33.9 MW BUNDLED WIND POWER PROJECT IN STATES OF KARNATAKA AND TAMIL NADU

Document Prepared By

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

Project Title	33.9 MW bundled wind power projects in states of Karnataka and Tamil Nadu
Version	02
Report ID	Internal project ID: A+SH_SYST_TQC_VCS_VER_32021

Report Title	33.9 MW bundled wind power projects in states of Karnataka and Tamil Nadu
Client	Simran Wind Project Private Limited
Pages	40
Date of Issue	27-July-2022
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Summary:

Verification purpose: LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed/2/ by "Simran Wind Project Private Limited" to perform the 2nd periodic verification of the "33.9 MW bundled wind power projects in states of Karnataka and Tamil Nadu" (VCS ID 676)/4/. The main purpose of this verification activity is to have an independent third party for the assessment of the project design, monitoring report to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements.

The purpose of the project activities to generate energy electricity by the utilization of wind energy and further selling the generated energy to the Indian grid. In this process there is no consumption of any fossil fuel and hence it does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

The project is a bundled project activity having two investors Super Wind Project Private Ltd. and Simran Wind Project Private Ltd. The project involves a total of 19 nos. of WEGs of 1.5 MW each and 9 no's of 0.6 MW each. Start date of the project activity is the 30-March-2008 (As per earliest date of commissioning of 1st Wind turbine generator of Project activity)/01/. The monitoring period for this VCS verification is 21-December-2010 To 20-December-2016 (including both days) and the project activity achieved 290,721 tCO_2e emission reductions during this monitoring period thereon displaced 307,709.7 MWh amount of electricity from the generation-mix of power plants connected to the Indian Grid, which is mainly dominated by thermal/fossil fuel-based power plant.

The scope of the verification is the independent and objective review of the Monitoring Report (MR)/6/. The MR is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board and VCS executive board, including the approved baseline and monitoring methodology. The verification was based on the guidance given in the CDM validation and verification standard for project activities, version 03.0/15/, review against registered PD/4/ and Final Validation report, CDM Project Standard for project activities, version 03.0/15/, CDM project cycle procedure for project activities, version 03.0/15/, VCS program guideline version 4.1/10/ and VCS Standard Version 4.2/10/

A risk-based approach has been followed to perform this verification activity. In the course of verification, 05 Corrective Action request (CAR) and 01 Clarification Requests (CLs) were raised and successfully closed. No FAR was raised during this verification. The review of the Monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and PP have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

The assessment team has employed a risk-based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VCUs. The verification is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring report combined.

The only purpose of the verification is its usage during the issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the verification opinion, which will go beyond that purpose.

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. The entire documents checked/verification conducted to arrive at positive verification conclusions.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "Simran Wind Project Private Limited" to perform the 2nd periodic verification of the "33.9 MW bundled wind power projects in states of Karnataka and Tamil Nadu" under guideline version 4.1 and VCS standard Version 4.2. The objective of this verification activity is to have an independent third party for the assessment of the project design, Monitoring Report and Final Verification report and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- The project's baseline is assessed against ACM0002 of version 10.0/19/
- The project's monitoring plan is assessed against "ACM0002 of version 10.0/19/
- the projects compliance with the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline version 4.1/10/ and standard Version 4.2/10/
- CDM validation and verification standard for project activities, Version 03.0/15/
- CDM Project Standard for project activities, version 03.0/15/
- CDM project cycle procedure for project activities, version 03.0/15/
- VCS program guideline v 4.1/10/
- VCS standard v 4.2/10/

Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions.

