VERIFICATION REPORT FOR

"TROPICAL WIND IN THAILAND"

Document Prepared By

LGAI Technological Center S.A. (Applus+ Certification)

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Summary:

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Kosher Climate India (P) Limited to conduct the second verification of the project "Tropical Wind in Thailand", VCS ID 1997, against VCS Standard Version 4.0/16/.

The verification includes confirming the implementation of the monitoring plan of the registered VCS PD and MR (Project ID 1997) and the application of the monitoring methodology as per ACM0002, Version 19 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"/9/.

The project activity involves the installation of Wind Turbine Generators (WTG) in Nakhon Ratchasima of Thailand (T2 Wind farm). The project is developed by Tropical Wind Co., Ltd, Thailand. Tropical Wind Co., Ltd is a subsidiary of Wind Energy Holding Co., Ltd.

The purpose of the project activity is to generate clean electricity with utilization of wind energy. The project consists of 30 numbers of Vestas Wind Turbine Generators (WTGs) of 3.0 MW capacities each. The project WTGs are installed in the Wangyaithong and Bueng Prue sub-districts of Thepharak District, Nakhonratchasima Province in Thailand.

All the WTGs of the project activity were commissioned on 28-September-2018. The WTGs are operational continuously since commissioning without any major outages.

A risk based approach has been followed to perform this verification. In the course of verification, 04 Corrective Action request (CARs), 00 Forward Action Request (FAR) and 01 Clarification request (CLs) were raised and successfully closed.

The review of the project design documentation, monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, telephonic interviews and stakeholders have provided Applus+ Certification with sufficient evidence to validate the fulfillment of the stated criteria.

Applus+ Certification confirms that the project is implemented in accordance with the registered VCS PD&MR/01/. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the emission reductions from the project activity "Tropical Wind in Thailand" during the period 01/11/2019 - 31/12/2020 (including both days) amount to 172,706 tons of CO_2e.

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1. INTRODUCTION

1.1 Objective

Applus+ Certification has been contracted byKosher Climate India (P) Limitedwho is authorised byTropical Wind Co., Ltd(project proponent), to undertake the verification of the renewable energy project titled "Tropical Wind in Thailand"(VCS ID-1997) The verifiers have reviewed the GHG data collected to date for the monitoring period from 01/11/2019 - 31/12/2020(both days included) covered in this verification.The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VERRA requirement by the VVB. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VERRA Board.

1.2 Scope and Criteria

The scope of the verification was the independent and objective review and ex-post determination of the monitored reductions in GHG emissions from "Tropical Wind in Thailand" The verification of this project was based on the registered project description/01/ & monitoring report /04/ and supporting documents submitted by the project proponent to the verification team. The documents were reviewed against the following guidance and protocols:

VCS Standard: VCS standard Version 4.0, dated19/09/2019/16/

Approved baseline and monitoring methodology ACM0002, Version 19, "Grid-connected electricity generation from renewable sources"./09/

Validated VCS Joint PD and MR, version 2.1dated 16/12/2019/01/

VCS Program Guide, Version 4.0, dated 19/09/2019/17/

ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions, 2006/18/

CDM VVS and PS for project activities version 02.0/19/

The verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of Assurance

The level of assurance of the verification report falls under reasonable assurance engagements as selected by the Client. The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors.

1.4 Summary Description of the Project

The project activity involves the installation of Wind Turbine Generators (WTG) in Nakhon Ratchasima of Thailand (T2 Wind farm). The project is developed by Tropical Wind Co., Ltd, Thailand. Tropical Wind Co., Ltd is a subsidiary of Wind Energy Holding Co., Ltd.

The purpose of the project activity is to generate clean electricity with utilization of wind energy. The project consists of 30 numbers of Vestas Wind Turbine Generators (WTGs) of 3.0 MW capacities each. The project WTGs are installed in the Wangyaithong and Bueng Prue sub-districts of Thepharak District, Nakhonratchasima Province in Thailand.

All the WTGs of the project activity were commissioned on 28-September-2018. The WTGs are operational continuously since commissioning without any major outages.

