



**Verified Carbon
Standard**

6 MW WIND POWER PROJECT IN MAHARASHTRA BY PTC INDIA



South Asia

TÜV SÜD South Asia Pvt Ltd

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Prepared By	TÜV SÜD South Asia Pvt. Ltd, Solitaire, 4th floor, ITI Road, Aundh, Pune, India

Contact	Eswar Murty
Approved By	Milind Shende, Certification Body, TUV SUD South Asia Pvt Ltd
Work Carried Out By	Eswar Murty (Assessment Team Leader, Verifier and Technical Expert) Sudheendra K (Technical Reviewer)

Summary:

TÜV SÜD South Asia Pvt. Ltd. has performed the second verification of the aforementioned VCS project activity. The verification is based on the currently valid documentation of the VCS and United Nations Framework Convention on Climate Change (UNFCCC).

The Verification has been conducted for the monitoring period 31-March-2014 to 30-March-2018

The verification process includes three phases:

- Desk review of documents;
- Remote audit and follow-up interviews with the relevant personnel;
- Resolution of outstanding issues and the issuance of final verification report and opinion.

The project activity involves the installation of 6 MW Wind power project in Nashik district, Maharashtra, India. The wind power project comprises of 4 nos. of WTGs each of capacity 1.5 MW which has been developed by PTC India. The generated power from this project is supplied to Indian grid.

During the Current Monitoring Period, all the WTGs were operational. The project has not been registered under any other mechanism. The start date of the project activity is 31 March 2008 which is the date of commissioning of all the WTGs installed in the project.

2 Clarification Requests (CLs) and 3 Corrective Action Requests (CARs) have been raised during the course of verification process and has been successfully closed. No Corrective Action Request (CAR) and Forward Action Request (FAR) was raised during this monitoring period.

TUV SUD confirms that the monitoring plan has been implemented and the emission reductions are calculated without any material misstatements.

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1 INTRODUCTION

1.1 Objective

TÜV SÜD has been commissioned by the aforementioned client to perform an independent verification assessment.

The objective of the verification work is to comply with the requirements of Verified Carbon Standards requirements. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PDD, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- the project's baseline is assessed against "AMS ID - Version 15"
- the project's monitoring plan is assessed against "AMS ID - Version 15"
- ensure that the initial MR and other supporting documents provided are complete, verifiable and in accordance with applicable VCS and CDM VVS PA v2.0 requirements,
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- evaluate the data recorded and stored as per the applicable requirements.
- assessment of the sustainability monitoring parameters as per the VCS requirements

1.2 Scope and Criteria

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of VCS project activities, the scope is set by:

- VCS v4.0 requirements
- Clean Development Mechanism Validation and Verification Standard (VVS) for Project Activities v2.0
- Baselines and monitoring methodologies (including GHG inventories)
- Environmental issues relevant to the applicable sectoral scope
- Current technical and operational knowledge of the specific sectoral scope and information on best practice
- Stakeholder consultation and feedback

The verification process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

1.3 Level of Assurance

The errors identified in the project are below the threshold limit of materiality and hence not material. The GHG emission reductions are calculated without material misstatements.

The VVB confirms that a reasonable level of assurance has been achieved during the verification process.

1.4 Summary Description of the Project

The project activity involves the installation of 6 MW wind power project in Sinnar of Nashik district in the state of Maharashtra, India. The wind power project comprises of 4 nos. of WTGs each of capacity 1,5 MW which has been developed by PTC India. The generated power from this project is supplied to Indian grid.

The capacities of each WTG along with the dates of commissioning of these are given below

S. No.	Capacity (MW)	Date of Commissioning	State
1	1.5	31/03/2008	Maharashtra
2	1.5	31/03/2008	
3	1.5	31/03/2008	
4	1.5	31/03/2008	
	6.0		

The Commissioning Certificates of each WTG have been verified by the audit team. The location of these plants have been confirmed from the maps.

The technical specifications provided for each of the WTG have been checked from the commissioning certificates.

2 VALIDATION FINDINGS

2.1 Method and Criteria

The information provided by the project participants is assessed by applying the means of verification specified in the VCS v4, Toolkit and the VVS.

A competent assessment team is selected prior to the start of the verification. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the VCS project activity. Additionally, a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by remote assessment, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB “Environment and energy” before submission to the VCS.

2.2 Document Review

The documents referred during the course of this verification are provided in Appendix 1.

