audit conducted during the monitoring period.

4.3 AFOLU-Specific Safeguards

This is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The verification team has reviewed the emission reduction (ER) spread sheet /2.2/ and checked all the formulae and verified them to be correct and in line with the monitoring plan of the registered CDM and VCS PD and the applied monitoring methodology /10/.

All the monitored parameters are described above in section 4.1. All the ex-ante parameters which are used in the calculation of emission reduction are presented in section 4.1 of the MR /1.2/ transparently. It is confirmed that all the ex-ante parameters have been correctly used in the emission reduction calculation.

Baseline emissions:

The baseline emissions (BEy) are calculated based on the following formula:

$BEy = EFCO2, grid, y * EG BL, y$

Where:

BEy	=	Baseline emissions in year y (tCO2-yr)
EG BL, y	=	Net electricity supplied to the NEWNE regional grid (MWh)

$EF_{CO2, grid, y}$ = Baseline emission factor (tCO_2e/MWh)

The baseline emission factor in year y (tCO2 -MWh), is fixed ex-ante for the duration of the crediting period, and is 0.9486 tCO2e -MWh.

Therefore,

$BE_y = EF_{CO2, grid, y} * EG_{BL, y}$
$BE_y = 105,917.69 \times 0.9486$
$BE_y = 100,473\ tCO_2e$

It is noted that the formula and calculation used for baseline emission calculation in the monitoring report and ER sheet /2.2/ is in compliance with the registered CDM and VCS PD/3/. The default values and data used in the monitoring report /1.2/ is in-line with the registered PDD/3/. Hence, acceptable to the verification team.

Project Emissions:

As per the methodology /10/ the PEy in case of a wind power project is considered zero.

Hence, PEy= 0 is acceptable to the verification team.

Leakage:

As per the methodology ACM0002, version 12.3.0 /10/ and as defined in the registered CDM and VCS PD/3/ no leakage is considered in the project activity and the same is followed in this monitoring period also. Thus, it is in compliance with the registered CDM and VCS PD/3/.

The following are the ex-ante parameters used in the ER calculation which are in compliance with registered CDM and VCS PD/3/:

Parameter	Description	Source/Justification
$EF_{grid,OM,y}$ tCO2/MWh	Operating margin CO_2 emission factor for NEWNE grid in the year y	Calculated as per ACM0002 with 3 years vintages (2007-08,2008-09,2009 10) data obtained from "CO2 Baseline Database for Indian Power Sector" version 6 published by the CEA, MoP, GoI, which is based on " tool to calculate emission factor for an electricity system, version 2.2.1". The value 0.9941 is used for the calculation of the Baseline Emission and is found to be consistent with the registered PDD/03/.
$EF_{grid,BM,y}$ tCO2/MWh	This is the build margin for the NEWNE grid of India	Calculated as per ACM0002 with year 2009-10 data obtained from "CO_2 Baseline Database for Indian Power Sector" version 6 published by the CEA, MoP, GoI. Which is

		based on "tool to calculate emission factor for an electricity system, version 2.2.1". The value 0.8123 is used for the calculation of the Baseline Emission and is found to be consistent with the registered PDD/03/.
$EF_{grid,CM,y}$ tCO2/MWh	This is the combined margin for the NEWNE grid of India	Combined margin emission factor has been calculated by the Central Electricity Authority in accordance with CDM methodology: ACM0002 and tool to calculate the emission factor for an electricity system The value 0.9486 is used for the calculation of the Baseline Emission and is found to be consistent with the registered PDD/03/.

According to the applied methodology /10/, the conservativeness of the achieved emission reduction was checked and the detailed emission reduction calculation has been transparently provided in the ER sheet /2.2/. All the formulae and the calculation procedure were checked by the verification team. In the opinion of verification team, the assumptions, emission factors and default values that were applied in the calculations have been justified. Also, the verification team confirms that there were no manual transposition errors between the data sets in the ER Sheet/2.2/ during the current monitoring period. It is confirmed that the data has been measured directly from meters and it was cross checked from the credits notes and the invoices raised to MSEDCL and was able to verify the same.