The electricity generated by the project is exported to the Thailand National grid. The project activity will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. Since wind power is Greenhouse Gas (GHG) emissions free, the power generated will prevent the anthropogenic gas emissions generated by fossil fuel based thermal power stations comprising coal, natural gas, diesel, and bunker oil.

There was no activity at the site prior to implementation of the project activity. Hence the scenario existing prior to the project activity is same as baseline scenario which is continual use of highly carbon intensive electricity in the regional grid.

The geo-coordinates of the location are as follows:

S.No	WTG ID	Latitude (°N)	Longitude (°E)	Sub-District	District
1	T2-001	15.327761	101.462373	Bueng Prue	Thepharak
2	T2-002	15.326015	101.465079	Bueng Prue	Thepharak
3	T2-003	15.322626	101.464763	Bueng Prue	Thepharak
4	T2-004	15.319917	101.466409	Bueng Prue	Thepharak
5	T2-005	15.31713	101.468282	Bueng Prue	Thepharak
6	T2-007	15.33211	101.459366	Bueng Prue	Thepharak

S.No	WTG ID	Latitude (°N)	Longitude (°E)	Sub-District	District
7	T2-008	15.336671	101.464582	Wangyaithong	Thepharak
8	T2-009	15.340497	101.463524	Wangyaithong	Thepharak
9	T2-010	15.343742	101.462994	Wangyaithong	Thepharak
10	T2-011	15.328995	101.476068	Wangyaithong	Thepharak
11	T2-012	15.336973	101.488337	Wangyaithong	Thepharak
12	T2-015	15.350415	101.462553	Wangyaithong	Thepharak
13	T2-016	15.347165	101.46314	Wangyaithong	Thepharak
14	T2-017	15.351936	101.456607	Bueng Prue	Thepharak
15	T2-018	15.356614	101.459382	Wangyaithong	Thepharak
16	T2-019	15.359017	101.465234	Wangyaithong	Thepharak
17	T2-025	15.335697	101.491683	Wangyaithong	Thepharak
18	T2-026	15.334948	101.497827	Wangyaithong	Thepharak
19	T2-027	15.343117	101.499171	Wangyaithong	Thepharak
20	T2-031	15.332582	101.465806	Wangyaithong	Thepharak
21	T2-033	15.31901	101.485692	Wangyaithong	Thepharak
22	T2-034	15.322287	101.485542	Wangyaithong	Thepharak
23	T2-035	15.325197	101.484014	Wangyaithong	Thepharak
24	T2-036	15.328374	101.483733	Wangyaithong	Thepharak
25	T2-042	15.351749	101.49313	Wangyaithong	Thepharak
26	T2-043	15.343087	101.476838	Wangyaithong	Thepharak
27	T2-045	15.336522	101.478635	Wangyaithong	Thepharak
28	T2-046	15.348187	101.495815	Wangyaithong	Thepharak
29	T2-101	15.352158	101.487328	Wangyaithong	Thepharak
30	T2-102	15.355959	101.488176	Wangyaithong	Thepharak

The estimation of GHG reductions by this project is limited to carbon dioxide (CO_2) only. Thus the project activity leads to an emission reduction of 162,898 tCO_2 per year or 1,628,980 tCO_2 for the chosen crediting period of 10 years.

The current monitoring period chosen is from 01-November-2019 to 31-December-2020 (inclusive of first & last date) and the GHG emission reductions calculated are 172,706 tCO_2

2. VERIFICATIONPROCESS

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

2.1 Method and Criteria

Verification was conducted using Applus+ Certification procedures in line with the requirements specified in the VCS standard Version 4.0/16/ Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The project activity does not falls under category "grouped projects", hence any sampling methods not to be employed by the validation/verification body for the verification of GHG emission reductions or removals generated by the project.

It is to be assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The verification process consists of the following three phases;

A desk review of the VCS PD and MR

Telephonic interviews with project stakeholders

The resolution of outstanding issues and issuance of final report and opinion.

