



# Verified Carbon Standard

## WIND POWER PROJECT AT THENI BY POWERICA LIMITED



By KBS Certification Services Pvt. Ltd.

<b>Project Title</b>	Wind power project at Theni by Powerica Limited
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<b>Prepared By</b>	KBS Certification Services Pvt. Ltd.

<sup>1</sup> The entire monitoring period from 01 January 2020 to 31 December 2020 spans 2 crediting periods, wherein the period from 01 January 2020 to 12 September 2020 pertains to the first crediting period and the period from 13 September 2020 to 31 December 2020 pertains to the second crediting period. PP had taken prior approval from VERRA for the same through an email dated 17/02/2018.

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**Summary:**

EKI Energy Services Limited has commissioned “KBS Certification Services Pvt. Ltd.” (KBS) to carry out the validation for renewal of crediting<sup>2</sup> period (RCP), followed by verification of the project - “Wind power project at Theni by Powerica Limited”, (VCS ID 1830 & UNFCCC Ref. No. 4572) with regard to the relevant requirements of VCS Standard Version 4.1.

The project activity involves the installation and operation of 6 Wind Turbine Generators (WTG) of total generating capacity of 9.9 MW (6 units of Vestas make V82 WTG) in Tamil Nadu, India. The project activity contributes to reduction in specific emissions including GHG emissions and is also responsible for sustainable economic growth through use of wind as a renewable source. The purpose of this project activity is to generate clean form of electricity through renewable wind energy source. The project activity is expected to produce 24,138 MWh of electricity annually. The project activity has been operational since commissioning (13-September-2010), which is the date of commissioning of the first WTG.

A risk-based approach has been followed to perform this RCP validation and verification. In the course of the RCP validation and verification 05 Corrective Action Requests (CAR) and 04 Clarification Requests (CL) were raised and successfully closed out.

The RCP validation & verification is based on the VCS Joint PD & MR, Emission reduction calculation spread sheet (ER sheet), additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the VVB by project proponent.

As a result of the RCP validation & verification, the validation/verification team confirms that:

- The project fulfils criteria of VCS Standard Version 4.1.
- The project is in line with all relevant VCS requirements.
- The project baseline is sufficiently justified in line with the “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period.” Version 03.0.1.
- The monitoring plan is transparent, adequate and in line with applied baseline and monitoring methodology of AMS-I.D. Version 18.
- All information and references relevant to the project activity resulting in emission reductions.

Based on the information seen and evaluated we confirm that the estimated annual average and the total CO<sub>2</sub>e emission reduction by the project activity over the second renewable crediting period of 10 years are expected to be 22,735 tCO<sub>2</sub>e and 227,350 tCO<sub>2</sub>e respectively. Also, we confirm that the implementation of the project has resulted in 15,721 tCO<sub>2</sub>e emission reductions during the entire monitoring period from 01-January-2020 to 31-December-2020 (Inclusive of both days).

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<sup>2</sup> Second crediting period from 13<sup>th</sup> September 2020-12<sup>th</sup> September 2030 (10 years 00 months 00 days).

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# 1 INTRODUCTION

## 1.1 Objective

KBS Certification Services Pvt. Ltd. has been contracted by, “EKI ENERGY SERVICES LIMITED.” to undertake Validation for renewal of crediting period (RCP) , followed by verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Wind power project at Theni by Powerica Limited’ (VCS ID 1830 & UNFCCC Ref. No. 4572) for the monitoring period 01-January-2020 to 31-December-2020, under the 1<sup>st</sup> and 2<sup>nd</sup> crediting period<sup>3</sup>, in the initial joint project description and monitoring report version 01 dated 24-February-2021, with regard to the relevant requirements of VCS Standard Version 4. The purpose of validation is to ensure a thorough, independent assessment of the project description (PD), in particular the project's baseline, the additionality, the monitoring plan (MP) and the project's compliance with

- The requirements of VCS Program guide Version 4.0/5/
- The requirements of VCS Standard Version 4.1/4/
- The requirements of the CDM Approved methodology, AMS-I.D. Version18/10/
- To assess the project's compliance with other relevant rules, including the project country (India) legislation and
- Other relevant rules, of VCS sustainability criteria are validated in order to confirm that the project description as documented is sound and reasonable and meet the stated requirements and identified criteria.

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<sup>3</sup> As approved in the email dated 17/02/2018

For the verification, the VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

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

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

## 1.2 Scope and Criteria

For RCP validation, the scope is defined as an independent and objective review of the Project description, the project's baseline study, monitoring plan and other relevant documents made available to the KBS team, alongside contract conditions. The information in these documents is reviewed against the requirements of VCS Standard. KBS has employed a risk-based approach in the RCP validation, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions.

The items covered in the RCP validation are described below:

- VCS Criteria, VCS standard version 4
- VCS Project Description
- Assessment of baseline as per the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1.
- Monitoring Plan
- Background investigation and follow up interviews
- Draft validation reporting with CARs & CLs, if any
- Final validation reporting

For verification, the scope is defined as an independent and objective review of monitoring part, registered CDM<sup>4</sup> and VCS project description (VCS PD), revised VCS project description including the monitored data, and other relevant documents made available to verifier and information collected through performing interviews during Remote assessment(interviews) of the project activity. KBS has, based on the recommendations in the latest version of Verified Carbon standard, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring. The aspects to be covered under the purview of verification are:

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

### 1.3 Level of Assurance

Reasonable level of assurance

The joint validation and verification report is based on Joint VCS PD & MR/1/ and the supporting documents made available to the validator/verifier. Based on the process and procedures conducted, KBS states whether the information in the Joint VCS PD & MR/1/:

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

KBS has employed a risk-based approach in the RCP validation and verification, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions. The items covered in the RCP validation & verification are described below:

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<sup>4</sup> <https://cdm.unfccc.int/Projects/DB/LROA%20Ltd1300097036.88/view>

- Criteria of VCS Version 4 (VCS Program guide Version 4 & VCS Standard Version 4)
- Criteria of CDM approved methodology, AMS-I.D. Version18
- VCS Joint VCS PD & MR
- Monitoring Plan
- Background investigation and follow up interviews
- Stakeholder feedback
- Registered VCS and CDM PDD and Validation Report
- project's compliance with other relevant rules, including the project country (India) legislation and assurance to stakeholders of the quality

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

- Compliance with relevant law and regulations
- Stakeholder comments (If any)
- Single line diagram and site location map
- Technical specifications of WTGs, meters etc.
- Wind Energy Purchase Agreement
- Commissioning Certificate
- Remote auditing (08-March-2021) for RCP validation & verification
- Invoices, JMR
- Export/Import data records
- Calibration Certificates

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

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

## 1.4 Summary Description of the Project

The project activity involves the installation and operation of 6 Wind Turbine Generators (WTG) of total generating capacity of 9.9MW (6 units of 1.65MW each) in Tamil Nadu, India. The project activity contributes to reduction in specific emissions including GHG emissions and is also responsible for sustainable economic growth through use of wind as a renewable source. The purpose of this project activity is to generate clean form of electricity through renewable wind energy source. The project activity is expected to produce 22,735 MWh of electricity annually. The project activity has been operational since commissioning (13-September-2010), which is the date of commissioning of the first WTG.

The technical specifications of the WTGs as verified from the registered VCS PD /3/ and on-site photographs /11/ are as follows:

Lifetime	20 years
Rated Power	1,650 kW
Rotor diameter	82 m
Swept area	5,281 m <sup>2</sup>
No. of blades	3
Cut in wind speed	3.5 m/s
Cut out wind Speed	25 m/s
Rotor Speed	14.4 rpm
Regulation	Active-Stall
Hub Height	78 m
Generator Type	Asynchronous
Insulation	Class F

During the remote audit inspection /11/, location (as mentioned in section 1.12 of Joint PD & MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned above have been verified. The same was also crosschecked during the desk review of supporting documents like technical specification /6/, single line diagram/7/, PPA/8/ and commissioning certificates /9/.

Project entity information as verified is presented below:

Item	Data
Project Entities	Powerica Limited (Project Owner)
	EKI Energy Services Limited (Project consultant)

## 2 VALIDATION AND VERIFICATION PROCESS

### 2.1 Method and Criteria

The RCP validation and verification process was carried out in line with the requirements of VCS Version 4 /4/. In addition, the validation/verification team followed the guidelines of the CDM Validation and Verification Standard. Standard auditing techniques and KBS's CDM Procedures were also applied during the RCP validation & verification. A risk-based approach was followed to carry out the process and assess all the factors and concerns that relate to the issuance of emission reductions from a project activity.

They include:

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

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

#### Duration of RCP Validation & Verification:

RCP Validation & Verification Contract	24-February-2021
Remote audit	08-March-2021 (Justification section 2.4 below)
Draft joint Validation and Verification Report	02-April-2021
Final joint Validation and Verification Report	23-April-2021

### 2.2 Document Review

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

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;

- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

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

## 2.3 Interviews

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

## 2.4 Site Inspections

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects <https://verra.org/covid-19-travel-guidance/> and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. Further Email from VERRA dated 24/03/2020 from "Andrew Beauchamp" has been referred as per which *"The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.1). Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from Verra is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the validation/verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit"*.