Finding: CAR 02, CAR 03, CAR 04, CAR 05 and CAR 06 were raised and successfully closed. Refer to appendix 2 for further details.

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered PD /3/;
- The monitoring complies with the requirement of the applied methodology/10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD /3/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheet /2.2/ are verified and included under each monitoring parameter, wherever appropriate.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

All relevant documents were checked to assess the correctness and quality of data submitted by the project participants, which are used to determine emission reductions.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan /3/. No significant lack of evidence and missing data were detected during remote audit discussion and video inspection /11/. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures. The monitoring parameters have been measured / determined without material misstatements and is in line with all applicable standards and relevant requirements. The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included in section 4.1 under each parameter and confirms to the requirement of the registered CDM and VCS PD /3/. The export and import data is measured by the electricity meters, recorded continuously and the invoices are generated monthly/14/. The data is then reported annually on the VCS Monitoring Report as verified by the verification team through remote assessment.

It was also verified through remote audit inspection that the plant's team involved in the monitoring of project activity is well experienced. Hence, the verification team concludes that competent staff is employed by the project proponent to carry out the relevant tasks with sufficient accuracy. Furthermore, it was confirmed during remote audit discussion that internal training program for the monitoring staff is conducted on regular basis.

4.6 Non-Permanence Risk Analysis

Not applicable to the project activity.

5 VERIFICATION CONCLUSION

KBS Certification Services Pvt. Ltd. has been commissioned by 'EKI ENERGY SERVICES LIMITED.' to perform verification of its registered VCS project 'WIND BASED POWER GENERATION BY PANAMA WIND ENERGY PRIVATE LIMITED IN MAHARASHTRA, INDIA', for the monitoring period 01/03/2020 to 31/12/2020 (Inclusive of both days), under the crediting period 05/12/2012 to 04/12/2022, with regard to the relevant requirements of VCS Standard Version 4.

The management of the 'EKI ENERGY SERVICES LIMITED.' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final Monitoring Report Version 2.0 and dated 08/02/2021. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'EKI ENERGY SERVICES LIMITED.'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 2.0 and dated 08/02/2021.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/03/2020 to 31/12/2020 (Inclusive of both days) based on the reported emission reductions in the final Monitoring Report Version 2.0 dated 08/02/2021 for the same period.

As a result of the verification, the verification team confirms that:

- All operations of the project are implemented and installed as planned and described in the project description.
- The monitoring system is in place and functional.
- The installed equipment essential for generating emission reductions runs reliably.
- The GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

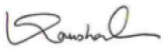
Verification period: From 01/03/2020 to 31/12/2020 (Inclusive of both days)

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)
01-March-2020 to 31-December-2020	100,473	0	0	100,473
Total	**100,473**	**0**	**0**	**100,473**

Location: Faridabad

Date: 16/02/2021



Authorized Signatory: Kaushal Goyal

Designation: Managing Director

KBS Certification Services Pvt. Ltd.

APPENDIX 1: REFERENCES

/1/	/1.1/ Monitoring Report, Version 01, dated 28/01/2021 (Initial Version) /1.2/ Monitoring Report, Version 02 dated 08/02/2021 (Final Version)
/2/	/2.1/ Emission Reduction calculation sheet, Version 01 dated 28/01/2021 (corresponding to initial Version of VCS MR) /2.2/ Emissions Reduction calculation Sheet, Version 02 dated 08/02/2021 (corresponding to final Version of VCS MR)
/3/	• Registered VCS-PD version 2 dated 23/03/2017 • CDM registered PDD version 2 dated 14/08/2015 • CDM Validation report dated 07/09/2015
/4/	VCS Standard Version 4
/5/	VCS Programme guide Version 4
/6/	Technical specifications/photographs of turbines, electricity meters etc.
/7/	Single line diagram and meter location / Layout
/8/	Power purchase agreement for the 45 WTGs installed Operation and maintenance contract dated 14/07/2011
/9/	Commissioning Certificates for the 45 WTGs installed
/10/	ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources --- Version 12.3.0
/11/	Remote auditing (05/02/2021) for verification of measuring and monitoring procedure, • Video recordings & snapshots of the project site/equipment's • Interviews and data/log review
/12/	Credit notes for the entire monitoring period 01/03/2020 to 31/12/2020
/13/	Calibration Certificates for main meters and check meters dated 06-June-2018
/14/	Invoices raised during the monitoring period 01/03/2020 to 31/12/2020
/15/	Organization structure/chart
/16/	Supportive for avoidance of double counting dated 08/02/2021