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD and MR/01/, previous validation and verification report and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team referring the Applus+ Certification internal procedures in line with latest VCS requirements. The cross checks between information provided in the Monitoring report, VCS PD&MR and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

Due to the current situation with the global COVID-19 pandemic scenario and international travel to Thailand from India was not possible due to which on-site inspection has not been performed by the assessment team. However, the representatives of the PP and O&M contractors were interviewed telephonically on 24/02/2021 i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed are mentioned in the table below:

S N	Name	Roll	Organization
1	Mr.Kelly Dallas	Director	Tropical Wind Co., Ltd.
2	Mr. VanitaLimmaneeprasert	Head of Asset Management	Tropical Wind Co.
3	Mr. Arvind Agarwal	Asset Manager	Tropical Wind Co.
4	Mr. Narendra	VCS Consultant	Kosher Climate India (P) Limited

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording and archiving procedures. The assessment was drawn based on the feedback received during telephonic interview coupled with the documentation.

2.4 Site Inspections

As discussed in the above section, physical site inspection is not done for the current verification. However to achieve a reasonable level of assurance, the assessment team has followed the alternative means to substantiate the verification criteria as described in the below table:

Assessment Criteria	Means of verification/source documents	Assessment opinion
Description of project activity	i. Commissioning certificates /11/ ii. PPA signed /12/ iii. Latest VCS validation and verification report /2/. iv. Telephonic interview on 24/02/2021	The information's with reference to project capacity, technology, plant equipment and commissioning dates as provided in section 1.1 of MR are found consistent with the documents.

Assessment Criteria	Means of verification/source documents	Assessment opinion
Compliance of the project implementation with the registered project designdocument	i. Monthly generation and invoice/08/ ii. Geographical co-ordinates (Location of plant) verified through Google Map iii. Latest VCS validation &verification report /2/. iv. PPA signed with EGAT /12/ v. Telephonic interview on 24/02/2021 vi. Photograph of the plant, energy meters installed at site and screen shots of online monitoring system /20/	Monthly generation and invoice issued by EGAT indicate the following information: • Commissioning date • Serial number of energy meters • Capacity of project • Name of project participant Location ofplant is verified through Google Map. Daily generation records are verified to check the operational status of project activity. Grid connectivity of the project is confirmed through the PPA. All the information's regarding the project implementation as discuss above are further verified through VCS verification report along with latest and found consistent.
Compliance of the registered monitoring plan with applied methodologies andstandardized baselines	i. Monthly generation and invoice /08/ ii. Geographical co-ordinates (Location of plant) verified through Google Map iii. Latest VCS validation and verification report /2/. iv. PPA signed with EGAT /12/ v. Telephonic interview on 24/02/2021 vi. Photograph of the plant, energy meters installed at site and screen shots of online monitoring system	The organizational structure, responsibilities and competencies of the personnel confirmed through telephonic interview. Frequency of monitoring of parameters listed under approved monitoring plan is verified through monthly generation/Invoices. The methods used for measuring, recording, storing, aggregating, and reporting the data on monitored parameters are verified though PPA and interactions with site personnel. Procedure for data uncertainty, emergency

Assessment Criteria	Means of verification/source documents	Assessment opinion
	/20/	preparedness, roles and responsibility, operational and management structure are mentioned in the MR is confirmed through policy documents and found satisfactory.
Compliance with the calibration frequency requirements for measuring instruments	i. Calibration certificates of instruments/06/ ii. Monthly generation and invoice /08/ iii. PPA signed with EGAT /12/	Calibration frequency and energy meter specifications (Sr.No, make accuracy class) is verified through calibration certificates and further verified through monthly generationreport and found consistent. Responsibility of calibration and maintenance of energy meters is solely under control of EGAT; this is verified through the PPA.
Assessment of data and calculation of emission reductions or net removals	i. Monthly generation and invoice /08/ ii. Invoices raised by project developer to EGAT/07/ iii. Thailand Grid Emission Factor for GHG Reduction Project/Activity' dated 28/09/2017 Published by Thailand Greenhouse Gas Management Organization (Public Organization)/10/ iv. Latest VCS validation and verification report /2/	Monthly values of monitoring parameters used in ER calculation are verified through monthly generation and cross verified with the invoices. Methods, formulae and emission factor for calculating baseline emissions have been followed are in accordance with the applied methodology and as described in the approved VCS verification report.