2.3 Interviews

The VVB has not conducted the on-site inspection for this current monitoring period due to obligations imposed by COVID 19. However the VVB has ensured that reasonable level of assurance has been achieved as per Verra regulations on the relaxation of mandatory site visits by the VVB due to Covid-19. The VVB has conducted telephonic interviews and video calls to discuss with the client regarding the data and documents pertaining to the current verification period. The interviews and discussions were conducted successfully.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Dhatrak	Dnyaneshwar	Project owner	27/08/2021	Implementation of the project, O&M activities, Metering arrangements, Calibrations, JMR, On-going LSC. etc. Plant technology	Eswar Murty
2	Sharma	Barun	EKI Energy Services Ltd PP representative	27/08/2021	VCS monitoring	Eswar Murty
3	Das	Kingshuk	EKI Energy Services Ltd PP representative	27/08/2021	VCS monitoring	Eswar Murty
4	Ramindla	Sushma	EKI Energy Services Ltd PP representative	27/08/2021	VCS monitoring	Eswar Murty

2.4 Site Inspections

Please see 2.3

2.5 Resolution of Findings

CL from this verification

CL ID	01	Section no.	Date: 27/08/2021
Description of CAR			
PP to provide the plant shut down details during the monitoring period			
Project participant response			Date: 29/09/2021
The Breakdown details of the plant are now provided for DOE assessment.			
Documentation provided by project participant			
1.Breakdown Sheet			
2. MR			
DOE assessment			Date: 05/10/2021
The shut down details of the WTGs have been provided. Hence the issue is closed.			

CL ID	02	Section no.	Date: 27/08/2021
Description of CAR			
PP to provide the JMRs and invoices for missing months			
Project participant response			Date: 29/09/2021
JMRs and Invoices are provided for the whole monitoring period			
Documentation provided by project participant			
JMR's and Invoices			

DOE assessment	Date: 05/10/2021
Hence the issue is closed.	

CAR from this verification

CAR ID	01	Section no.	1.6	Date: 27/08/2021
Description of CAR				
1. The end date of crediting period is wrongly mentioned in the MR. PP to make necessary revision and calculations accordingly.				
2. The start date of monitoring period is not in line with the project crediting period.				
Project participant response				Date: 29/09/2021
1. The end date of the crediting period is now corrected in the MR and the calculations are changed accordingly.				
2. The Monitoring period is now in line with the project crediting period.				
Documentation provided by project participant				
1. Monitoring Report				
DOE assessment				Date: 05/10/2021
The necessary revisions have been made in the MR regarding the end dates of monitoring period. Hence the issue is closed.				

CAR ID	02	Section no.		Date: 27/08/2021
Description of CAR				
1. MR does not provide any information on the main and check meters, their S.No, accuracy etc and it is not clear if the same meters were used for the current monitoring period.				
2. The calibration details of main and check meter for the whole monitoring period are not provided in the MR. Also the calibration certificates for 2014 are not provided.				
Project participant response				Date: 29/09/2021
1. The Meter details are now provided in the Appendix 1 of the Monitoring report.				
2. The Calibration certificates are now submitted to the DOE assessment team and the details of Main and Check meters are also provided in the Appendix 1 of the Monitoring period.				
Documentation provided by project participant				
1. Monitoring Report				
2. Calibration Certificates				
DOE assessment				Date: 05/10/2021
The required documents have been provided and the same have been verified by the audit team. Hence the issue is closed.				

CAR ID	03	Section no.		Date: 27/08/2021
Description of CAR				
The ER sheet provided is incomplete with few months data missing.				
Project participant response				Date: 29/09/2021
The ER sheet is now complete and is now submitted to the DOE assessment team.				
Documentation provided by project participant				
1. ER sheet				
2. JMR and Invoices				
DOE assessment				Date: 05/10/2021
Hence the issue is closed.				

2.5.1 Forward Action Requests

This is 2nd periodic verification of the project activity and no FAR was raised from validation or previous verification

2.6 Eligibility for Validation Activities

This section is not applicable for present verification.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Project is not registered with any other GHG program except for VCS.

3.2 Project Description Deviations

No deviations in the current monitoring period.

3.3 Grouped Project

This is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity involves the installation of 6 MW wind power project in Sinnar of Nashik district in the state of Maharashtra, India. The wind power project comprises of 4 nos. of WTGs each of capacity 1.5 MW which has been developed by PTC India. The generated power from this project is supplied to Indian grid. The capacities of each WTG along with the dates of commissioning of these are given below

S. No.	Capacity (MW)	Date of Commissioning	State
1	1.5	31/03/2008	Maharashtra
2	1.5	31/03/2008	
3	1.5	31/03/2008	
4	1.5	31/03/2008	
	6.0		

The energy generated by WTG's are connected to the NEWNE grid via the 132 KV Khaparale substation.