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

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

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

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

<b>Dates:</b>	08-March-2021 (WhatsApp Application interviews)	
<b>Key points discussed:</b>	<b>Name of person, interviewed</b>	<b>Designation, Organization</b>
Host Country rule and regulations related to project activity	Rahul Kulkani	Manager, Operations - Climate Change, EKI Energy Services Ltd.
Project description, technological measures,	Alagu Perumal S	Plant manager -Powerica Ltd
Implementation, Operation, Management of project activity and Training of personnel	Saroj Sahoo	Sr. Manager (Regulatory & Corporate Affairs)
Baseline and Monitoring plan,		
Operational data, Calibration, Data collection,		
QA/QC procedures, Calculation of ERs.		

## 2.5 Resolution of Findings

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

### **Corrective action request (CAR):**

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

### **Clarification request (CL):**

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

### **FAR (Forward Action Request):**

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

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

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

04 CLs and 05 CARs were found during RCP validation and verification and closed satisfactorily. The list of CARs/CLs raised and the response provided, the means of validation and verification, reasons for their closure and references to correction in the joint PD and MR are provided in appendix 2 of this report. The revised MR/1.2/ with changes incorporated as per the issues raised were rechecked with the documentary evidences and found to be inline.

### 2.5.1 Forward Action Requests

No FAR raised during the current validation and verification.

## 3 VALIDATION FINDINGS

### 3.1 Project Details

- Project scope, activity, type, technologies and measures implemented, and eligibility of the project.

The project activity involves the installation and operation of 6 Wind Turbine Generators (WTG) of total generating capacity of 9.9MW (6 units of 1.65MW each) in Tamil Nadu, India. The project activity contributes to reduction in specific emissions including GHG emissions and is also responsible for sustainable economic growth through use of wind as a renewable source. The purpose of this project activity is to generate clean form of electricity through renewable wind energy source and export the generated electricity to Indian grid through Wind Energy Purchase Agreement (EPA) with state utility Tamil Nadu Electricity Board (TNEB). The first 10 year twice renewable crediting period of the project was from 13-September-2010 to 12-September-2020, and now the project is undergoing renewal for second crediting period starting from 13-September-2020 to 12-September-2030. The project has been designed to include a single installation of an activity and is not a grouped activity.

The project activity has been operational since commissioning (13-September-2010), which is the date of commissioning of the first WTG and is expected to produce 22,735 MWh of electricity annually throughout the second crediting period. The commissioning dates of all the WTGs are provided as below.

WTG No.	Location	Date of commissioning
TSSP 1255	Shanmuga-Sundarapuram	13-September-2010
TM 721	Mottanuthu	13-September-2010
TSSP 158	Shanmuga-Sundarapuram	13-September-2010
TM 41	Mottanuthu	17-September-2010
TGU 28	Usilampatti	13-September-2010
TSSP 174	Shanmuga-Sundarapuram	13-September-2010

The technical specifications of the WTGs as verified from the registered VCS PD /3/ and on-site photographs /11/ are as follows:

Lifetime	20 years
Rated Power	1,650 kW
Rotor diameter	82 m
Swept area	5,281 m <sup>2</sup>
No. of blades	3
Cut in wind speed	3.5 m/s
Cut out wind Speed	25 m/s
Rotor Speed	14.4 rpm
Regulation	Active-Stall
Hub Height	78 m
Generator Type	Asynchronous
Insulation	Class F

During the remote audit inspection /11/, location (as mentioned in section 1.12 of Joint PD & MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned above have been verified. The same was also crosschecked during the desk review of supporting documents like technical specification /6/, single line diagram/7/, PPA/8/ and commissioning certificates /9/.

- Project proponent  
Project entity information as verified is presented below:

Item	Data
Project Entities	Powerica Limited (Project Owner)
	EKI Energy Services Limited (Project consultant)

The assessment team has confirmed the same from the Wind energy Purchase Agreement /8/ and registered documents in CDM and VCS. UNFCCC registered CDM project with Ref No. 4572 through the web link:

<https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1300097036.88/view>

- Project start date  
The project activity has been operational since commissioning (13-September-2010), which is the date of commissioning of the first WTG. This is in accordance with section 3.7 of VCS standard, Version 4.1/5/.
- Project crediting period  
This is the second crediting period for 10 years (13-September-2020-12-september-2030 (both dates inclusive)). The assessment team has confirmed that the same has been correctly mentioned in the Joint VCS PD and MR.
- Project scale and estimated GHG emission reductions or removals  
The total installed capacity of the project has been confirmed from the PPA/09/ and found to be 9.9MW. The validation team confirms that the project activity falls under the category 1 'Project' as per para 3.9.1 of the VCS standard version 4.1/5/, as it does not have the potential to reduce GHG emission more than 300,000 tCO<sub>2</sub>e/year.

The estimated annual average and the total CO<sub>2</sub>e emission reduction by the project activity over the second renewable crediting period of 10 years are expected to be **22,735** tCO<sub>2</sub>e and **227,350** tCO<sub>2</sub>e respectively. The assessment team confirmed that emission reduction forecast is reasonable if the underlying assumptions do not change.

- Project location

The project is located in villages of Shanmuga Sundarapuram, Mottanuthu, Usilampatti spreading over Taluka: Andipatti, Theni district of Tamil Nadu state. The geographic co-ordinates of each WTG, as confirmed from the google earth software and the registered documents/3/ are provided below.

WTG No.	HTSC No.	Latitude	Longitude	Village	Taluka
TSSP 1255	T-144	9° 59' 40"	77° 34' 10"	Shanmuga Sundarapurm	Andipatti
TM 721	T-141	9° 58' 46"	77° 34' 43"	Mottanuthu	Andipatti
TSSP 158	T-142	9° 59' 08"	77° 34' 39"	Shanmuga Sundarapurm	Andipatti
TM 41	T-145	9° 58' 34"	77° 35' 24"	Mottanuthu	Andipatti
TGU 28	T-139	9° 57' 03"	77° 33' 33"	Usilampatti	Andipatti
TSSP 174	T-143	9° 59' 23"	77° 34' 43"	Shanmuga Sundarapurm	Andipatti

#### Conditions Prior to Project Initiation

The proposed project activity is a Greenfield activity that is the installation of 9.9 MW wind power plant for renewable energy-based power generation of electricity. In the absence of the project activity, the equivalent quantity of electricity would have been generated by the operation of fossil fuel-based grid-connected power plants. Therein, the main emission sources in the pre-project scenario are the fossil fuel-based grid connected power plants and the primary GHG involved is CO<sub>2</sub>. For this project activity, the baseline scenario is the same as conditions existing prior to project initiation.

#### Compliance with Laws, Statutes and Other Regulatory Frameworks

The assessment team by its document review confirmed that the project activity is in compliance with all the applicable laws, statutes and other regulatory frameworks. The assessment team has also confirmed that the baseline scenario presented in the VCS Joint PD and MR is also in compliance with the laws and regulations of India.

#### Ownership and other programs:

The Project is owned by Powerica Limited; hence it possesses right of use of ER credits. The Ownership is demonstrated through the following documents provide evidence of project ownership, in accordance with the VCS specifications on project ownership.

1. Power Purchase Agreement
2. Commissioning certificates

The assessment team has checked the Power purchase Agreement/8/ and verified that Powerica Limited is the legal owner of the project activity.

The project is registered under CDM (UNFCCC ref. No.-4572) and has an approval by the DNA as can be checked from the copy of approval available on the UNFCCC website. Project Proponent, at the time of gap validation, submitted an undertaking that they will not claim same GHG emission reductions of the project from CDM and VCS. PP would also not use net GHG emission reductions by the projects for compliance with emission trading program to meet binding limits on GHG emissions as stated in section 1.12.2 of the VCS PD/3/. The above mentioned information was also confirmed during remote assessment.

#### Additional Information Relevant to the Project

##### Eligibility Criteria

This is not a grouped project activity. Thus, this section is not applicable for this project.

##### Leakage Management

Not applicable to the project activity.

##### Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

##### Sustainable Development

The project promotes sustainable development through social, economic, environmental and technological well-being by generating employment opportunities, helping in conservation of natural resources, encouraging investment in environmentally safe and sound technology and also by reducing GHG emissions through generation of clean energy and thereby improving the air quality

**Finding:** CAR 01 was raised and successfully closed. Refer to appendix 2 for further details.

## 3.2 Participation under Other GHG Programs

The Project has applied for the CDM under the Kyoto protocol and registered with CDM having UNFCCC ref number as 4572  
<https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1300097036.88/view>

Project Proponent has submitted undertaking for not availing other forms of environmental credit for the same crediting period under consideration and it has been verified from the supportive provided by PP/16/.

### 3.3 Safeguards

#### 3.3.1 No Net Harm

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

#### 3.3.2 Local Stakeholder Consultation

The local stakeholder consultation meeting for the project activity was conducted at project site on 09/07/2010 and the process was validated during the registration of project activity in CDM. CDM validation report /3/ was verified to confirm the same. The PP had invited identified stakeholders well in advance by invitation letters and newspaper advertisements to local villagers, panchayat members and representatives of Powerica limited with details of venue and time of meeting. No negative comments were received during ongoing communication with local stakeholders, however, some requests related to medical camp and construction of bridge for the nearby canal were received, as verified from the grievance register. The requests of the stakeholders were considered by the PP and accordingly provisions were done as confirmed during the remote interviews.