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

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

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

2.5 Resolution of Findings

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

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

Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;

Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;

Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

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

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

During the current verification, 04 Corrective Action request (CARs), 00 Forward Action Request (FAR) and 01 Clarification request (CLs) were raised and successfully closed.

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

2.5.1 Forward Action Requests

The project activity is undergoing 2nd verification under VCS; there were no FARs raised during the validation or previous verification. Also during the current verification no FAR is raised.

2.6 Eligibility for Validation Activities

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

3. VALIDATION FINDINGS

Use this section to provide details of all validation activities that took place during the verification, such as gap validation, validation of methodology deviations and project description deviations, and the inclusion of new project activity instances into grouped projects.

3.1 Participation under Other GHG Programs

The project has not been developed under any other GHG mechanism or Programs.

A declaration shall be submitted to VVB and confirming the same.

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period

3.3 Project Description Deviations

There are no project description deviations applied during this monitoring periodand there is no previous reported Project Description Deviation.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project

4. VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity involves the installation of Wind Turbine Generators (WTG) in Nakhon Ratchasima of Thailand (T2 Wind farm). The total installed capacity of the project is 90 MW. The project is developed by Tropical Wind Co., Ltd.

The technology employed, converts wind energy to electrical energy. In wind power generation, energy of wind is converted into mechanical energy and subsequently into electrical energy. The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation.

The technical specifications of the WTGs have been provided as below

GE 137-3.0 MW	
Rated power:	3.0 MW
Rotor diameter	137 m
Number of blades	3
Swept area	14741 m2
Rotational director	Clockwise (viewed from an upward wind location)
Maximum speed of the blade tips	82.1 m/s
Orientation	Upwind
Speed regulation	Pitch control
Aerodynamic brake	Full feathering

Color of outer components	RAL 7035 (light gray)
Reflection degree/Gloss degree of steel tower	30-60 units measured at 60 degree per ISO2813
Reflection degree/Gloss degree of Rotor blades, nacelle, Hub	60-80 gloss units measured at 60 degree per ISO2813
Reflection degree/Gloss degree of Hybrid tower	15-30 gloss units measured at 60 degree per ISO2813

The project activity is in continuous operation since commissioning and there is no such incident reported during the current monitoring period which may impact the operation & capacity design of the project activity. Therefore, no events have happened that may impact the GHG emission reductions or removals and monitoring in this monitoring Period.

4.2 Safeguards

4.2.1 No Net Harm

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

4.2.2 Local Stakeholder Consultation

No comment received during ongoing communication with local stakeholders. The Local Stakeholder Consultation Process was already conducted in-line with requirement during project registration with VCS.

4.3 AFOLU-Specific Safeguards

This is a non-AFOLU project. For non-AFOLU projects, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The project monitoring has been carried in accordance with the registered VCS PD&MR/01/ and the monitoring report/04/. The monitoring plan laid in the registered PD and MR/01/ is being followed at the site/20/. The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR/04/.

The emission reductions are purely based on the net electricity generated and exported from the machines. PP has provided all the sufficient data for current monitoring period. The values of the parameter $EG_{facility,y}$ used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet/05/ provided by PP. Quantity of net

electricity supplied by the project activity to the grid in year y($EG_{facility,y}$) by the project activity calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from monthly generation report/invoice issued as per below equation:

Net electricity = Export - Import

The calculation is done by EGAT and the Project Developer has no control over the authority for the calculation. Based on the monthly generation report/invoice, the project developer shall raise the invoice. Verification team has verified the monthly values of parameter ($EG_{facility,y}$) as reported in the ER sheet with the source document and no discrepancy is observed, hence it can be confirmed that no manual transposition errors between data sets have been occurred. The verification of each monitoring parameter has been discussed later in section 4.5.