1.2 Scope and Criteria

The scope is defined as an independent and objective review of the Monitoring report (MR)/6/ prepared as per the registered PD /4/ and registered approved methodology ACM0002 version 10.0/19/. The MR is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board and VCS standard Version 4.2/10/ and guideline version 4.1/10/, including the approved baseline and monitoring methodology ACM0002 version 10.0/19/. The verification was based on the requirements in the CDM validation and verification standard for project activities, Version 03.0/15/, CDM Project Standard for project activities, version 03.0/15/, CDM project cycle procedure for project activities, version 03.0/15/ and VCS program guideline version 4.1/10/ and VCS Standard Version 4.2/10/

The verification is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for

improvement of the Monitoring report. In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. It follows the paper trail back to the raw data such as meter reading records and invoices. There are no material errors, overestimation of ER, omission or misstatement. Verification team conducted site visit due to verify metering/monitoring arrangement. The verification team has reviewed all the documents like commissioning certificates/1/, technical specification/3/, O&M practices, JMR/11/, invoices/11/, grievance registers/15/ etc.

1.3 Level of Assurance

Applus + Certification has planned and performed the verification by obtaining evidence and other information and explanations that assessment team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated. All documentary evidences were checked, a site audit was conducted to verify metering/monitoring arrangement to arrive at a verification conclusion by the assessment team.

In our opinion, the estimated GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring methodology "ACM0002 of version 10.0"/19/ and the VCS Standard Version 4.2/10/

1.4 Summary Description of the Project

The project activity is a wind-based power generation project. The project activity involves installation of 28 WEGs (19 No's 1.5 MW and 9 no's of 0.6 MW each), which makes total capacity of project activity of 33.9 MW installed in the state of Karnataka and Tamil Nadu of India. The Project activity is promoted by two entities The commissioning details of the project and their location with SPVs are mentioned in the table below:

The monitoring period this VCS verification covered from 21-December-2010 To 20-December-2016 (inclusive of both dates) and the project activity achieved 290,721 tCO_2e emission reductions during this monitoring period. The first machine under the project activity was commissioned on 30-March-2008 and the last machine under the project activity was commissioned on 05-February-2009.

Assessment team checked the Commissioning status of the project activity with the commissioning Certificates and found correct. The project is implemented as per the description in the registered PD. No event observed during the current monitoring period which can alter or deviate from the methodology requirement.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification Process: The project assessment is based on the "CDM validation and verification standard for project activities, Version 03.0/15/ and "VCS standard Version 4.2/10/, program guideline version 4.1/10/" and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the VCS project activity are appointed.

Once the project is received by the assessment team, the members of the assessment team carried out: -

1. A desk review of the Monitoring report/15/ against the registered PD/04/ and final validation report/16/;
2. Follow-up interviews with project participant;
3. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the VCS executive board.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. Applus+ Certification has developed a specific checklist customized for the project. The checklist demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

Appointment of the assessment team

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

The composition of audit team shall be approved by the Applus+Certificationensuring that the r equired skills are covered by the team.

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

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

- Technical Reviewer (TR).

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

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Dr. Atul Takarkhede	LA/TE	YES	YES	NA	YES
Mr. Simon Shen	TR	YES	YES	NA	NA

The detail regarding the assessment team is provided below in this report as Appendix 3

Document review

The Monitoring report version 01/06/ submitted by the PP was reviewed against the approved methodology/19/, registered PD/04/, final validation report and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in this report below in Appendix 1.

Follow-up interviews

Onsite visit is conducted by Applus+ Certification. Audit team also performed interviews, with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ Certification positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the Appendix 2.

The final MR Version 03/06/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality control

As final step of a verification of the final documentation including the verification report and the checklist have to undergo an internal quality control by the technical review committee, i.e., each report has to be finally approved either by the head of the technical review committee or the

deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the positive verification opinion and relevant documents are submitted to the VCS board through the VCS web-platform.

2.2 Document Review

The details of the document observed during the verification process are listed below in Appendix 1 of this report

2.3 Interviews

A site visit audit was conducted for the project activity on 04-January-2022 and 05-January-2022. interview is given below;

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Jhunjhunwala	Mr. Vikram	Simran wind project private limited	04-January-2022 and 05-January-2022	Project Implementation, JMR & invoicing procedure, calibration, grievance mechanism, Management practices, data storage, QA/QC	Dr. Atul Takarkhede
2.	Kumar	Mr. Chitaranjan	Site-in-charge, Tamil Nadu			
3.	Janarthanan	Mr. Krishnavel	Site-in-charge, Karnataka			
4.	Rao	Ms. Anjali	EKI Energy Services Limited		GHG calculations, MR and ER preparation, Data collection, data storage, QA/QC	