**Finding:** CAR 02 was raised and successfully closed. Refer to appendix 2 for further details.

#### 3.3.3 Environmental Impact

The project does not lead to any significant adverse environmental impacts. The environment impact was assessed during the registration of project activity in CDM. CDM validation report /3/ was verified to confirm the same.

**Finding:** CAR 02 was raised and successfully closed. Refer to appendix 2 for further details.

#### 3.3.4 Public Comments

Not applicable during RCP validation. However, GSC period was conducted while registering into CDM and no comments were received.

#### 3.3.5 AFOLU-Specific Safeguards

Not applicable since it is a wind project.

### 3.4 Application of Methodology

#### 3.4.1 Title and Reference

Following approved baseline & monitoring methodology is applied for the project activity;

**Title:** Type-I, Renewable Energy Project

**Methodology:** AMS-I.D. - Grid connected renewable electricity generation

**Version:** 18.0 **Scope:** 01

The methodology AMS-I.D. refers to the latest approved versions of the following tools:

- Tool to calculate the emission factor for an electricity system, (Version 07.0 ,EB 100, Annex 04)5

The assessment team has confirmed that the selected baseline methodology is the approved baseline methodology “Grid connected renewable electricity generation” (AMS-I.D. Ver.18.0)/8/, available on UNFCCC web site. The applied methodology is the latest version and is valid from 28 November 2014. The selected baseline methodology, i.e., AMS-I.D. is correctly applied to this type of project. All the applicability criterion of applied methodology is appropriately justified in section 3.2 of the VCS Joint PD & MR. Moreover, as assessed by the assessment team during remote audit and by desk review of technical design of project there is no other significant emissions involved with the proposed project activity except listed in the methodology.

### 3.4.2 Applicability

The summary of the project compliance with applicability criteria is listed below:

No.	Applicability of AMS-I. D Version 18.0	Validation Remarks
1.	<p>This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:</p> <p>(a) Supplying electricity to a national or a regional grid; or</p> <p>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</p>	<p>The project activity involves the installation of a green field wind power plant which exports the generated electricity to Indian grid through Energy Purchase Agreement (EPA) with state utility Tamil Nadu Electricity Board (TNEB).</p> <p>The assessment team has verified the information from Commissioning Certificate/13/ and PPA /8/ provided by the PP, same has been further confirmed during remote audit and found acceptable.</p> <p>Hence the project is in compliance with latest version of the methodology AMS-I.D Version 18.0.</p>

5 <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

No.	Applicability of AMS-I. D Version 18.0	Validation Remarks
2.	<p>This methodology is applicable to project activities that:</p> <ul style="list-style-type: none"> <li>(a) Install a Greenfield plant;</li> <li>(b) Involve a capacity addition in (an) existing plant(s);</li> <li>(c) Involve a retrofit of (an) existing plant(s);</li> <li>(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or</li> <li>(e) Involve a replacement of (an) existing plant(s).</li> </ul>	<p>As validated above, the project activity consists of installation of a new grid connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield power plant). Hence point (a) is applicable.</p> <p>Validation team has confirmed the same through the review documents /3//8//13/and also during the remote audit (Skype video interview) with the PP.</p> <p>Hence, the project is in compliance with latest version of the methodology/10/.</p>
3.	<p>Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> <li>(a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</li> <li>(b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>;</li> <li>(c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>.</li> </ul>	<p>The project activity involves the installation of a green field wind power plant as confirmed from PPA/8/ and commissioning certificate/13/.</p> <p>Therefore, criterion is not applicable.</p>
4.	<p>If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only</p>	<p>The project did not incorporate a mix of renewable components. The entire capacity of</p>

No.	Applicability of AMS-I. D Version 18.0	Validation Remarks
	to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	<p>9.9 MW is from renewable energy (wind power power), which is less than 15 MW.</p> <p>Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>
5.	In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	<p>The project is a wind power project and does not involve co-generation.</p> <p>Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>
6.	In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	<p>The project activity does not involve any retrofit, rehabilitation or replacement. Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>
7.	Combined heat and power (co-generation) systems are not eligible under this category.	<p>The project activity involves the installation and operation of a wind power plant. There is no combined heat and power component in the project activity.</p> <p>Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>

No.	Applicability of AMS-I. D Version 18.0	Validation Remarks
8.	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.	<p>The project activity involves the installation and operation of a wind power plant. There is no combined heat and power component in the project activity.</p> <p>Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>
9.	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energy production with or without electricity” shall be explored.	<p>The project activity involves the installation and operation of a wind power plant. There is no combined heat and power component in the project activity.</p> <p>Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>
10.	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.	<p>The project activity involves the installation and operation of a wind power plant, which does not involve the use of biomass.</p> <p>Validation team has confirmed the same through the review of supportive documents /3//8//13/ and also during the remote audit with the PP.</p> <p>Therefore, this criterion is not applicable for this project.</p>

**Finding:** CAR 03 was raised and successfully closed. Refer to appendix 2 for further details.

### 3.4.3 Project Boundary

The spatial boundary includes the power plant/unit and all power plants/units connected physically to the electricity system that the project power plant is connected to as verified from the applied methodology AMS-I.D. Version 18. KBS has confirmed during the remote audit and through the review of documents/8//9/ that the project boundary is as verified during the registration of the project activity and encompasses the wind turbine generator, sub-stations and the grid. Further, all the identified emission sources which are impacted by the project activity are addressed by the approved methodology and can be seen in the Table below.

Source		Gas	Included?	Justification/Explanation
<b>Baseline</b>	CO <sub>2</sub> emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO <sub>2</sub>	Yes	Main emission source
		CH <sub>4</sub>	No	Minor emission source
		N <sub>2</sub> O	No	Minor emission source
Source		Gas	Included?	Justification/Explanation
<b>Project Activity</b>	For dry or flash steam geothermal power plants, emissions of CH <sub>4</sub> and CO <sub>2</sub> from non-condensable gases contained in geothermal steam	CO <sub>2</sub>	No	Not applicable as project activity is wind power project.
		CH <sub>4</sub>	No	Not applicable as project activity is wind power project.
		N <sub>2</sub> O	No	Not applicable as project activity is wind power project.
	For binary geothermal power plants, fugitive emissions of CH <sub>4</sub> and CO <sub>2</sub> from non-condensable gases contained in geothermal steam	CO <sub>2</sub>	No	Not applicable as project activity is wind power project.
		CH <sub>4</sub>	No	Not applicable as project activity is wind power project.
		N <sub>2</sub> O	No	Not applicable as project activity is wind power project.
	For binary geothermal power plants, fugitive emissions of hydrocarbons such as n-butane and isopentane (working fluid) contained in the heat exchangers	CO <sub>2</sub>	No	Not applicable as project activity is wind power project.
		CH <sub>4</sub>	No	Not applicable as project activity is wind power project.
		N <sub>2</sub> O	No	Not applicable as project activity is wind power project.
	CO <sub>2</sub> emissions from combustion of fossil fuels for electricity generation	CO <sub>2</sub>	No	Not applicable as project activity is wind power project.
		CH <sub>4</sub>	No	Not applicable as project activity is wind power project.

Source		Gas	Included?	Justification/Explanation
	in solar thermal power plants and geothermal power plants	N <sub>2</sub> O	No	Not applicable as project activity is wind power project.
	For hydro power plants, emissions of CH <sub>4</sub> from the reservoir	CO <sub>2</sub>	No	Not applicable as project activity is wind power project.
		CH <sub>4</sub>	No	Not applicable as project activity is wind power project.
		N <sub>2</sub> O	No	Not applicable as project activity is wind power project.

The assessment team is of opinion that the VCS Joint PD & MR/1/ has correctly described the project boundary, including the physical delineation of the project activity and complies with VCS standard version 4.1/5/.

**Finding:** CAR 03 was raised and successfully closed. Refer to appendix 2 for further details.

#### 3.4.4 Baseline Scenario

The assessment team assessed the validity of the updated baseline through an assessment of the following points:

- a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period of the VCS project activity
- b) The correctness of the application of the approved methodologies for the determination of the continued validity of the updated baseline and the estimation of GHG emission reductions for the applicable crediting period of the VCS project activity.
- c) The assessment of estimation of emission reductions for the applicable crediting period.

The validity of the baseline has been assessed as per the methodological tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” (version 03.0.1)/12/. The assessment is performed as follows:

Step 1: Assess the validity of the current baseline for the next crediting period.

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies.

The impact of the national and/or sectoral policies and circumstances upon the baseline scenario of the project activity has been assessed during the crediting period renewal of the project activity.

The Electricity Act of year 2003 is related to the laws relating to generation, transmission, distribution, trading and use of electricity and was in force at the time of the completion of the baseline study for the registered CDM & VCS PD. In accordance with the section 3 of the Electricity

Act 2003, the Central Government notified the National Electricity Policy<sup>6</sup> on 12<sup>th</sup> February 2005 which was in force at the time of completion of the baseline study as stated in the registered VCS PD of the project activity. This policy has not been revised since then and is currently in force as well.