The project activity generates clean power by harnessing the potential wind energy for power generation and displaces an equivalent quantum of power generated by the combustion of fossil fuels, the non-renewable energy sources at the grid connected thermal power plants, thus reducing GHG emissions and contributing to the overall cause of mitigation of global warming, thereby contributing to technological and environmental well being.

The project activity is also responsible for creating business opportunities for many local stakeholders since the local population has been employed during the installation, commissioning and operation of the wind mills, thus proper training imparted to the people involved results in the skill development of the local inhabitants and also improvement in their economic condition, thereby contributing to social and economic well being.

Hence the VVB could assess the contribution of the project activity to sustainable development.

To verify the implementation of project activity, technical specifications of Turbine/Generator, onsite operation & maintenance, monitoring & management practices; assessment team has conducted Skype video call/telephonic interviews with onsite in-charge, O&M team and also had a detail discussion with the PP representative and reviewed third party statutory documents i.e. Technical specifications by manufacturer, Commissioning certificates, Complete set of JMRs covering monitoring period, breakdown log, O&M schedule, grievance register and other relevant records. Same are also cross-checked with photographs/videos submitted by PP for current monitoring period were found to be consistent with the description given in the registered VCS PD.

After MS-Teams interviews with concerned onsite persons, document reviews & site videos/photographs submitted by PP; assessment team concluded that the project activity is still implemented and operated in-line with the registered VCS PD & CDM PDD. There is no change in the project design or operation and monitoring practices at site which can alter the applicability or additionality of the project activity. In addition to the interviews with PP, assessment team have checked the commissioning certificate and JMRs and found that the project activity is implemented as per the VCS PD and Monitoring report submitted by the PP for current monitoring period. Assessment team therefore of the opinion that project is implemented as described in the registered PD and there is no change in monitoring practices as well as all monitoring parameters as envisaged in the VCS PD & MR. All the monitored values are supported by the evidences i.e. JMRs and found that information provided in the MR is inline with the submitted evidences.

Means of verification	Referring to VCS v4 and p.360, p.361, p.363 and p.364 of CDM VVS PA, v2.0, the below tables provide a summary on the verification of each monitoring parameter listed in the registered monitoring plan.	
	Data / Parameter:	EG_{net,y}

	Data unit:	KWh
	Description:	Net Electricity Exported to the grid
	Source of data used:	Daily generation records, Monthly Joint Meter Reading (JMR) reports Import KWh Generation (Energy delivered at MSEDCL Grid)
	Means of verification/Comments:	The audit team has checked the JMRs for each of the WTGs which are based on the daily generation records. The export and import values are monitored by main and check meters installed at the grid sub station.
	Cross-check	Cross checked with invoices raised to the state electricity boards
Compliance with the calibration frequency requirements for measuring instruments As per the registered monitoring plan, the meters are to be calibrated annually. The audit team has checked the calibration certificates and records of the monitoring equipment as given below.		
Conclusion	The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD. All parameters were monitored and determined as per the registered monitoring plan. Referring to p.360, p.361, p.363 and p.364 of CDM VVS PA, v2.0, VVB confirms through video call and telephonic interviews and from the document review, the actual monitoring system complies with the registered monitoring plan. The substantiation of this conformity on information flow for these parameters including the values in the monitoring reports is reported in the above section. 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. After appropriate corrections, carried out by the project participant, it is confirmed that all monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements. All parameters required to be monitored are recorded at the intervals required by the registered monitoring plan and the applied methodology. On the basis of review of source and nature of available evidences and records, the verification team confirms the quality of evidence for emission reduction provided is sufficient as per CDM VVS PA, v2.0.	

Calibration of the meters

Meter Serial No.	Accuracy Class	Make	Date of Calibration	Due date of calibration
14796425	0.2s	Elster	22/09/2013	21/09/2014
14796423	0.2s	Elster	22/09/2013	
14796425	0.2s	Elster	22/09/2014	21/09/2015
14796423	0.2s	Elster	22/09/2014	
14896425	0.2s	Elster	22/09/2015	21/09/2016
14796423	0.2s	Elster	22/09/2015	
14796425	0.2s	Elster	22/09/2016	21/09/2017
14796459 ¹	0.2s	Elster	22/09/2016	
14796425	0.2s	Elster	22/09/2017	21/09/2018
14796459	0.2s	Elster	22/09/2017	

The calibration certificates have been checked by the audit team and confirmed that there was no delay in calibration of meters. The calibration frequency specified in the registered PD has been followed during the current monitoring period.