APPENDIX 2: FINDINGS

Summary of findings	CL	CAR	FAR
	02	06	01

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

FAR ID	01	Section no.	-	Date: 06/02/2021
Description of FAR				
FAR from previous verification *"*During this verification it was observed that out of the proposed 63 WTGs only 45 WTGs have been commissioned and further 18 WTGs referring to the project are still under the implementation stage. PP requested to provide status of PPA for installation of remaining WTGs.*"*				
Project participant response				**Date:** 08/02/2021
The 18 WTG are halted due to various reforms by the Maharashtra state regulatory bodies. The PPA are still not signed.				
Documentation provided by project participant				
NA				
VVB assessment				**Date:** 10/02/2021
The verification team confirms that the reason mentioned is acceptable. However, the FAR is still open for subsequent verifications to check the implementation of the remaining WTGs.				

Table 2. CL from this verification

CL ID	01	Section no.	4.1	Date: 06/02/2021
Description of CL				
PP shall clarify whether the generation data has been included for WTG 49 since it has been stated in the MR that "the WTG ID number 49 is not operating due to technical reasons since 2014". If not, it can be specifically mentioned in the ER sheet as well under "Generation data" tab.				
Project participant response				**Date: 08/02/2021**
WTG ID 49 was not operational for the reported monitoring period. This information is now being mentioned over revised ER.				

Documentation provided by project participant	
ER V2	
VVB assessment	**Date:** 10/02/2021
The verification team confirms that the information mentioned is acceptable. Hence, the CL 01 is closed.	

CL ID	02	**Section no.**	4.1	**Date:** 06/02/2021
Description of CL				
The following documents are required as part of VCS verification process: 1. Photographs of both main meters and check meters individually. 2. Supportive regarding avoidance of double counting.				
Project participant response				**Date: 08/02/2021**
1. Individual meter Photographs are being shared. 2. No double counting declaration is being provide.				
Documentation provided by project participant				
Meter Photographs and no double counting declaration.				
VVB assessment				**Date:** 10/02/2021
1. The verification team confirms that the photographs of main meter and check meter has been now provided and was found to be consistent with the MR. 2. The verification team confirms that the supportive regarding double counting avoidance has been now provided and was found to be acceptable. Hence, the finding is closed.				

Table 3. CAR from this verification

CAR ID	01	**Section no.**	4.1	**Date:** 06/02/2021
Description of CAR				
1. In the cover page of the submitted VCS MR, the font size is not consistent as per the VCS template guidelines. 2. Under section 1.10 of the VCS MR, the reference link for REC generators is not functional.				
Project participant response				**Date: 08/02/2021**

1. Cover page is now revised. 2. REC generators link is revised.
Documentation provided by project participant
MR V2
VVB assessment **Date:** 10/02/2021
1. The font size is now consistent as per the VCS template guidelines in the revised MR. 2. The reference link for REC generators is now functional in the revised MR. Hence, the finding is closed.

CAR ID	02	**Section no.**	4.4	**Date:** 06/02/2021
Description of CAR				
Under section 4.1 of the VCS MR, PP shall mention the reference link for the source "Baseline Carbon Dioxide Emission Database Version 6.0" published by the Central Electricity Authority, Ministry of Power, Government of India" for the parameter "$EF_{grid,OM,y}$".				
Project participant response				**Date: 08/02/2021**
Reference Link is being added to the section 4.1				
Documentation provided by project participant				
MR V2				
VVB assessment				**Date:** 10/02/2021
The reference link for the source "Baseline Carbon Dioxide Emission Database Version 6.0" published by the Central Electricity Authority, Ministry of Power, Government of India" for the parameter "$EF_{grid,OM,y}$" has been now provided in the revised MR. Hence, the finding is closed.				