In addition, the State Electricity Regulatory Commissions (SERCs) have announced preferential tariffs and Indian Renewable Energy Development Agency (IREDA) provides term loan assistance towards establishing biomass power projects. All these fiscal and financial incentives were in force at the time of completion of the baseline study for the registered CDM & VCS PD of the project activity and still continue to exist. The state electricity regulatory commission issues tariff order in respect of procurement of power generated wind generators and there is no mandatory national and/or sectoral policies have come into effect that would affect the compliance of the current baseline. Hence, it has been concluded that the current baseline complies with all relevant mandatory national and/or sectoral policies that have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period.

Hence the current baseline remains the same as it was in the registered CDM & VCS PD. There has been no significant change in the relevant national and/or sectoral policies from the date of registration till now. In absence of the project activity, similar amount of electricity would have been generated by the Indian grid. Thus, the assessment team concludes that the baseline for the project activity remains same and is in line with the relevant mandatory national and/or sectoral policies.

#### Step 1.2: Assess the impact of circumstances

There are no impacts of circumstances existing at the time of requesting renewal of the crediting period on the current baseline scenario.

The assessment team has checked the baseline scenario identified at the validation of the project activity which was the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources into the grid. The investment made by the PP was on voluntary level which intends to replace equivalent amount of electricity at grid from renewable source, hence the same baseline as identified in the previous crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period under VCS.

The current installed capacity of India is still predominantly fossil fuel-based power generation and therefore, is a major source of carbon dioxide emissions in India. The sector-wise details of installed capacity as provided in the joint VCS PD & MR has been checked. Hence, there exists scope for reducing the CO<sub>2</sub> emissions in the country by increased use of renewable energy sources. Furthermore, the project participant has considered the latest available CO<sub>2</sub> Baseline Database (CEA database, version 15 /13/) at the time of requesting renewal of the crediting period for establishing the baseline emission factor, which itself considered all the new

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<sup>6</sup> <http://www.cercind.gov.in/Act-with-amendment.pdf>

circumstances. Hence it has been concluded that there is no impact of the circumstances existing at the time of requesting renewal of crediting period and the baseline remains unchanged.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

This sub-step is not applicable since the identified baseline scenario at the validation of the project activity did not correspond to the continuation of use of the current equipment(s) without any investment. Further as explained earlier that the baseline scenario was the electricity import/generation from the power plants connected to the electricity grid. The project activity in green field project and there is no any baseline equipment or investment involved in project activity. Therefore, this condition is not applicable to the project activity.

Step 1.4: Assessment of the validity of the data and parameters

As per this step “where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the VCS project activity”.

The emission factor has been updated along with the approach used to calculate the emission factor in the revised Joint VCS PD & MR and the same has been found correct by the assessment team for the second crediting period of the project activity.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

As the applied methodology AMS-I.D. Version 18 /09/, the baseline for the project remains the same as that in the registered CDM & VCS PD as “the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the ‘Tool to calculate the emission factor for an electricity system /12/’”.

Step 2.2: Update the data and parameters

The approved consolidated baseline methodology, AMS-I.D. (Version 18), has been used to determine the baseline and the estimation of emission reductions for the applicable crediting period. As referred in the methodology “*Tool to calculate the emission factor for an electricity system*” (version 07.0) has been used to determine continued validity of the baseline based on combined margin (CM) calculations.

For the baseline scenario as per the applied methodology AMS-I.D., the following applies

*If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new*

generation sources, as reflected in the combined margin (CM) calculations described in the “TOOL07: Tool to calculate the emission factor for an electricity system”.

The project activity involved setting up of WTGs to harness the power of wind to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants.

The combined margin ( $EF_{grid,CM,y}$ ) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). The calculations for this combined margin have been made based on data from an official source (where available) and made publicly available. The CEA database version 15 is the latest available data at the time of VCS Joint PD & MR submission to VVB for validation, hence same is accepted for the emission factor calculations.

Parameter	Value	Source
Operating margin CO <sub>2</sub> emission factor for the project electricity system in year y ( $EF_{grid,OM,y}$ )	0.9622tCO <sub>2</sub> /MWh	This has been calculated as the last 3-year (2016-17, 2017-18, 2018-19) generation-weighted average, sourced from Baseline CO <sub>2</sub> Emission Database, Version 15.0, December 2019 published by Central Electricity Authority (CEA), Government of India /17/.
Build margin CO <sub>2</sub> emission factor for the project electricity system in year y ( $EF_{grid,BM,y}$ )	0.8811 tCO <sub>2</sub> /MWh	It has been taken from the Baseline CO <sub>2</sub> Emission Database, Version 15.0, December 2019 published by Central Electricity Authority (CEA), Government of India /17/ for the latest data of 2018-19.
Combined margin CO <sub>2</sub> emission factor for the project electricity system in year y ( $EF_{grid,CM,y}$ )	0.9419 tCO <sub>2</sub> /MWh	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO <sub>2</sub> Emission Database, Version 15.0, December 2019 published by Central Electricity Authority (CEA), Government of India /137.

The baseline emissions from the project has been calculated as per the “Tool to calculate the emission factor for an electricity system” (version 07.0) /12/ with six separated steps. In addition, the calculation has been cross-checked with “Central Electricity Authority (CEA) database Version 15, December” 2019 published by India’s Central Electricity Authority (CEA) /17/, which was the most recent source of data available at the time of submission of VCS Joint PD & MR to KBS for the request for renewal of the crediting period. The calculations of the operating margin, build margin and combined margin has been found correct by the assessment team.

**Finding:** CAR 03 was raised and successfully closed. Refer to appendix 2 for further details.

### 3.4.5 Additionality

The additionality will be similar to the conditions mentioned in the registered and validated CDM and VCS PD. Therefore, it is not applicable during the validation of renewal of crediting period. However, in order to demonstrate the regulatory surplus as per the VCS requirements for the current crediting period, the assessment team confirms that there are no regulatory requirements in the host country for installation of wind projects and it is a voluntary project. Since, the project activity is a wind electricity generation project of capacity 9.9 MW, it can be concluded that the project activity is automatically additional and does not require demonstration of further barriers.

### 3.4.6 Quantification of GHG Emission Reductions and Removals

#### Quantification of Baseline emissions

The proposed project activity has applied baseline methodology as mentioned in the methodology AMS-I.D. Version 18.0. As per the paragraph 39 of the methodology: “Baseline emissions include only CO<sub>2</sub> emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants”.

The baseline emissions are calculated as follows:

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

Where:

$BE_y$	=	Baseline emissions in year y (tCO <sub>2</sub> /yr)
$EG_{PJ, y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VCS project activity in year y (MWh/yr)
$EF_{grid,CM,y}$	=	Combined margin CO <sub>2</sub> emission factor for grid connected power generation in year y (tCO <sub>2</sub> /MWh)

#### Calculation of the emission factor

Following the “Tool to calculate the emission factor for an electricity system” (version 07.0) /12/, the baseline grid emission factor has been updated as per “Baseline CO<sub>2</sub> Emission Database, Version 15.0, December 2019 published by Central Electricity Authority (CEA), Government of India/17/.

The updated operating margin (OM) emission factor in the revised VCS Joint PD & MR is 0.9622 tCO<sub>2</sub>/MWh and the build margin (BM) emission factor is 0.8811 tCO<sub>2</sub>/MWh. The assessment team

has confirmed that this is the most recent data publicly available at the time of the validation for the renewal of the crediting period.

According to the “Tool to calculate the emission factor for an electricity system” (version 07.0)/12/, the default weights: WOM=0.75 for Operating Margin and WBM=0.25 for Build Margin in the second crediting period of wind power generation projects are adopted.

The combined margin emissions factor is calculated as follows:

$$EF_{\text{grid,CM,y}} = EF_{\text{grid,OM,y}} \times \text{WOM} + EF_{\text{grid,BM,y}} \times \text{WBM}$$

Where:

$EF_{\text{grid,CM,y}}$  = Combined margin CO<sub>2</sub> emission factor of national grid in year y (tCO<sub>2</sub>/MWh)

$EF_{\text{grid,OM,y}}$  = Operating margin CO<sub>2</sub> emission factor of national grid in year y (tCO<sub>2</sub>/MWh)

WOM = Weighting of operating margin emissions factor (%)

$EF_{\text{grid,BM,y}}$  = Build margin CO<sub>2</sub> emission factor of national grid in year y (tCO<sub>2</sub>/MWh)

WBM = Weighting of build margin emissions factor (%)

$$EF_{\text{grid,CM,y}} = 0.9622 \times 0.75 + 0.8811 \times 0.25 = 0.9419 \text{ (tCO}_2\text{/MWh)}$$

The calculation of the  $EF_{\text{grid,CM,y}}$  has been checked by the assessment team and was found consistent with the latest emission factor calculation tool /12/.

The baseline emissions for the proposed project activity were calculated as follow:

$$BE_y = EG_{\text{PJ,y}} \times EF_{\text{grid,CM,y}} = 0.9419 \text{ tCO}_2\text{e/MWh} \times 24,138 \text{ MWh} = 22,735 \text{ tCO}_2\text{e}$$

Annual average baseline emission is estimated to be **22,735 tCO<sub>2</sub>e**.