2.4 Site Inspections

Duration of on-site inspection: 04-January-2022 and 05-January-2022				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring. Assessment team also checked that whether the monitoring plan as described in the VCS PD is actually practised onsite. Also, assessment team checked any change in host country criteria which may affect the baseline of the project activity.	Gadag and Chitradurga district in State of Karnataka (KA) & Dindigul, Coimbatore and Erode in State of Tamil Nadu (TN) India	04-January-2022 (KA) and 05-January-2022 (TN)	Dr. Atul Takarkhede

2.5 Resolution of Findings

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues from verification which need to be clarified for Applus+ Certification's positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the Appendix 2.

The final MR Version 03/06/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	02	00
Description of project activity	01	00	00
Application of selected baseline and monitoring methodology and selected standardized baseline			
Applicability of methodology and standardized baseline	00	00	00
Deviation from methodology	00	00	00
Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
Project boundary	00	00	00
Establishment and description of baseline scenario	00	00	00

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Demonstration of additionality	00	00	00
Emission reductions	00	01	00
Calibration details	00	01	00
Monitoring plan	00	00	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	01	00
Others (please specify	00	00	00
Total	**01**	**05**	**00**

The list of findings and the resolution is presented in Appendix 2 of this report.

2.5.1 Forward Action Requests

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

2.6 Eligibility for Validation Activities

This section is not applicable for present verification, as Applus+ Certification holds the accreditation for Validation of projects under this Sectoral Scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project is not applied under any other GHG program like CDM, GS. hence not applicable. Assessment team verified the same with other GHG mechanism's project interface. Moreover, PP has also submitted an officially attested declaration letter /12/to assessment team regarding no participation in other GHG program for the concerned monitoring period. Found acceptable.

3.2 Methodology Deviations

This section is not applicable for present verification as no methodology deviation sought during this verification by project participant. Further no deviation obtains by PP during previous verification too.

3.3 Project Description Deviations

Following deviations are requested during current verification: -

i. PP has requested for deviation in the HTSC number of four WEGs from the registered VCS PD. During the time of validation E797, E86 Q-48 and Q-51 438 were having HT SC

numbers as 765, 754, 708 and 707 respectively which has been changed to 638, 631, 589 and 588 respectively. The details of the same is mentioned below: -

WEG IDs	Old HTSC numbers	New HTSC numbers
E797	765	638
E86	754	631
Q-48	708	589
Q-51	707	588

The above changes are checked from the JMRs/Invoices and therefore deviation is sought for the same from the registered PD.

ii. PP has requested for addition of "EKI Energy Services Limited" as other entity involved during current monitoring period.

Above requested changes do not affect the project design, applicability of the methodology, additionality, or the appropriateness of the baseline scenario. Thus, VVB has approved the deviation.

3.4 Grouped Project

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

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the site visit, it was concluded that the project is implemented as per the requirement of the registered VCS PD and approved monitoring plan, during the current monitoring period; it was observed that no unforeseen incident/event evolved which can impact the operation of the project activity which was verified from breakdown records. The project undergone continuous operation and only scheduled maintenance is observed as per the manufactures specification which is acceptable to the assessment team and evident from JMRs.

The project activity is a 33.9 MW project and locations of the same are confirmed by the verification team during the site visit. The plant location including latitudes and longitudes are confirmed below:

Sl. No	Loc. No	MW	Site	Longitude	Latitude	Commissioning date

KARNATAKA (Super)						
In Gadag district						
1	K342	1.50	Mallikarjunpur	76°07'43.6"E	13°11'40.9"N	31-Dec-2008
2	K345	1.50	Jalwadgi	75°47'35.8"E	15°05'07.8"N	31-Dec-2008
3	K346	1.50	Jalwadgi	75°47'41.7"E	15°05'01.9"N	30-Sep-2008
4	K347	1.50	Jalwadgi	75°47'47.3"E	15°04'55.1"N	31-Dec-2008
5	K350	1.50	Jalwadgi	75°48'06.7"E	15°04'32.3"N	30-Sep-2008
In Chitradurga district						
6	K69	1.50	Elkurnahalli	76°27'07.9"E	14°05'11.6"N	30-Sep-2008
7	K70	1.50	Elkurnahalli	76°27'09.5"E	14°05'04.0"N	30-Sep-2008
8	K71	1.50	Elkurnahalli	76°27'10.1"E	14°04'56.4"N	30-Sep-2008

Sl.No	Loc. No	MW	Site	Longitude	Latitude	Commissioning date
TAMILNADU (Simran)						
In Dindigul district						
1	E767	0.60	Kolumangondan	77°27'24.6"E	10°34'18.5"N	30-Sep-2008
2	E777	0.60	Kolumangondan	77°28'09.7"E	10°34'23.4"N	28-Jul-2008
3	E778	0.60	Kovilammapalayam	77°28'00.7"E	10°34'14.6"N	30-Sep-2008
4	E779	0.60	Kovilammapalayam	77°28'00.9"E	10°33'43.3"N	28-Jul-2008
5	E780	0.60	Kovilammapalayam	77°27'36.3"E	10°33'20.7"N	28-Jul-2008
6	E781	0.60	Kovilammapalayam	77°27'53.2"E	10°34'32.8"N	28-Jul-2008

7	E782	0.60	Kovilammapalayam	77°27'40.3"E	10°33'42.6"N	5-Aug-2008
8	G-557	0.60	Midapadi	77°24'22.1"E	10°33'09.7"N	31-Mar-2008
In Coimbatore district						
9	E797	0.60	Kattur	77°23'46.7"E	10°55'41.8"N	28-Sep-2008
10	E86	1.50	Kattur	77°22'21.4"E	10°56'14.1"N	1-Sep-2008
11	G-970	1.50	Kannamanaickanur	77°18'27.7"E	10°33'00.7"N	31-Mar-2008
12	Q48	1.50	V.Kallipalayam	77°20'21.3"E	10°55'19.8"N	30-Mar-2008
13	Q51	1.50	V.Kallipalayam	77°21'20.4"E	10°55'27.6"N	31-Mar-2008
In Erode district						
14	Q199	1.50	Kundadam	77°26'05.6"E	10°49'48.7"N	31-Mar-2008
15	Q220	1.50	Kethairev	77°26'06.9"E	10°48'15.3"N	31-Mar-2008
16	Q394	1.50	Kethairev	77°26'30.3"E	10°48'05.3"N	30-Mar-2008
In Hassan district						
17	H29	1.5	Koppalahalli	76°07'43.6"E	13°11'40.9"N	30-Sep-2008
18	H34	1.5	Koppalahalli	76°08'05.8"E	13°12'23.9"N	30-Sep-2008
In Chitradurga district						
19	K75	1.5	Elkurnahalli	76°07'57.2"E	13°12'15.6"N	31-Dec-2008
20	K76	1.5	Elkurnahalli	76°26'23.7"E	14°05'20.5"N	05-Feb-2009

Verification team confirmed from the registered PD/4/ and from previous verification reports/17/ that the location of the project activity including the coordinates is same as mentioned in the registered VCS PD/4/.

Assessment team checked the commissioning certificate/1/ and confirmed that the dates of Commissioning for the WEGs are correct. Assessment team also conform during interview with the PPs representatives that there is no change in project design and the project is implemented as per the description provided in the VCS PD. The details of WEGs with SPVs are provided below:

Sl. No.	Name of Investers	Capacity (MW)	WEG ID	HT SC
1	**Simran Wind Project Private Limited**	0.60	E767	D171
		0.60	E777	D 156
		0.60	E778	D170
		0.60	E779	D155
		0.60	E780	D154
		0.60	E781	D157
		0.60	E782	D158
		0.60	E797	765 (New - 638)
		0.60	E86	754 (New -631)
		0.60	G-557	D 146
		1.50	G-970	1529
		1.50	Q48	708 (New -589)
		1.50	Q51	707 (New -588)
		1.50	Q199	1533
		1.50	Q220	1535
		1.50	Q394	1525
		1.5	H29	NA
		1.5	H34	NA
		1.5	K75	NA
		1.5	K76	NA
2	**Super Wind Project Private Limited**	1.50	K342	NA
		1.50	K345	NA
		1.50	K346	NA