The calculation method and formulae used in calculating baseline emission is in compliance to the methodology used i.e. ACM0002 version 19 /09/. Since project activity is a windpower project, leakage emission and project emission has been considered as zero.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

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

<table>
<tr><td>Parameter</td><td>Quantity of net electricity generation supplied by the project activity to the grid in year y$EG_{facility\ y}$(MWh)</td></tr>
<tr><td>Means of verification</td><td>
<table>
<tr><th>Criteria/Requirements</th><th>Assessment/Observation</th></tr>
<tr><td>Measuring /Reading /Recording frequency</td><td>The parameter is continuously monitored, hourly measured and monthly recorded.</td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/09/.</td></tr>
<tr><td>Monitoring equipment</td><td>Bidirectional electronic meters of accuracy class 0.2s are used.</td></tr>
</table>
</td></tr>
</table>

		Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring equipment used to measure the values is 0.2s, which is as per the registered PD and MR/01/ which is as per the norm defined in the PPA/12/.	
		Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment is valid for the entire range.	
		Calibration frequency /interval:	Calibration frequency of the meters is once in a year.	
		Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
		Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by EGAT /06/.	
		Is(are) calibration(s) valid for the whole reporting period?	Delay observed in calibration therefore PP has taken 0.2% error on import and export power on conservative side for non-calibration period.	
		How were the values in the monitoring report verified?	Monthly value of the parameters for entire monitoring period is reported in the monitoring report and ER calculation sheet. The monthly values were verified from the monthly generation report and found to be consistent. Value of this parameter for the	

		current monitoring period was verified as 303,422 MWh
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values were further cross checked with the monthly invoices raised by the PP /07/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority (EGAT), The data transfer process for the said parameter is as follows: The export reading has been crosschecked with the Invoice raised by the developer to EGAT The import reading shall be crosschecked with the invoice raised by EGAT to developer. The meter(s) shall be calibrated and maintained by the EGAT as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No suchissues.
Findings	CAR#4 and CL #1 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameters fixed ex ante:

$EF_{grid, CM, y}$; tCO2e/MWh: it is the combined margin emission factor of Thailand national grid fixed for the entire crediting period and the value is considered as 0.5692 tCO2e/MWh, that is consistent with the joint VCS PD & MR/01/.

$EF_{grid, OM, y}$; tCO2e/MWh: it is the operating margin emission factor of Thailand national grid fixed for the entire crediting period and the value is considered as 0.5719tCO_2e/MWh, that is consistent with the joint VCS PD & MR/01/.

$EF_{grid, BM, y}$; tCO2e/MWh: it is build margin emission factor of Thailand national grid fixed for the entire crediting period and the value is considered as 0.5609 tCO2e/MWh, that is consistent with the joint VCS PD & MR/01/.

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

Details	Calibration dates	Calibration due date	Delay
Main Meter Mt No: 51515187	25/02/2019	24/02/2020	No Delay
	17/03/2020	16/03/2021	Delay
Backup meter Mr. No: 51515188	25/02/2019	24/02/2020	No Delay
	17/03/2020	16/03/2021	Delay

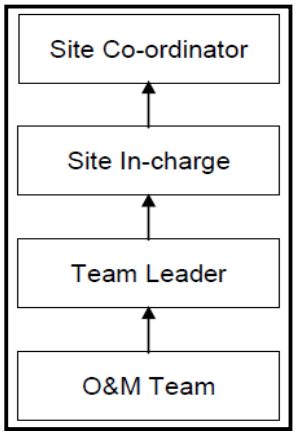
Meters used to measure the parameters are of accuracy class 0.2s, as verified through calibration certificates/06/ and the photographs indicating the accuracy, make etc.

Monitoring Plan:

All the three wind projects in the bundle have entered into agreement with the respective WTG Suppliers for the operation and maintenance of WTGs. And project has entered into agreement with the O&M contractor for the operation and maintenance of the project. O&M contractor will provide a monthly report, which includes generation data, major breakdown events and machine availability. Project manager is responsible for recording of monthly meter readings of export and import. Monthly power export and import data will be sent regularly to site in charge of each project separately.