- Quantification of Project emissions (PE<sub>y</sub>)

In accordance with Methodology AMS-I.D. Version 18, the proposed project activity is a wind power plant that does not use fossil fuels. Therefore, project emissions are considered zero.

$$PE_y = 0$$

- Quantification of Leakage (LE<sub>y</sub>)

In accordance with Methodology AMS-I.D. Version 18, as the project activity does not involve the energy generating equipment transfer to or from another activity, leakage is not considered.

Hence, **LE<sub>y</sub> = 0**

- Emission reductions

In accordance with Methodology AMS-I.D. Version 18, emission reductions were calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER<sub>y</sub> = Emission reductions in year y (t CO<sub>2</sub>e/yr)

BE<sub>y</sub> = Baseline emissions in year y (t CO<sub>2</sub>e/yr)

PE<sub>y</sub> = Project emissions in year y (t CO<sub>2</sub>e/yr)

The results of the emission reduction estimation of project activities in the first crediting period are shown in the table below:

Year	Estimated baseline emissions or removals (tCO <sub>2</sub> e)	or	Estimated project emissions or removals (tCO <sub>2</sub> e)	or	Estimated leakage emissions (tCO <sub>2</sub> e)	Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e)
2020-21	22,735		0		0	22,735
2021-22	22,735		0		0	22,735
2022-23	22,735		0		0	22,735
2023-24	22,735		0		0	22,735
2024-25	22,735		0		0	22,735
2025-26	22,735		0		0	22,735
2026-27	22,735		0		0	22,735
2027-28	22,735		0		0	22,735
2028-29	22,735		0		0	22,735
2029-30	22,735		0		0	22,735

Total	227,350	0	0	227,350
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The total emission reduction is 227,350 tCO<sub>2</sub>e over 10 years (second) crediting period.

Through the assessment process KBS has confirmed that:

- All the assumptions and data used by the project participants are listed including their references and sources;
- All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the Joint PD & MR;
- All values used in the Joint PD & MR are considered reasonable in the context of the VCS project activity;
- The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- All estimates of the baseline emissions can be replicated using the data and parameter values provided in the Joint PD & MR.

### 3.4.7 Methodology Deviations

The assessment team confirms that the joint VCS PD & MR complies with the requirements in the applied monitoring methodology AMS-I.D. Version 18/10/.

Therefore, no methodology deviations are applied.

### 3.4.8 Monitoring Plan

The project monitoring plan is in compliance with the monitoring methodology AMS-I.D. (version 18.0)/10/. The monitoring plan will give opportunity for real measurement of emission reductions achieved. Since the project is a wind energy generation activity, no indicators have been defined regarding project emissions. Leakage accounting has not been considered for the project since the renewable energy technology equipment used is new equipment and not transferred from another activity. The monitor-able action plan for the same has been included in section 5.3 of the VCS Joint PD & MR/2/. It is KBS's opinion, that the project participant is able to implement the monitoring plan.

- Data and parameters available at validation

The baseline emission factor of 0.9419 tCO<sub>2</sub>/MWh is determined ex-ante based on the most recent information available at the time of requesting for the renewal of the crediting period, which is calculated as a combined margin (CM), consisting of the combination of OM and BM emission coefficient. The parameters applied in the calculation are validated by the assessment team to be credible.

- Data and parameters monitored

The project applies monitoring methodology AMS-I.D. Version 18. “Grid connected renewable electricity generation”, as per the methodology, monitoring shall consist of metering the quantity of net electricity generation supplied by the project plant/unit to the grid by the renewable technology installed by the project proponent.

The export and import readings are measured by the electricity meter. The net electricity generated is calculated from the readings of export and import indicated by the main meters connected with WTGs.

The calibration frequency of once in five years have been confirmed through the interviews of the PP and it is as per the CEA guidelines. Hence, the calibration frequency of once in five years has been considered as appropriate. The calibration of all the meters is done by state electricity board officials as per the national standards/regulations.

Further the applied methodology mentions that “*all measurements shall be conducted with calibrated measurement equipment to relevant standards*” and does not provide any specific calibration frequency for the electricity meters. Hence the calibration frequency of once in five years as per the regional/national standards have been considered as appropriate. Further the PP was also interviewed to confirm that the calibration frequency of once in five years is appropriate. As per section 5.2 of the VCS-Joint PD & MR the data and parameters to be monitored is as follows:

- a) Quantity of net electricity supplied to the grid in year  $y$  ( $EG_y$ );

The parameter shall be calculated by monitoring the electricity imported from the grid and electricity exported to the grid, through the means of electronic meters. The project owner will prepare backup procedures to deal with any errors occurred to the meter. Sufficient procedures have been identified in the revised VCS-Joint PD & MR and the implementation of those procedures will enable that the emission reductions of the project can be reported and verified ex-post. All the monitored data will be archived electronically for a period of 2 years after the crediting period. Accuracy, calibration, periodical testing and maintenance procedures of monitoring equipment’s are clearly mentioned in the section 5.2 of VCS-Joint PD & MR. Assessment team has reviewed the same and is convinced that the same is adequate and will lead to correct measurement of the net electricity exported to the grid.

**Finding:** CL 04, CAR 04 were raised and successfully closed. Refer to appendix 2 for further details.

### 3.5 Non-Permanence Risk Analysis

Not applicable.

## 4 VERIFICATION FINDINGS

### 4.1 Accuracy of GHG Emission Reduction and Removal Calculations

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

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

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

Data - Parameter	EG <sub>y</sub>
Data unit	MWh
Description	Quantity of net electricity supplied to the grid in year y
Source of data	TNEB Statement
Description of measurement methods and procedures to be applied	<p><u>Monitoring:</u> Electrical Energy Meters which are electronic tri-vector meters</p> <p><u>Data type:</u> Measured and calculated</p> <p><u>Archiving:</u> Paper and Electronic</p> <p><u>Recording Frequency:</u> Daily</p> <p><u>Responsibility:</u> The O&amp;M site-in-charge shall be responsible for the regular recording of data.</p> <p><u>Calibration Frequency:</u> The meters shall be calibrated once every five years.</p>
Frequency of monitoring-recording	Continuous monitoring and monthly recording as verified by the assessment team through remote assessment.
Value monitored	<p>01-January-2020 to 12-September-2020 – 12,595.79<sup>7</sup></p> <p>13-September-2020 to 31-December -2020 – 4,067.61<sup>8</sup></p> <p>Total – 16,663.40</p> <p>During the current monitoring period, data apportioning has been done for 01-September-2020 to 12-September-2020 and for 13-September-2020</p>

<sup>7</sup> Net energy exported to the grid during this monitoring period and previous crediting period (13/09/2010 to 12/09/2020)

<sup>8</sup> Net energy exported to the grid during this monitoring period and current crediting period (13/09/2020 to 12/09/2030)

	<p>to 30-September-2020. A comparison between apportioning done using DGR data and invoice data was provided by PP. The assessment team cross-checked and found that the electricity exported to the grid for 01-September-2020 to 12-September-2020 as per DGR data was 877,353 KWh and as per the invoice was 865,397 KWh. Further, the electricity exported to the grid for 13-September-2020 to 30-September-2020 as per DGR data was 1,684,590 KWh and as per the invoice was 1,661,634 KWh. Hence, the lower export data as per the invoice has been taken into account for apportioning as a conservative approach. Also, no apportioning of import data has been conducted and the full import data has been taken into account for ER calculations as a conservative approach. The approach was found to be acceptable by the assessment team.</p>																																										
<p>Monitoring equipment</p>	<p>During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by tri vector meters of accuracy class 0.2s. There are total 6 main meters for 6 WTGs. Monthly meter readings of the main meters is taken by the O&amp;M site-in-charge and certified by the representatives of SEB Officials and the representatives of the project proponent as confirmed from the remote inspection. The summation of all 6 meters reading is used for billing and emission reduction calculation purpose.</p> <p>The Calibration dates of the meters and their validity is as follows:</p> <table border="1"> <thead> <tr> <th>WTG No.</th> <th>Meter Serial No.</th> <th>Make</th> <th>Accuracy class</th> <th>Last Calibration date</th> <th>Next due date of Calibration</th> </tr> </thead> <tbody> <tr> <td>TGU 28 SS(T-139)</td> <td>627560</td> <td>HPL</td> <td>0.2S</td> <td>17-May-2017</td> <td>16-May-2022</td> </tr> <tr> <td>TM 41 SS (T-145)</td> <td>624763</td> <td>HPL</td> <td>0.2S</td> <td>17-May-2017</td> <td>16-May-2022</td> </tr> <tr> <td>TSSP 158 SS(T-142)</td> <td>624852</td> <td>HPL</td> <td>0.2S</td> <td>17-May-2017</td> <td>16-May-2022</td> </tr> <tr> <td>TSSP 174 SS(T-143)</td> <td>627558</td> <td>HPL</td> <td>0.2S</td> <td>17-May-2017</td> <td>16-May-2022</td> </tr> <tr> <td>TM 721 SS(T-141)</td> <td>627555</td> <td>HPL</td> <td>0.2S</td> <td>17-May-2017</td> <td>16-May-2022</td> </tr> <tr> <td>TSSP 1225 SS(T-</td> <td>627553</td> <td>HPL</td> <td>0.2S</td> <td>17-May-2017</td> <td>16-May-2022</td> </tr> </tbody> </table>	WTG No.	Meter Serial No.	Make	Accuracy class	Last Calibration date	Next due date of Calibration	TGU 28 SS(T-139)	627560	HPL	0.2S	17-May-2017	16-May-2022	TM 41 SS (T-145)	624763	HPL	0.2S	17-May-2017	16-May-2022	TSSP 158 SS(T-142)	624852	HPL	0.2S	17-May-2017	16-May-2022	TSSP 174 SS(T-143)	627558	HPL	0.2S	17-May-2017	16-May-2022	TM 721 SS(T-141)	627555	HPL	0.2S	17-May-2017	16-May-2022	TSSP 1225 SS(T-	627553	HPL	0.2S	17-May-2017	16-May-2022
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	144)
QA-QC procedures to be applied	The meters are calibrated once in five years by the state electricity board. The calibration frequency in the registered PD was 2 years, however, project description deviation of 5 years was undertaken since the calibration is under the control of state electricity board and is done as per the CEA notification ( <a href="http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf">http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf</a> , page 12). This deviation for change in calibration frequency to 5 years was submitted during the previous monitoring period. Therefore, the calibration conducted during this monitoring period was found to be in line with the deviation approved in previous monitoring period, since the meters are in compliance with the host country calibration regulations and had valid calibration during the entire monitoring period.
Purpose of the data	Calculation of Baseline emissions
Calculation method	Not applicable
Comments	As confirmed during the remote inspection, the Monitored Data will be kept for a minimum of two years after the end of the crediting period or the last issuance whichever is later.