		1.50	K347	NA
		1.50	K350	NA
		1.50	K69	NA
		1.50	K70	NA
		1.50	K71	NA

The project boundary includes the electricity generation equipment at the project site, substation and the regional grid (now Indian grid). Connected substation is verified through onsite documents submitted by PP to assessment team during onsite visit.

Assessment team also checked the technical details of the installed WTG onsite and found consistent with the documents submitted by PP and previous verification reports.

The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period rather than change in HTSC status of few WTGs (same is mentioned in section 3.3 of this report). The project design as mentioned in the registered PD is implemented and thus the same is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the registered PD are available and implemented in an appropriate manner.

The organisational role and responsibility as mentioned in the registered PD/4/ is followed onsite confirmed during onsite visit. All the emergency preparedness as mentioned in the registered PD/4/ is followed onsite and no discrepancies were found regarding the same. Meters are calibrated as per calibration frequency in registered VCS PD/4/. All the emergency preparedness as mentioned in the registered VCS PD/4/ is followed onsite and no discrepancies were found regarding the same. Thus, completeness of the monitoring plan confirmed and there are no any material discrepancies between the actual monitoring system and the plan provided in the registered PD& MR.

CL01 & CAR 01 is raised for the inconsistency with respect to MR template guidelines and CAR 02 is raised for supporting evidences for No-Double counting and closed successfully after proper response of PP.

Assessment team confirms following during the onsite verification :

1. Start date of the project activity is 30-March-2008 as mentioned in the registered VCS PD/4/.
2. An undertaking letter dated 07-February-2022 has been submitted by PP for no double counting with any other GHG program. PP also has given a written declaration that project has not claimed other form of GHG credit for the concerned monitoring period. Assessment team also checked that the projects are not registered under the REC mechanism of India and the same can be cross-checked at *https://recregistryindia.nic.in*. PP has given a written declaration that the credit claimed under VCS for the current monitoring period is not claimed under any other GHG mechanism/12/.

3. Assessment team confirms that this is the 2nd monitoring under VCS and covers the activity from 21-December-2010 To 20-December-2016 (inclusive of both dates). The project activity adopts renewable crediting period of 10 years period and can be renewed for maximum 2 times. 01-April-2008 is the start date and 30-March-2018 will be end date of the crediting period/6/.

   The GHG credits from 21-December-2010 To 20-December-2016 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the "No Double Counting"/12/.

4. Assessment team checked and found that the Project proponent of the project activity mentioned in Section 1.3 of monitoring report is correct/6/:

5. Assessment team also checked the details of other entity mentioned in Section 1.4 of monitoring report and found correct/6/.

6. The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VER with the estimated VER and found that the actual VER is 290,721 tCO_2e which is 40.93% lower than the estimated emission reductions 492,131 tCO_2e (81,947 tCO_2e/365 days x 2192 days) during this monitoring period which is due to low PLF wind condition and grid availability which is a natural phenomenon and beyond the control of the Project Proponent. Hence accepted/6/.

SUSTAINABLE DEVELEOPMENT:

Ministry of Environment, Forests & Climate Change, Government of India has stipulated following indicators for sustainable development in the interim approval guidelines for GHG projects.

Social well-being: The project activity has resulted in creating job opportunities for the local population on temporary and permanent basis. Manpower is required both during erection and operation of the renewable energy projects. This results in the improvement in living standards of the local community. The installation of the renewable energy projects also led to development of basic infrastructure like roads, communication with the nearby cities etc. which also improved in living standards of the local population.

Economic well-being: The project activity has created direct and indirect job opportunities to the local community during installation and operation of the renewable energy projects. The investment for the project activity has led to the improvement in the economic activity in the local area.