Monitoring roles and responsibilities:

The data for the project is compiled by the O&M Contractor and subsequently stored by the PP, the reporting and data flows as per the below mentioned flow chart starting from Site O&M team which monitors day to day operational data and monthly recording. The reporting responsibilities for the project are described as below;



The Site In-charge will be responsible for carrying out internal auditing and QA/QC. All the values from generation record will be checked with JMR and invoices for consistency. In case there are any non-conformances identified. The Site In-charge will investigate the error and revise the record to correct it. In any case where values have slightest of variation in different records the most conservative value will be taken in the project monitoring report.

Personal Training:

The training for operating and maintaining the plant will be provided to the O&M team whenever there would be necessity or any technological up gradation.

Emergency preparedness:

In case Main meter or Check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible. In the event that the Main meter is not in service as a result of maintenance, repairs or testing, the Check meter will be used for readings

Data recording & archiving: The project proponent shall maintain data both in electronic form and hard copies. The monitored data shall be archived till 2 years after the completion of crediting period.

Monitoring Process at project site

Developer will monitor the quantity of electricity exported to the grid and imported to the project activity using the electricity meters installed in the wind power plant, which undertaken by EGAT. Both electricity meters will measure the amount of electricity continuously and record electronically. The O&M operator also manually record amount of the electricity import and export meter to the grid from meters in the log book monthly. The monitoring reports will be checked and discussed periodically.

All monitored data will be stored for at least two years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Oversight and accountability:

The possibility of oversight is unlikely as the energy meter readings are recorded jointly by PP and EGAT which is the basis for the electricity billings. Also a backup meter is available to crosscheck any considerable difference in the energy reading.

Internal auditing and QA/QC

No requirement of internal audit for the data monitored as the data is measured by the energy meter installed by EGAT (government authority) and the reading is recorded every month by jointly by PP & representative from EGAT. The main energy meter readings are verified against the reading of the backup meter to check any considerable variation. In case, considerable variation found, then either main meter reading or check meter reading whichever lower will be considered. The electricity readings recorded are used for electricity invoicing to EGAT. Hence, the data collected is of high accuracy and authorised by EGAT.

Handling Non-conformities

Not applicable as the energy meter recording is done my EGAT and hence no internal audit will be carried out to verify the data.

Sampling approaches:

No sampling approach is used as all the monitoring parameter is monitored 100%.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project proponent. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment(s) for this project activity.

The assessment team has verified the monthly generation/invoices issued by EGAT and confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the gridand consequently for ER calculations. As verified through the calibration certificates, there is delay in calibration of main meters and check meter for period 25/02/2020 to 16/03/2020identified during the current monitoring period, therefore on conservative side PP has applied maximum possible error 0.2% in energy import and export value. The registered VCS PD and MR/01/and meter photographs confirm that the metering equipment are sealed and maintained by the state utility.

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

GHG Calculations

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

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

$EF_{grid,CM,y}$is Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO2/MWh) (i.e, 0.5692 tCO2e/MWh).

and;

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

Thus, BEy =303,422MWh * 0.5692tCO2e/MWh

= 172,706 tCO2e

The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The assumptions, emission factors and default values that were applied in the calculations are justified. The actual emission reduction achieved during the current monitoring period are 9.37% lower than the estimated amount of emission reductions at the time of validation, which is due to marginally lower CUF or lower generation as compared to the projected generation of the plant operation.

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

All the data were made available and have monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above.

4.6 Non-Permanence Risk Analysis

Not applicable for the project activity.

5. VERIFICATION CONCLUSION

LGAI Technological Center, S.A. (also referred to as Applus+ Certification), contracted byKosher Climate India (P) Limited (authorised fromTropical Wind Co., Ltd.), has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1997) "Tropical Wind in Thailand"for the monitoring period 01/11/2019 - 31/12/2020 as reported in the Monitoring Report Version 03 dated 04/03/2021. Kosher Climate India (P) Limitedis responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

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

Applus+ Certification commenced the verification on the basis of the baseline and monitoring methodology ACM0002 version 19, the monitoring plan contained in the registered VCS Joint PD and MR Version 2.1, dated 16/12/2019and VCS guidelines version 4.0, Monitoring Report Version 03dated 04/03/2021as per the process described under Section 2 of this report.