CAR ID	03	**Section no.**	4.4	**Date:** 06/02/2021
Description of CAR				
Under section 4.2 of the VCS MR, under "monitoring equipment" section, futuristic language has been used which shall be corrected.				
Project participant response				**Date: 08/02/2021**
Futuristic Language has been revised.				
Documentation provided by project participant				
MR V2				

VVB assessment	**Date:** 10/02/2021
The correction has been done in the revised MR. Hence, the finding is closed.	

CAR ID	04	**Section no.**	4.4	**Date:** 06/02/2021
Description of CAR				
Under section 4.3 of the VCS MR, PP shall mention the location of the meters (near feeders) in the line diagram as well.				
Project participant response				**Date: 08/02/2021**
Meter location is mentioned in the section 4.3				
Documentation provided by project participant				
MR V2				
VVB assessment				**Date:** 10/02/2021
The verification team confirms that the location of the meters have been now mentioned in the revised MR. Hence, the finding is closed.				

CAR ID	05	**Section no.**	4.4	**Date:** 06/02/2021
Description of CAR				
Under Appendix 2 of the VCS MR, PP shall mention the breakdown details covering the monitoring period.				
Project participant response				**Date: 08/02/2021**
Major breakdown details covering the monitoring duration is being added				
Documentation provided by project participant				
MR V2				
VVB assessment				**Date:** 10/02/2021
The verification team confirms that the breakdown details covering the monitoring period has been now mentioned in the revised MR. Hence, the finding is closed.				

CAR ID	06	**Section no.**	4.4	**Date:** 06/02/2021

Description of CAR	
1. In ER sheet, under “meter details” tab, the serial number for check meter for feeder no.1 is inconsistent with the calibration certificate and the MR. 2. In ER sheet, under “generation data” tab, the formula used for “Difference b/w Credit Note and Invoices” is not clear. The Q row is blank.	
Project participant response	**Date: 08/02/2021**
1. Type error have been revised. 2. That parameter have been omitted as it was used to check the values while the preparation of ER.	
Documentation provided by project participant	
ER V2	
VVB assessment	**Date:** 10/02/2021
1. The serial number of check meter for feeder no.1 is now consistent with the calibration certificate and the MR. 2. Since the data for “Difference b/w Credit Note and Invoices” was not relevant, hence it has been now removed from the revised ER sheet which is found to be acceptable. Hence, the finding is closed.	

Table 4. FAR from this verification

No FAR raised during current verification.

~~**FAR ID**~~		~~**Section No.**~~		~~**Date:**~~
~~**Description of FAR**~~				
~~**Project participant response**~~				~~**Date:** DD/MM/YYYY~~
~~**Documentation provided by project participant**~~				
~~**VVB assessment**~~				~~**Date:** DD/MM/YYYY~~

APPENDIX 3: COMPETENCE OF TEAM MEMBERS

Personnel Name:	Ms. Deboshmita Dey		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal		
Approved by (Manager C & T)	Sanjay Kandari		
Approval date:	14/01/2021		

Personnel Name:	Ms. Ananya Malik		
Qualified to work as:			
Team Leader (Trainee)	☐	Technical Expert	☐
Validator/Verifier- Trainee	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			

Sectoral Scope	Technical Area
-	-
Approved by (Manager C & T)	Sanjay Kandari
Approval date:	07/12/2020

Personnel Name:		Tushar Chaudhari	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		Technical Area	
Energy Industries (renewable/non-renewable sources)		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Energy demand		TA 3.1. Energy Demand	
Waste Handling and Disposal		TA 13.1 Waste Handling and Disposal	
Approved by		Manager Competency & Training	
Approval date:		02/09/2020	