### **Baseline emissions:**

The baseline emissions (BE<sub>y</sub>) are calculated based on the following formula:

$$BE_y = EG_{,y} \times EF_{grid,CM,y}$$

Where,

BE<sub>y</sub> = Baseline Emissions (tCO<sub>2</sub>/year)

EG<sub>y</sub> = Electricity exported to grid in year y (MWh)

EF<sub>grid, CM, y</sub> = Baseline Emission Factor (Combined margin CO<sub>2</sub> emission factor for grid)

The calculation of yearly baseline emissions is provided below:

$BE_y = 12,595.79 \text{ MWh} * 0.9445^9 \text{ tCO}_2/\text{year} = 11,893$  (the value is rounded down) for the period 01-January-2020 to 12-September-2020.

$BE_y = 4067.61 \text{ MWh} * 0.9419 \text{ tCO}_2/\text{year} = 3,828$  (the value is rounded down) for the period 13-September-2020 to 31-December-2020.

$BE_y = 15,721 \text{ tCO}_2\text{e}$  (the value is rounded down)

Hence the baseline emission calculated for the reported monitoring period is 15,721 tCO<sub>2</sub>

i.e.  $BE_y = 15,721 \text{ tCO}_2\text{e}$

It is noted that the formula and calculation used for baseline emission calculation in the Joint PD & MR and ER sheet /2.2/ is in compliance with the monitoring plan/3/. Further, it was confirmed during the remote inspection that the variations in wind flow pattern, grid availability majorly has led to a decrease (25.01% for 01- January-2020 to 12-September-2020 and 44.13% for 12-September-2020 to 31-September-2020) in actual ERs as compared to the estimated ERs. Hence, acceptable to the assessment team.

#### **Project Emissions:**

As per the methodology /10/ the PE<sub>y</sub> in case of a wind power project is considered zero.

Hence, PE<sub>y</sub>= 0 is acceptable to the verification team.

#### **Leakage:**

As per the methodology AMS-I.D., version 18.0 /10/ no leakage is considered in the project activity and the same is followed in this monitoring period also.

According to the applied methodology /10/, the conservativeness of the achieved emission reduction was checked and the detailed emission reduction calculation has been transparently provided in the ER sheet /2.2/. All the formulae and the calculation procedure were checked by the assessment team. In the opinion of assessment team, the assumptions, emission factors and default values that were applied in the calculations have been justified. Also, it is confirmed that there were no manual transposition errors between the data sets in the ER Sheet/2.2/ during the current monitoring period. It is confirmed that the data has been measured directly from meters and it was cross checked from the invoices raised to State Electricity Board/14/ and was able to verify the same.

**Finding:** CL 01, CL 02, CL 03 and CAR 05 were raised and successfully closed. Refer to appendix 2 for further details.

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<sup>9</sup> Grid emission factor applied as per CEA data base version 5.0, Nov.2009 , for monitoring period under previous crediting period (i.e. CPA 1)

**Opinion:** The assessment team confirms;

- The monitoring plan has been implemented as per the VCS PD/3/;
- The monitoring complies with the requirement of the applied methodology/10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD /3/;

The values included in the monitoring part of the joint VCS PD & MR/1.2/ and corresponding emission reduction sheet /2.2/ are verified and included under each monitoring parameter, wherever appropriate.

## 4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

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

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

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

## 5 VALIDATION AND VERIFICATION CONCLUSION

KBS Certification Services Pvt. Ltd. has been contracted by, “EKI ENERGY SERVICES LIMITED.” to undertake Validation for renewal of crediting period (RCP) , followed by verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Wind power project at Theni by Powerica Limited’ (VCS ID 1830 & UNFCCC Ref. No. 4572) for the monitoring period 01-January-2020 to 31-December-2020, under the 1<sup>st</sup> and 2<sup>nd</sup> crediting period<sup>10</sup>, in the initial joint project description and monitoring report version 01 dated 24-February-2021, with regard to the relevant requirements of VCS Standard Version 4.1. The project correctly applies the methodology AMS-I.D., Grid connected renewable electricity generation- Version 18.0/10/. It is demonstrated that the project is not a likely baseline scenario. The emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project for the 2<sup>nd</sup> crediting period are estimated to be 22,735 tCO<sub>2</sub>e (annual average) over 10-year crediting period (renewable) starting from 13-September-2020. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achievable given the underlying assumptions do not change.

The project will hence be recommended by KBS for request for renewal of the crediting period of the project activity with the VCS.

The management of the ‘EKI ENERGY SERVICES LIMITED.’ is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final Joint PD & MR Version 3.0 and dated 13-April-2021. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the ‘EKI ENERGY SERVICES LIMITED.’. The development and maintenance of records and reporting procedures are in accordance with the Joint PD & MR Version 3.0 and dated 13-April-2021.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01-January-2020 to 31-December-2020 (Inclusive of both days) based on the reported emission reductions in the final Joint PD & MR Version 3.0 dated 13-April-2021 for the same period.

As a result of the RCP validation and verification, the assessment team confirms that:

- All operations of the project are implemented and installed as planned and described in the project description.

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<sup>10</sup> As approved in the email dated 17/02/2018

- The monitoring system is in place and functional.
- The installed equipment essential for generating emission reductions runs reliably.
- The GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

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

Verification period: From 01-January-2020 to 31-December-2020

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

Year	Baseline emissions or removals (tCO2e)	Project emissions or removals (tCO2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO2e)
01/01/2020 to 31/12/2020	15,721	0	0	15,721
<b>Total</b>	15,721	0	0	15,721

Location: Faridabad

Date: 23/04/2021

Authorized Signatory:



Kaushal Goyal

Managing Director

KBS Certification Services Pvt. Ltd.

## APPENDIX 1: REFERENCES

/1/	/1.1/ Joint PD & MR, Version 01, dated 24-February-2021 (Initial Version) /1.2/ Joint PD & MR, Version 03 dated 13-April-2021 (Final Version)
/2/	/2.1/ Emission Reduction calculation sheet, Version 01 dated 24-February-2021 (corresponding to initial Version of VCS MR) /2.2/ Emissions Reduction calculation Sheet, Version 03 dated 13-April-2021 (corresponding to final Version of VCS MR) /2.3/ Emission factor calculation sheet
/3/	<ul style="list-style-type: none"> <li>• Registered VCS-PD version 02 dated 29/12/2018</li> <li>• VCS supplementary Validation report version 02 dated 28/03/2019</li> <li>• CDM registered PDD version 1 dated 01/03/2011</li> <li>• CDM validation report version 04 dated 08/03/2011</li> <li>• CDM registered PDD version 5.1 dated 08/11/2019 (2<sup>nd</sup> crediting period)</li> <li>• CDM validation report version 01 dated 11/11/2019 ((2<sup>nd</sup> crediting period)</li> </ul>
/4/	VCS Standard Version 4.1
/5/	VCS Programme guide Version 4
/6/	Technical specifications/photographs of turbines, electricity meters etc.
/7/	Single line diagram and meter location / Layout
/8/	Wind power purchase agreement dated 20/08/2010 for all the 6 WTGs installed, valid for 20 years.
/9/	Commissioning Certificates for the 6 WTGs installed
/10/	AMS-I.D.: Consolidated baseline methodology for Grid connected renewable electricity generation --- Version 18.0
/11/	Remote auditing (08/03/2021) for verification of measuring and monitoring procedure, <ul style="list-style-type: none"> <li>• Video recordings &amp; snapshots of the project site/equipment's</li> </ul>