Technological well-being: The successful operation of project activity has led to promotion of wind power generation and would encourage other entrepreneurs to participate in similar projects.

Environmental well-being:

The project activity utilizes renewable energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions. As renewable energy projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power. Being a renewable resource, to generate electricity contributes to resource conservation. Thus, the project causes no negative impact on the surrounding environment.

In view of the above, the PP has considered that the project activity profoundly contributes to the sustainable development.

4.2 Safeguards

4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the documents review of VCS PD and grievance register etc. The project is renewable energy project and thus no negative impact observed due to project activity.

The project activity promotes environmental and socio-economic well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation. The report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013[1]. This report clearly mentioned that solar/Wind power project activity operations do not result in direct air pollution, noise pollution. Moreover, also as per the Central Pollution Control Board of India notification[2] solar/wind project falls under White Category and are practically non-polluting.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. For on-going stakeholder's communication, PP have maintained grievance register/15/ at the site office. All the stakeholders are happy with the implementation and operation of the project activity and no negative comments envisaged for the project activity. Complaint/suggestion/feedback register is maintained at site as a part of ongoing communication with stakeholders in line with clause 3.16.17 of VCS Standard, ver. 4.2/10/ and appropriate actions taken time to time by PP.

Assessment team checked the grievance register/14/ provided by PP and found that local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project. During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate. CAR 03 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.

4.3 AFOLU-Specific Safeguards

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

[1] https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf

[2] http://envfor.nic.in/sites/default/files/Latest_118_Final_Directions.pdf

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the VCS PD. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS PD/4/.
Findings	CAR 04 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	**Baseline Emissions:** The baseline Emissions for a given year is calculated by multiplying the energy baseline with the grid emission factor. The grid in this case would be the 'Indian Grid' Formula Used: - $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ Where , BE_y = Baseline Emissions in year y, tCO_2 $EG_{PJ,y}$ = Eg_{ey} = Electricity exported to the grid by the Project MWh/yr) $EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO_2/MWh) **Ex-ante parameters:** The baseline emission factors are taken ex-ante in line with the registered VCS PD as well as cross checked with section validation report and found correct/4/. The baseline emission factors are calculated by the Central Electricity Authority, Govt. of India. The values of OM and BM are sourced from the CEA CO_2 Baseline database version 05. The data Combined margin CO_2 emission factor ($EF_{grid,CM,y}$) is equal to 0.9448 tCO_2/MWh. The calculation approach was in line with the VCS PD. Values are as follows: $EF_{grid,OM,y}$ = 0.9871 tCO_2/MWh $EF_{grid,BM,y}$ = 0.8179 tCO_2/MWh **Ex-post parameter:** $EG_{PJ,y}$:- Electricity exported to the grid by the Project (MWh) : 307,709.7 MWh The verification team has checked the entire monthly JMR reports/11/ for net electricity generated & supplied to the grid and crosschecked same with the invoices/11/ raised by PP towards State Utilities for the monitoring period. All values are found correct. All the parameters are monitored and recorded as per the monitoring plan in the MR. However; PPs have apportioned the values

	for the first and last month of the monitoring period where dates are not matching with JMR cycle in Karnataka and Tamil Nadu states. Apportioning found appropriate and conservative. Monitoring process practices during monitoring period found inline with registered VCS PD, verified during interview with onsite personnel. The billing meters for each WTGs installed in substations of respective states utilities (Refer Appendix 5 of this report). During Site visit, assessment team observed after June 2015, PP have sold their WTGs to other entities. Therefore, electricity generated by project activity after June-2015 counted as null, for the WTGs - D-171, D-156, D-170, D-155, D-154, D-157, D-158, D-146, 1529, 1533, 1535, 1525, 765, 754, 708 & 707. Same is found appropriate and conservative. The details of monitoring equipment's installed for each WTG are given in appendix 05 below. The calculations/measurement of net electricity supplied to grid is under purview of state electricity board and the PP/Project activity Instance owner has no role on it. PP/Project activity Instance owner gets value of net electricity supplied to grid and hence this parameter is mentioned as a part of monitoring plan The net electricity supplied the grid by the project activity during the monitoring period is 307,709.7 MWh. All relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation/7/, the accuracy, and applied QA/QC measures. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. **BE_y (baseline emissions),** tCO_2e BE_y = 307,709.7 MWh x 0.9448 tCO_2e/MWh = 290,721 tCO_2e (round down values) As per applied methodology ACM0002, version 10.0, the VCS PD, project emission is considered zero as the project activity involved wind power generation/4/. $\boldsymbol{PE_y}$ = As per ACM0002 - Version 10.0, all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. As the project activity involved wind power project emissions (PEy) are taken as zero. **Leakage:** As per ACM0002 - Version 10.0, Leakage emissions are not considered for the project activity/19/. Hence, **$ER_y = BE_y - PE_y$** = 290,721 – 0 = 290,721 tCO_2e (round down values)