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

In our opinion the GHG emissions reductions reported for the project activity for the period 01/11/2019 - 31/12/2020 are fairly stated in the Monitoring Report Version 03 dated 04/03/2021. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 version 19, and the VCS standard.

Verification period: From 01/11/2019 - 31/12/2020 (including both days)

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2019 (01-Nov-2019 to 31-Dec-2019)	35,143	0	0	35,143

2020 (01-Jan-2020 to 31-Dec-2020)	137,563	0	0	137,563
Total	172,706	0	0	172,706

APPENDIX 1: DOCUMENT REFERENCES

S.No	Title of Document	Version	Date
1.	Registered VCS Joint PD and MR	2.1	16/12/2019
2.	VCS Validation and Verification Report, prepared by Earthood Services Private Limited (For First Monitoring Period 28/09/2018 to 31/10/2019)	2.0	17/12/2019
3.	VCS Monitoring Report	01	01/02/2021
4.	VCS Monitoring Report (Final)	03	04/03/2021
5.	ER spread sheet (corresponding to the final monitoring report)	03	04/03/2021
6	Certificates of Calibration for all the meters belongs to project activity	-	25/02/2019 & 17/03/2020
7.	Invoice issued by PP to EGAT	for the period 01/11/2019 to 31/03/2020	-
8.	Monthly generation report for the current verification period.	for the period 01/11/2019 to 31/03/2020	-
9.	"Consolidated baseline methodology for grid-connected electricity generation from renewable sources", ACM0002,	19	-
10.	Thailand Grid Emission Factor for GHG Reduction Project/Activity' dated 28/09/2017 Published by Thailand Greenhouse Gas Management Organisation (Public Organisation) http://ghgreduction.tgo.or.th/images/Grid_Emission_Factor_2559_-_Finalised.pdf		28/09/2017
11.	Commissioning certificate for all WTGs	-	-
12.	Power purchase agreement (PPAs)	-	12/05/2014
13.	VCS webpage for the project, VCS ID 1997; https://registry.verra.org/app/projectDetail/VCS/1997	-	Last accessed on 01/03/2021
14.	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period	-	Dated 26/02/2021
15.	Approvals and Clearances for project activity	-	-
16.	VCS Standard	Version 4.0	19/09/2019
17.	VCS Program Guide	Version 4.0	19/09/2019
18.	ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions, 2006		
19.	CDM VVS and PS for project activities	Version 2.0	29/11/2018
20.	Photograph of the plant, energy meters installed at site and screen shots of online monitoring system		

APPENDIX 2: COMPETENCY STATEMENT

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the Assessment (remote)
Vivek Ahirwar	Lead Auditor (LA)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Vivek Ahirwar	Technical Expert (TE)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Simon Shen	Technical Reviewer (TR)	Yes (1)	Yes (1.2)	N/A	N/A	N/A

The curricula vitae of the DOE's team members are provided below:

Vivek Kumar Ahirwar is a BEE-Certified Energy Auditor by Govt of India with over eight years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the India. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India.

Simon Shen (master degree in thermal energy engineering, bachelor degree in environmental engineering) is a lead auditor appointed by Applus+ certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ certification, he had been worked for TÜV SÜD as a GHG validator/verifier and ISO 9001/14001 lead auditor for 3.5years.

APPENDIX 3: ABBREVIATIONS

Abbreviations	Full texts
ABT	Availability Based Tariff
BEF	Baseline Emission Factor
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CMS	Central Monitoring System
CMP	Conference of Parties Serving as Meeting of Parties
CO2	Carbon dioxide
EB	Executive Board
EPC	Engineering, Procurement and Construction
EGAT	Electricity Generating Authority of Thailand
FAR	Forward Action Request
GHG	Green House Gas
ISO	International Standards Organization
JMR	Joint Meter Reading
kW	Kilowatt
kWh	Kilowatt hour
MR	Monitoring Report
MW	Megawatt
MWh	Megawatt-hour
O&M	Operation and Maintenance
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance and Quality Control
TOD	Time of the Day
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCS PD	VCS Project Description
VCUs	Voluntary Carbon Units