	<ul style="list-style-type: none"> <li>• Interviews and data/log review</li> </ul>
/12/	<p>Tools:</p> <ul style="list-style-type: none"> <li>• “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” (version 03.0.1)</li> <li>• Tool to calculate the emission factor for an electricity system” (version 07.0)</li> </ul>
/13/	Calibration Certificates for main meters
/14/	TNEB Statement (Invoices+ JMR) raised during the monitoring period
/15/	Organization structure/chart
/16/	Supportive for avoidance of double counting dated 31/03/2021
/17/	CEA database version 15.0
/18/	<p>Previous verification documents</p> <p>11/09/2018 to 31/12/2019 monitoring period</p> <p>Monitoring report version 03 dated 16/09/2020</p> <p>Verification report version 02 dated 29/009/2020</p>

## APPENDIX 2: FINDINGS

Summary of findings	CL	CAR	FAR
	02	07	00

Table 1: CLs from this validation & verification

CL ID	01	Section no.	4.1	Date:	17/03/2021
<b>Description of CL</b>					
The monitoring period start date (01/01/2020) as mentioned in the MR and ER sheet is inconsistent with the crediting period renewal start date i.e., (13/09/2020). PP shall clarify why the monitoring period start date pertains to the previous crediting period.					
<b>Project participant response</b>					<b>Date:</b> 01/04/2021
The start date of the project activity is 13-September-2010, which is the date of commissioning of the first WTG.  The length of first crediting period is 13-September-2010 to 12-September-2020  The crediting period of the project activity is for 10 years (Renewable).  The length of second crediting period is 13-September-2020 to 12-September-2030.  As per VCS guideline, PP has applied for renewal of crediting period within 2 years from the last date of previous crediting period. As per VERRA communication through an email dated 17/02/2018 clearly stated that "You may use the joint project description and monitoring report template for the crediting period renewal and verification. However, if you choose to use this document for verification of a monitoring period that spans the two crediting periods, you must ensure that all information is very clearly stated, so that it is clear to a third-party reader." (Submitting herewith screen shot of email communication with VERRA to VVB for confirmation).  VVB can refer VCS project ID No. 92, monitoring period verification that spans two crediting period. Can refer following link - <a href="https://registry.verra.org/app/projectDetail/VCS/92">https://registry.verra.org/app/projectDetail/VCS/92</a>  As per the requirement PP has stated all above description in detail in section 1.9 of revised joint VCS PD & MR (version 02 dated 01/04/2021)					
<b>Documentation provided by project participant</b>					
Revised joint VCS PD & MR (version 02 dated 01/04/2021)					
<b>VVB assessment</b>					<b>Date:</b> 07/04/2021
VVB has checked the email communication of PP with VERRA dated 17/02/2020 and confirms that that the verification of monitoring period spanning 2 crediting periods has been approved and therefore, the justification provided by PP is acceptable to the assessment team.  Hence, the finding is closed.					

<b>CL ID</b>	02	<b>Section no.</b>	4.1	<b>Date:</b> 17/03/2021
<b>Description of CL</b>				
Under section 3.3 of the joint VCS PD & MR, the figure representing the project boundary, shows the presence of both (main meters and check meters) at site. However, appendix 1 of the joint VCS PD & MR, states that “Earlier there were check meters also installed as back up meters, however state electricity board had removed that check meters and only main meters are used for export, import values”. PP shall provide clarification on same and undertake appropriate revisions.				
<b>Project participant response</b>				<b>Date:</b> 01/04/2021
Necessary information added w.r.t removal of check meters in section 3.3 of revised joint VCS PD & MR (version 02, dated 01/04/2021).				
<b>Documentation provided by project participant</b>				
Revised joint VCS PD & MR (version 02, dated 01/04/2021).				
<b>VVB assessment</b>				<b>Date:</b> 07/04/2021
The justification has been added in section 3.3 of the revised joint VCS PD & MR as well regarding the removal of check meters by SEB for clarity. Hence, the finding is closed.  Hence, the finding is closed.				

<b>CL ID</b>	03	<b>Section no.</b>	4.1	<b>Date:</b> 17/03/2021
<b>Description of CL</b>				
Under section 1.11 of the joint VCS PD & MR, commissioning dates of WTG No. TSSP 1255 and TM 41, as well as location of TSSP 158 were found to be inconsistent with the previously registered VCS documents. PP shall clarify the same and submit supportive evidences for further clarity.				
<b>Project participant response</b>				<b>Date:</b> 01/04/2021
Necessary corrections done w.r.t commissioning dates of WTGs in section 1.11 of revised joint VCS PD & MR (version 02, dated 01/04/2021).				
<b>Documentation provided by project participant</b>				
Revised joint VCS PD & MR (version 02, dated 01/04/2021).				
<b>VVB assessment</b>				<b>Date:</b> 07/04/2021
The revisions done by PP are now consistent with the commissioning certificates and previously registered documents.  Hence, the finding is closed.				

<b>CL ID</b>	04	<b>Section no.</b>	3.4.8	<b>Date:</b> 17/03/2021
<b>Description of CL</b>				
Under section 5.2 of the joint VCS PD & MR, for the parameter “EG <sub>y</sub> ”, PP has stated that the recording frequency is “daily” in “Description of measurement methods and procedures applied”. However, it has been mentioned as “monthly” in “Frequency of monitoring/recording”. PP shall clarify the same.				
<b>Project participant response</b>				<b>Date:</b> 01/04/2021
Necessary corrections done in section 5.2 of revised joint VCS PD & MR (version 02, dated 01/04/2021) w.r.t. recording frequency of monitoring parameter (i.e.EG <sub>y</sub> )				
<b>Documentation provided by project participant</b>				
Revised joint VCS PD & MR (version 02, dated 01/04/2021)				
<b>VVB assessment</b>				<b>Date:</b> 07/04/2021
The assessment team confirms that during the remote inspection the frequency was verified to be monthly, which is now correctly represented in the revised joint VCS PD & MR.  Hence, the finding is closed.				

Table 2. CAR from this validation &amp; verification

<b>CAR ID</b>	01	<b>Section no.</b>	3.1	<b>Date:</b> 17/03/2021
<b>Description of CAR</b>				
PP shall revise the following: <ol style="list-style-type: none"> <li>1. In the contents section of the joint VCS PD &amp; MR, PP shall include the title of the appendix.</li> <li>2. Under section 1.5 and 1.6 of the joint VCS PD &amp; MR, the font size is not consistent.</li> <li>3. Under section 1.8 of the joint VCS PD &amp; MR, the start date of the project activity (13/09/2010) is inconsistent with section 1.1 (13/09/2019) of joint VCS PD &amp; MR.</li> <li>4. Under section 1.9 of the joint VCS PD &amp; MR, the end date of crediting period was found inconsistent.</li> <li>5. Under section 1.10 of the joint VCS PD &amp; MR, PP shall mention estimated annual GHG emission reductions or removals for the project crediting period, in line with the requirements of VCS template.</li> <li>6. Under section 1.11 of the joint VCS PD &amp; MR, the details and the technical specifications of the LSC meter shall be mentioned.</li> </ol>				
<b>Project participant response</b>				<b>Date:</b> 01/04/2021

1. The title of the appendix is now added to revised joint VCS PD & MR (version 02, dated 01/04/2021)
2. Necessary corrections done w.r.t font size in section 1.5 & 1.6 of revised joint VCS PD & MR (version 02, dated 01/04/2021)
3. PP has already mentioned correct start date of project activity (13/09/2010) in section 1.1 & in section 1.8 of the joint VCS PD & MR.
4. Necessary corrections done w.r.t end date of crediting period in section 1.9 of revised joint VCS PD & MR (version 02, dated 01/04/2021).
5. Now estimated annual GHG emission reductions mentioned in section 1.10 of revised joint VCS PD & MR (version 02, dated 01/04/2021)
6. LSC meters are inbuilt metering arrangement provided by technology provider, it is self calibrated and this measured value of energy generated at WTG end is for reference purpose only. It is not monitoring parameter for calculation of baseline emission reduction. Submitting herewith product brochure (V-82, 1.65 MW) for detailed technical specification of WTG.

**Documentation provided by project participant**

Revised joint VCS PD & MR (version 02, dated 01/04/2021)

Copy of commissioning certificate of all WTGs involved in the project activity.

Copy of Power Purchase Agreement

Technical specifications of WTG - Product brochure (V-82, 1.65 MW)

**VVB assessment**

**Date:** 07/04/2021

1. The title of the appendix has been now mentioned in the revised joint VCS PD & MR. Hence, the finding is closed.
2. The font size is now consistent in the revised joint VCS PD & MR. Hence, the finding is closed.
3. The start date has been now revised to 13/09/2009 in the revised joint VCS PD & MR, which is consistent with the previously registered documents. Hence, the finding is closed.
4. The end date of crediting period has now been corrected. Hence, the finding is closed.
5. The revised section has been checked and is consistent with the ER sheet. Hence, the finding is closed.
6. The justification provided by PP was found to be acceptable. Hence, the finding is closed.