	Verification team confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS PD/4/. Assessment team confirmed that the GHG emission reductions and removals have been quantified correctly in line with the registered VCS PD/4/.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the Calibration details of the monitoring meters with the calibration certificates.
Findings	CAR 05 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	The verification team checked the break down log for the monitoring period/13/. During the physical verification, the feeder wise location of the wind power plant is also checked. The metering arrangement is two-way trivector energy meters (Main and Check) of accuracy class 0.2s at the State Electricity Board (KPTCL) Karnataka site and accuracy class 0.5s meters at Tamil Nadu sites at the State Electricity Board (TNEB). These electricity meters are being used by state electricity board for Share certificate statements. These meters record several parameters including electricity exported & imported. These electricity meters are being used by state electricity board for monthly generation reports/11/. The details like make, Serial number, Calibration dates etc./5/. are provided in appendix 05 of this report. Verification team confirms that all the energy meters (main and check meter) installed at the substation are of accuracy class of 0.2s and 0.5s are calibrated as per the calibration frequency mentioned in monitoring plan and in VCS PD i.e. The calibration frequency of meters is once in 2 years/5/. Delayed calibrations were observed in the project activity for this monitoring period. Details related to delay in calibration is provided in appendix 05 of this report. Appropriate error factor is applied to the emission reduction calculation. The same is found correct as the observed error was found within permissible limits. Hence, maximum permissible error has been applied. In addition, Project Participant has the latest Calibration certificate/13/ which was verified. The calculation of net electricity supplied to grid is under purview of state electricity board and PP does not have control on it. Calibration details of the monitoring meters checked with calibration certificates submitted by PP and found that calibration frequency of 2 years is compiled/5/. The break down log is checked and there is no major breakdown during the monitoring period. No unforced error observed. No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. The monitoring meters were

	calibrated in line with the registered monitoring plan and there was no delay in calibration observed. Thus, assessment team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals. Assessment team checked the calculation of estimated VER vs. Actual VER. As per the registered VCS PD the amount of VERs annually is 81,947 tCO2e. The days involved in present monitoring period are 2,192. Therefore, on pro-rata basis, the estimated VERs for the monitoring period is 492,131 tCO2e. Actual VERs obtained for the monitoring period is 290,721 tCO2e and thus the actual VER is 40.93% lower than the estimated VER. This variation is majorly due to low PLF (unfavourable wind) which is a natural phenomenon and beyond the control of the Project Proponent. Hence confirms that decrease in VER by 40.93% in this monitoring period is acceptable.

4.6 Non-Permanence Risk Analysis

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
NA	NA	NA	NA	NA

5 VERIFICATION CONCLUSION

Applus+ Certification has been engaged/02/ by Simran Wind Project Private Limited to perform the 2nd periodical verification of the "33.9 MW bundled wind power projects in states of Karnataka and Tamil Nadu".