¹ In the year 2016 The Check Meter having serial no. 14796423 was replaced and new Check Meter having serial no. 14796459 was calibrated and installed on 22/09/2016.

4.2 Safeguards

4.2.1 No Net Harm

The project do not have any negative environmental and social impacts.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. As confirmed by PP during interviews, for on-going stakeholders' communication, PP has maintained feedback/complaint register at the site office. Local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project.

During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate."

4.3 AFOLU-Specific Safeguards

This section is not applicable as this project activity is a non-AFOLU project activity.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The assessment of data and the calculation of baseline emission reduction in the MR and the ER excel sheet have been verified as per the following set of supporting documents: 1. Energy bills 2. Joint meter readings 3. VER spreadsheets 4. Sales Invoices
Conclusion	Calculations applied formulae and method for calculation of baseline emission are in accordance with the registered monitoring plan and are in line with the requirements of the applied methodology.

Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Conclusion	Project emissions are zero as per the requirement of the methodology and registered VCS PD.

Calculation of leakage GHG emissions

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Conclusion	Leakage emissions are not applicable according to the applied methodology and registered VCS PD.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the verification team against basic monitored data and the calculations were found to be correct. The verification team confirms that all assumptions, emission factors and default values have been correctly justified. Hence the VVB confirms that the methods and formulae used to obtain the emissions are appropriate. No reporting risks have been identified for the data reported. Troubleshooting procedure, maintenance and calibration of monitoring equipment, monitoring measurements and reporting, record handling and maintenance, reviewing monitored data are available at the plant. All the monitored data are archived partially in electronic and paper form. The data will be kept for the whole crediting period and 2 years after the last crediting period thereby meeting the requirement of the monitoring plan.
Conclusion	The formulae and the methods referred in the MR and the emission reduction calculation spread sheet comply with the methods described in the registered PD. No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the verification team against basic monitored data and the GHG emission calculation is found correct. TUV SUD confirms that all assumptions, emission factors and default values have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report. Calculations applied formulae and method for calculation of GHG emission are in accordance with the registered monitoring plan and are in line with the requirements of VCS, the applied methodology and p. 372, p.373 of CDM VVS PA ver 2.0.

4.6 Non-Permanence Risk Analysis

Not applicable

5 VERIFICATION CONCLUSION

The VVB confirms that

- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the project is operated as planned and described in the project design document approved by the VCS;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the monitoring plan in Monitoring Report is as per the VCS PD and monitoring plan approved by the VCS;
- the approved monitoring plan in the approved VCS DD is as per the applied methodology;
- There is an audit trail that contains the evidence and records that validate the stated figures.

Based on the information we have seen and evaluated, we confirm that the project activity achieved the verified amount of reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the project activity

Verification period: From 31/03/2014 to 30/03/2018

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2014	10,931	0	0	10,931
2015	10,744	0	0	10,744
2016	13,046	0	0	13,046
2017	11,814	0	0	11,814
2018	781	0	0	781
Total	47,316	0	0	47,316

APPENDIX 1: <DOCUMENTS REVIEWED>

No.	Author	Title	References to the document
1.	UNFCCC	CDM VVS for PA v2.0	-
2.	UNFCCC	Methodology AMS 1.D Ver.15	-
3.	Verra	VCS Standard v4.0	-
4.	VCS	Final VCS PD	
5.	PTC India	Final Monitoring report	Version 1.2 07/10/2021
6.	PTC India	Revised Emission Calculation sheet	Version 1.2 07/10/2021
7.		The operational lifetime of the project activity from the manufacturer=(Technical specifications)	Manufacturer technical specifications
8.		Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in VCS: Verified Carbon Standard www.v-c-s.org	Reference link is provided.
9.	NA	Tools/ guidelines used in the project activity - Tool to determine the remaining lifetime of the project activity in line with Annex 15 EB 50 - Tool to calculate the emission factor for an electricity system - Glossary of CDM terms version 07 - VCS verification report template version 4.0	UNFCCC CDM web site
10.		JMR records for the complete monitoring period	JMR records
11.		Invoices for the complete monitoring period	Invoice
12.	PP	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period and double counting	-
13.	PP	Commissioning Certificates for all the individual WTGs	
14.	NA	Break down details of the complete monitoring period	Log sheet
15.	NA	Teams and telephonic interviews carried out with PP as part of remote audit due COVID-19 situation in India	NA

16.	NA	Calibration certificate of all energy meters	--
17.	NA	Site photographs	-
18.	NA	GPS Coordinates	-
19.	NA	Single line diagram for metering arrangements	-