<b>CAR ID</b>	02	<b>Section no.</b>	3.3.2, 3.3.3	<b>Date:</b> 17/03/2021
<b>Description of CAR</b>				

Under section 2.1, 2.2 and 2.3 of the joint VCS PD & MR, PP shall mention the version of the CDM PDD that has been referred.	
<b>Project participant response</b>	<b>Date: 01/04/2021</b>
The version of registered CDM PDD (version 5.1 dated 08/11/2019) is now mentioned in section 2.1, 2.2 and 2.3 of the revised joint VCS PD & MR (version 02 dated 01/04/2021)	
<b>Documentation provided by project participant</b>	
Revised joint VCS PD & MR (version 02, dated 01/04/2021)	
<b>VVB assessment</b>	<b>Date: 07/04/2021</b>
The version of the CDM PDD (version 5.1 dated 08/11/2019) referred to has been mentioned now in the revised joint VCS PD & MR.	
Hence, the finding is closed.	

<b>CAR ID</b>	03	<b>Section no.</b>	3.4.2, 3.4.3, 3.4.4	<b>Date: 17/03/2021</b>
<b>Description of CAR</b>				
<ol style="list-style-type: none"> <li>Under section 3.2 of the joint VCS PD &amp; MR, the version of applied methodology AMS I. D is to be mentioned and under the applicability criteria 2, the justification provided by the PP shall be checked, as it was found to be irrelevant to the stated criteria.</li> <li>Under section 3.3 of the VCS PD &amp; MR, the format of the table representing the gases and sources considered in the project activity shall be checked.</li> <li>In section 3.4 of the project activity, the project activity shall be assessed against the VCS project standard criteria version 4, as the referred version 2 is no longer valid. Also, the version of database used for calculation of emission factor shall be mentioned.</li> <li>Under section 3.5 of the joint VCS PD &amp; MR, PP shall mention the version of the CDM PDD that has been referred.</li> </ol>				
<b>Project participant response</b>				<b>Date: 01/04/2021</b>
<ol style="list-style-type: none"> <li>Necessary corrections done in section 3.2 of revised joint VCS PD &amp; MR (version 02 dated 01/04/2021) also, justification revised w.r.t version no. of applied methodology &amp; justification for applicability criteria 2.</li> <li>Necessary corrections done in section 3.3 of revised joint VCS PD &amp; MR (version 02 dated 01/04/2021) w.r.t table formatting.</li> <li>Necessary corrections done in section 3.4 of revised joint VCS PD &amp; MR (version 02 dated 01/04/2021) w.r.t VCS project standard version no. Also, version of database used for calculation of emission factor is now mentioned in revised joint VCS PD &amp; MR.</li> <li>The version of registered CDM PDD (version 5.1 dated 08/11/2019) is now mentioned in section 3.5 of the revised joint VCS PD &amp; MR (version 02 dated 01/04/2021)</li> </ol>				
<b>Documentation provided by project participant</b>				

Revised joint VCS PD & MR (version 02, dated 01/04/2021)	
<b>WB assessment</b>	<b>Date: 07/04/2021</b>
<ol style="list-style-type: none"> <li>1. The version of the applied methodology AMS-I. D (version 18.0) and justification for criterion 2 has been provided in the submitted joint VCS PD &amp; MR, the assessment of same is provided in section 3.4.2 of the Joint Validation &amp; Verification report. Hence, the finding is closed.</li> <li>2. PP has appropriately revised the format of table Under section 3.3 of the VCS PD &amp; MR. Hence, the finding is closed.</li> <li>3. PP has revised the version of VCS standard that has been referred to assess the project activity and also revised the version of CEA database used, i.e. the latest version 15.0. Hence, the finding is closed.</li> <li>4. The version of the CDM PDD referred to has been mentioned in the submitted joint VCS PD &amp; MR. Hence, the finding is closed.</li> </ol>	

<b>CAR ID</b>	04	<b>Section no.</b>	3.4.4, 3.4.8	<b>Date: 17/03/2021</b>
<b>Description of CAR</b>				
<ol style="list-style-type: none"> <li>1. Under section 5.1 of the joint VCS PD &amp; MR, for the parameter “<math>EF_{grid, BM, y}</math>”, PP has stated that “as per the latest data available for the most recent year 2017-18”, however, the latest used is for 2018-19. PP shall correct the same.</li> <li>2. Under section 5.2 of the joint VCS PD &amp; MR, PP shall mention the basis of the calibration frequency used.</li> <li>3. Under section 5.2 of the joint VCS PD &amp; MR, for the parameter “<math>EG_y</math>”, the details of the monitoring equipment such as manufacturer and accuracy class were found to be missing. 11) PP shall revise the same.</li> <li>4. The details of the feeders as mentioned under the figure representing the project boundary are missing in section 5.3 of the joint VCS PD &amp; MR.</li> </ol>				
<b>Project participant response</b>				<b>Date: 01/04/2021</b>
<ol style="list-style-type: none"> <li>1. Necessary corrections done in section 5.1 of revised joint VCS PD &amp; MR (version 02 dated 01/04/2021) w.r.t year mentioned for most recent data available as per CEA database.</li> <li>2. Calibration frequency mentioned as per CEA (installation and operation of meters) (Amendment) Regulations, 2019. (Web link - <a href="https://cea.nic.in/regulations-category/metering-regulations/?lang=en">https://cea.nic.in/regulations-category/metering-regulations/?lang=en</a>), necessary details added in section 5.2 of revised joint VCS PD &amp; MR (version 02, dated 01/04//2021)</li> <li>3. Necessary information added in section 5.2 of revised joint VCS PD &amp; MR (version 02 dated 01/04/2021) w.r.t details about energy meters now added.</li> <li>4. Separate dedicated metering system at individual WTG yard available in Tamilnadu, joint meter reading by TNEB officials along with representative of PP done at individual WTG yard only, hence no feeder details at substation end applicable to this project activity.</li> </ol>				

<b>Documentation provided by project participant</b>	
Revised joint VCS PD & MR (version 02, dated 01/04/2021)	
<b>VVB assessment</b>	<b>Date: 07/04/2021</b>
<ol style="list-style-type: none"> <li>1. The revised VCS PD &amp; MR has been checked and revision was found appropriate.</li> <li>2. The basis of calibration frequency i.e., CEA (installation and operation of meters) (Amendment) Regulations, 2019 has been now mentioned in the submitted joint VCS PD &amp; MR. Hence, the finding is closed.</li> <li>3. The details have been added and are consistent with the calibration documents. Hence, the finding is closed.</li> <li>4. The justification provided by PP was found to be acceptable. Hence, the finding is closed.</li> </ol>	

<b>CAR ID</b>	05	<b>Section no.</b>	4.1	<b>Date: 17/03/2021</b>
<b>Description of CAR</b>				
<ol style="list-style-type: none"> <li>1. Under section 6.5 of the joint VCS PD &amp; MR and in ER sheet, PP shall mention the vintage wise ERs since the VCS template guideline states that “Specify breakdown of GHG emission reductions and removals by vintages where the intent is to issue each vintage separately in the VCS registry system”.</li> <li>2. Under appendix 1 of the joint VCS PD &amp; MR, the web link provided is not functional.</li> </ol>				
<b>Project participant response</b>				<b>Date: 01/04/2021</b>
<ol style="list-style-type: none"> <li>1. All ER achieved during this monitoring period (01- January-2020 to 31-December 2020) are from same year i.e 2020, hence vintage wise breakup not mentioned in section 6.5 of the joint VCS PD &amp; MR and in ER sheet.</li> <li>2. New web-link added w.r.t CEA regulations for metering arrangement in Appendix 1 of revised the joint VCS PD &amp; MR (version 02,dated 01/04/2021)</li> </ol>				
<b>Documentation provided by project participant</b>				
Revised joint VCS PD & MR (version 02, dated 01/04/2021)				
Revised ER sheet				
<b>VVB assessment</b>				<b>Date: 07/04/2021</b>
<ol style="list-style-type: none"> <li>1. Since the ERs achieved in this during the monitoring period fall under the same year, therefore, vintage wise breakup is not required.</li> <li>2. The revised weblink provided in the joint VCS PD &amp; MR (version 02, dated 01/04/2021) has been checked and is now functional.</li> </ol> <p>Hence, the finding is closed.</p>				

Table 3. FAR from this validation & verification

<b>FAR ID</b>		<b>Section no.</b>		<b>Date:</b>
<b>Description of FAR</b>				
<b>Project participant response</b>				<b>Date:</b>
<b>Documentation provided by project participant</b>				
<b>VVB assessment</b>				<b>Date:</b>

# APPENDIX 3: COMPETENCE OF TEAM MEMBERS

<b>Personnel Name:</b>		Ms. Shikha Sharma	
<b>Qualified to work as:</b>			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input type="checkbox"/>	Local Expert	<input type="checkbox"/>
<b>Area(s) of Technical Expertise</b>			
<b>Sectoral Scope</b>	<b>Technical Area</b>		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal		
Approved by (Manager C & T)	Sanjay Kandari		
Approval date:	14/01/2021		

<b>Personnel Name (Technical reviewer):</b>		Sanjay Kandari	
<b>Qualified to work as:</b>			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
<b>Area(s) of Technical Expertise</b>			
<b>Sectoral Scope</b>	<b>Technical Area</b>		

Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure
Approved by (Manager C & T)	Gagandeep Kakkar
Approval date:	03/11/2015