APPENDIX 4: FINDINGS OVERVIEW

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

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

Table 1. CL from this verification

CL ID	01	Section no.	MR	Date :27/02/2021
Description of CL				
Please submit the following documents: • Monthly invoice from Feb 2020 to Dec 2020 • Please submit declaration confirming that the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions. • Meter calibration certificate dated 22/02/2019 for main and back up meter • Grievance register copy				
Project participant response				Date :28/02/2021
The following documents have been submitted: • Monthly invoice from Feb 2020 to Dec 2020 • PP declaration confirming that the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions • Meter calibration certificate dated 22/02/2019 for main and back up meter • Grievance register copy				
Documentation provided by project participant				
• Invoices from Feb 2020 to Dec 2020 • PP declaration • Calibration certificate • Grievance register				
DOE assessment				Date: 03/03/2021
Assessment team confirm that PP has submitted following documents: • Monthly invoice from Feb 2020 to Dec 2020 • PP declaration confirming that GHG emission reductions or removals generated by the project activity will not be used for other compliance with an emission trading program or to meet binding limits on GHG Emissions • Meter calibration dated 22//02/2019 • Copy of grievance register Hence accepted CL#1 Closed				

Table 2. CAR from this verification

CAR ID	01	Section no.	1.3	Date :27/02/2021
Description of CAR				

Please confirm if director has been changed because in registered PDD it's ArrakBoonvachiandKelly's email id mentioned in monitoring report	
Project participant response	**Date :28/02/2021**
Mr. Kelly Dallas is the contact person for this project. The same is corrected in the MR.	
Documentation provided by project participant	
Revised MR	
DOE assessment	**Date: 03/03/2021**
Assessment team confirm that PP has updated MR and PP change accepted. CAR#1 Closed	

CAR ID	02	**Section no.**	4.2	**Date :**27/02/2021
Description of CAR				
PP is requested to include only valid calibration dates during current monitoring period and remove 2018 calibration details from MR. PP is also requested to correct due date of calibration as meter calibration validity is 1 year PP is requested to correct meter calibration due date.				
Project participant response				**Date:** 28/02/2021
The 2018 calibration details are removed from MR The due date of the calibration is now corrected in MR.				
Documentation provided by project participant				
Revised MR				
DOE assessment				**Date: 03/03/2021**
Assessment team confirm that PP has submitted revised monitoring report with updating of calibration details. Hence accepted CAR#2 Closed				

CAR ID	03	**Section no.**	ER sheet	**Date :**27/02/2021
Description of CAR				
PP is requested to correct baseline emission value and correct as rounddown value to match with total emission reduction in current monitoring period.				
Project participant response				**Date:** 28/02/2021
The baseline emission value is rounded down to match with the total emission reduction in the current monitoring period				
Documentation provided by project participant				
Revised ER sheet				
DOE assessment				**Date: 03/03/2021**
Assessment team confirm that PP has corrected ER sheet and updated baseline emission value. Hence accepted CAR#3 Closed				

CAR ID	04	**Section no.**	MR	**Date :**04/03/2021
Description of CAR				
There is delay in meter calibration from 25/02/2020 to 16/03/2020, PP is requested to take error consideration while calculating emission reduction.				
Project participant response				**Date:** 04/03/2021
The February 2020 & March 2020 month export and import reading are now adjusted with maximum possible error of 0.2% for the calibration delay. The revised Emission reduction is updated in the MR				
Documentation provided by project participant				
Revised ER sheet Revised MR				
DOE assessment				**Date: 08/03/2021**

Assessment team confirm that PP has applied 0.2% maximum possible error on energy import and export values. ER numbers also updated in MR and ER sheet. Hence accepted CAR#4 Closed

Table 4. FAR from this verification

FAR ID	N/A	Section No.	N/A	Date:N/A
Description of FAR				
N/A				
Project participant response				Date:N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date:N/A
N/A				