



**Verified Carbon
Standard**

BUNDLED WIND POWER PROJECT IN GUJARAT AND TAMIL NADU



South Asia

TÜV SÜD South Asia Pvt Ltd

Project Title	Bundled Wind Power Project in Gujarat and Tamil Nadu
Version	2.0
Report ID	10864ME

Report Title	Bundled Wind Power Project in Gujarat and Tamil Nadu
Client	M/s Venus Textile Service, JB Ecotex LLP, J. Korin Spinning Private Limited and Oriilion India Private Limited
Pages	16
Date of Issue	29 September 2021
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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 **01-March-2019 to 31-July-2021**

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 generates electricity from wind power. The project activity involves installation of combined capacity of 12.8 MW wind power projects in the states of Gujarat and Tamil Nadu in India. The generated power from this project is supplied to Indian grid.

The project has been implemented by four different companies namely M/s Venus Textile Service, JB Ecotex LLP, J. Korin Spinning Private Limited and Oriillion India Private Limited with 7 nos. WTGs. The project activity has been commissioned in 2017 and 2019 for all 7 nos. WTGs installed in the project activity.

The project has not been registered under any other mechanism. The start date of the project activity is 30 March 2017 (Commissioning Date for 1.5 MW WTGs of Venus Textile Service) which is the earliest commissioning date of this bundled project activity. The implementation of this project activity and the monitoring system is in accordance with the registered PD.

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

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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 18"
- the project's monitoring plan is assessed against "AMS ID - Version 18"
- ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable VCS and CDM VVS 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 v4.1 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

Indicate the level of assurance of the verification. 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 generates electricity from wind power. The project activity involves installation of combined capacity of 12.8 MW wind power projects in the states of Gujarat and Tamil Nadu in India. The generated power from this project is supplied to Indian grid.

The project has been implemented by four different companies namely M/s Venus Textile Service, JB Ecotex LLP, J. Korin Spinning Private Limited and Orillion India Private Limited with 7 nos. WTGs. The project activity has been commissioned in 2017 and 2019 for all 7 nos. WTGs installed in the project activity. The capacities of the project activity of each project developers are given below

Sl. No.	Name of Companies	Commissioning Date	Installed capacity (MW)	Location	State
1	M/s Venus Textile Service	30-March-2017	1.5	Seepalakottai	Tamil Nadu
2		30-March-2017	1.5	Seepalakottai	
3		31-March-2017	1.5	Odaipatti	
4		31-March-2019	2.0	Venjamangudalur	
5	M/s JB Ecotex LLP	17-October-2017	2.1	Hadiyana	Gujarat
6	M/s J. Korin Spinning Private Limited	02-August-2017	2.1	Karmata	
7	M/s Oriillion India Private Limited	31-March-2018	2.1	Baradi	

The generated power from this project is supplied to Indian Grid. The project leads to reduction of greenhouse gas emissions by replacing an equivalent amount of energy generated from fossil fuel intensive thermal power plants to meet the energy requirement.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The information provided by the project participants is assessed by applying the means of verification specified in the VCS v4.1, 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 an 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.	Jose	Matthew	Project owner Venus Textile Service	10/08/2021	Implementation of the project, O&M activities, Metering arrangements, Calibrations, JMR, On-going LSC. etc. Plant technology	Eswar Murty
2	Kejriwal	Vishal	Project Owner	10/08/2021	Implementation of the project, O&M activities, Metering arrangements, Calibrations, JMR, On-going LSC. etc. Plant technology	Eswar Murty
3	Mukherjee	Priyanka	EKI Energy Services Ltd PP representative	10/08/2021	VCS monitoring	Eswar Murty
4	Dutta	Bhaskar	EKI Energy Services Ltd PP representative	10/08/2021	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: 13/08/2021
Description of CAR				
The MR section 1.1 shows the WTG of 2 MW as not commissioned. PP to clarify the same.				
Project participant response				Date: DD/MM/YYYY
Commissioning date of the 2MW WTG has now been given in the revised MR.				
Documentation provided by project participant				
Revised monitoring report Ver 02				
DOE assessment				Date: DD/MM/YYYY
MR has been revised. Hence the issue is closed.				

CAR from this verification

CAR ID	01	Section no.		Date: 13/08/2021
Description of CAR				
The details of electricity meters and their calibration are not provided in the MR.				
Project participant response				Date: DD/MM/YYYY
The details of the electricity meter with their calibration details are now been provided in the revised MR				
Documentation provided by project participant				

Revised MR ver 02	
DOE assessment	Date: DD/MM/YYYY
MR has been revised. Hence the issue is closed.	

CAR ID	02	Section no.		Date: 13/08/2021
Description of CAR				
In the ER calculation sheet, the value of net generation is blank for some of the months and the value of generation as per invoices is also not provided for some months. PP to revise accordingly.				
Project participant response				Date: DD/MM/YYYY
The ER sheet has now been revised and same has been submitted.				
Documentation provided by project participant				
Revised Emission reduction sheet ver 02				
DOE assessment				Date: DD/MM/YYYY
ER sheet has been revised. 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

The registered PD mentions that both main meter and check meters would be installed for measuring the generation of electricity at Tamil Nadu and Gujarat sites. During the remote assessment, it was observed that check meters were not installed for 6 out of 7 WTGs. Measurements were done using the main meter only. In both the sites, the project metering is being done at 2 places at Substation end and at Controller end where SCADA System is in place to record the daily generation, in case of main meter failure or malfunction, controller reading will be considered after application of 1% Line Losses to get the values of power generated for that particular period.

Therefore deviation has been taken in this monitoring report by the PP and the same has been updated in relevant sections.

The VVB confirms that the above-mentioned deviation is of permanent nature and does not have any impact on the project applicability, baseline scenario and additionality.

3.3 Grouped Project

This is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project has been commissioned and the commissioning details of the project are provided below for all the 7 nos. WTGs for 4 nos. companies.

Sl. No.	Name of Companies	Commissioning Date	Installed capacity (MW)
1	M/s Venus Textile Service	30-March-2017	1.5
2		30-March-2017	1.5
3		31-March-2017	1.5
4		31-March-2019	2.0
5	M/s JB Ecotex LLP	17-October-2017	2.1
6	M/s J. Korin Spinning Private Limited	02-August-2017	2.1
7	M/s Orillion India Private Limited	31-March-2018	2.1

The project has neither been registered nor seeking registration under any other GHG program. The project contributes to sustainable development in social, economic, technological and environmental well being by generating employment opportunities, providing clean technology investment in the region

Social well-being: The project has helped in generating employment opportunities during the construction and operation phases. The project activity has lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation, promotion of wind power generation and reduction in the dependence on fossil fuels.

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 telephonic/Skype 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.

The audit team has checked all the commissioning certificates of WTGs to confirm the location and the implementation of the project.

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.
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	Data / Parameter:	EGPJ,Gujarat, EGPJ,Tamilnadu
	Data unit:	MWh
	Description:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
	Source of data used:	Monthly Share Certificate, Joint Metering Reports (Tamil Nadu and Gujarat)
	Means of verification/Comments:	<p>Gujarat</p> <p>The daily generation is recorded by the main and check meters at the Grid sub station for the 3 nos. WTGs in Gujarat. This net electricity generation values are verified from the JMR and the monthly share certificates issued by GETCO for the monitoring period.</p> <p>Tamil Nadu</p> <p>The daily generation is recorded by the main meters at the Grid sub station for the 4 nos. WTGs in Tamil Nadu. This net electricity generation values are verified from the JMR for the monitoring period.</p>
	Cross-check	Cross checked with invoices raised to TNEB and GETCO.
	<p>Compliance with the calibration frequency requirements for measuring instruments</p> <p>As per the registered monitoring plan, the meters are to be calibrated once in 5 years. The audit team has checked the calibration certificates and records of the monitoring equipment as given below and found that there was no delay in calibration during the monitoring period. The details of the calibration of meters are given in the table below.</p>	
Conclusion	<p>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.</p> <p>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</p>	

	<p>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.</p> <p>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 VWS PA, v2.0.</p>
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Calibration of the meters

Make	Class	Serial No.	Calibration Date	Validity	Delay in days
EDMI	0.2 s	GJ-3896-B	30/08/2017	29/08/2022	0
EDMI	0.2 s	GJ-3947-B	30/07/2017	29/07/2022	0
EDMI	0.2 s	GJ-3893-B	28/02/2018	27/02/2023	0
SECURE	0.2 s	TNW00877	30/03/2017	29/03/2022	0
SECURE	0.2 s	TNW00762	30/03/2017	29/03/2022	0
SECURE	0.2 s	TNW00755	30/03/2017	29/03/2022	0
SECURE	0.2 s	TNW02182	31/03/2019	30/03/2024	0
SECURE	0.2 s	TNW02182	31/03/2019	30/03/2024	0

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 lifetime 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

<p>Means of verification</p>	<p>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:</p> <ol style="list-style-type: none"> 1. Energy bills 2. Joint meter readings 3. VER spreadsheets 4. Sales Invoices <p>The net generation has been mentioned site specific in the MR which include the breakup for all the sites. The same has been checked and confirmed by the audit team.</p>
<p>Conclusion</p>	<p>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. The audit team also confirms that there are no material misstatements or errors in the emission reduction calculations.</p>

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

<p>Means of verification</p>	<p>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</p>
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Conclusion	Project emissions are zero as per the requirement of the methodology and registered VCS PD.
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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	<p>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. All the emission factors, application of maximum permissible errors and default values are explicitly mentioned in the monitoring report. Hence the VVB confirms that the methods and formulae used to obtain the emissions are appropriate.</p> <p>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.</p>
Conclusion	<p>The formulae and the methods referred in the MR and the emission reduction calculation spread sheet comply with the methods described in the registered PDD.</p> <p>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.</p> <p>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.</p>

	The audit team also confirms that there are no material misstatements or errors in the emission reduction calculations.
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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 01 March 2019 to 31 July 2021

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)

2019	29,334	0	0	29,334
2020	28,837	0	0	28,837
2021	18,112	0	0	18,112
Total	76,282	0	0	76,282

APPENDIX 1: <DOCUMENTS REVIEWED>

No.	Author	Title	References to the document
1.	UNFCCC	CDM VVS for PA v2.0	-
2.	UNFCCC	Methodology ACM0002 Ver.18	-
3.	Verra	VCS Standard v4.0	-
4.	VCS	Final VCS PD	
5.	Venus Textile Service	Final Monitoring report	Version 02 15/09/2021
6.	Venus Textile Service	Revised Emission Calculation sheet version 02	Version 02 15/09/2021
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 <ul style="list-style-type: none"> • 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	2017-2019

17.	NA	Site photographs	-
18.	NA	GPS Coordinates	-
19.	NA	Single line diagram for metering arrangements	-