The project participants are responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's monitoring plan in the registered VCS PD/4/ and the applied methodology ACM0002 version 10.0/19/

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Further, the verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. The entire documents checked/Power plant verification conducted to arrive at positive verification conclusions. The verification team can confirm that:

- the project is operated as planned and described in the project document;
- the monitoring plan is as per the applied methodology;
- the monitoring process in Monitoring Report is as per the registered PD/4/;
- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.
- A Reasonable Level of assurance was achieved as planned, during verification process.
- Verification period: 21-December-2010 To 20-December-2016 (inclusive of both days)

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

Year	Baseline emissions or removals (tCO_2e)[3]	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
21-December-2010 to 31-December-2010	1,565	0	0	1,565
01-January-2011 to 31-December-2011	63,433	0	0	63,433
01-January-2012 to 31-December-2012	66,392	0	0	66,392
01-January-2013 to 31-December-2013	56,738	0	0	56,738
01-January-2014 to 31-December-2014	51,396	0	0	51,396
1-January-2015 to 31-December-2015	25,081	0	0	25,081
1-January-2016 to 20-December-2016	26,116	0	0	26,116
Total	290,721	0	0	290,721

[3]Rounddown values

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1.	Respective State Utility	Commissioning certificates of all WTGs.		PP
2.	Applus	Contract of the project participant with the DOE. Ref. No. A+SH_SYST_TQC_VCS_VER_32021	26-November-2021	PP
3.	NA	The operational lifetime of the project activity from the manufacturer (Technical specifications)	Manufacturer technical specifications	PP
4.	NA	Registered PD https://registry.verra.org/app/projectDetail/VCS/676	29-March-2010	PP
5.	Respective state authority	Calibration Certificates of all energy meters	-	PP
6.	NA	MR version 01 MR version 02 MR version 03 (Verra Review)	20-December-2021 28-February-2022 25-July-2022	PP
7.	NA	Emission reduction sheet version 01 Emission reduction sheet version 02	20-December-2021 28-February-2022	PP
8.	PP	O & M Agreements	-	PP
9.	SPVs and state board	Power Purchase Agreements: M/s Super Wind project Pvt Ltd M/s Simran Wind Project Private Limited		PP
10.	NA	Tools/ guidelines used in the project activity • Glossary of CDM terms version 07 • VCS standard Version 4.2 • VCS Program Guide 4.1 • VCS verification report template version 4.1	UNFCCC CDM/VCS web site	UNFCCC
11.	State Utility for JMR, PP for invoice	Monthly statement- JMR & invoices for the complete monitoring period	-	PP
12.	PP	Declaration regarding no participation in other GHG program for the concerned monitoring period	07-February-2022	PP
13.	NA	Breakdown details for the monitoring period	-	PP
14.	NA	Grievance Register maintained at site	-	PP

No.	Author	Title	References to the document	Provider
15.	UNFCCC	CDM validation and verification standard for project activities, Version 03.0	-	UNFCCC
16.	Perry Johnson registrars CDM Inc.	Validation report . Ref. No. V-3-I-01-B-0101	Version: 01 29-March-2010	
17.	DNV	Previous Verification Report, Report ID: N°2011-0667	30-January-2012	PP
18.	PP	Breakdown details of the power plant	-	PP
19.	UNFCCC	ACM0002 of version 10.0	version 10.0	UNFCCC

APPENDIX 2: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS (CAR/CL/FAR)

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

FAR ID	XX	Section no.	E.2	Date : DD/MM/YYYY
Description of FAR				
There is no FAR from the validation/previous verification of the project activity				
Project participant response				**Date :** DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD/MM/YYYY
NA				

Table 2. CL from this verification7

Project Implementation Status

CL ID	01	Section no.	4.1	Date: 03-January-2022
Description of CL				
PP requested to clarify the VCS VCU issuance history of the project activity and missing period 01-January-2010 to 20-December-2010.				
Project participant response				**Date: 28-February-2022**

2010 vintage is already approved by Veera registry and it can be added to the verification record and an issuance request can be made at any time. The same clarification has been given by Verra registry by email communication dated 25-February-2022 Please refer to the email communication received from VEERA Registry dated 25-February-2022 attached as Annexure 9.
Documentation provided by project participant
Annexure 9- Email communication from VEERA Registry dated 25-February-2022.
DOE assessment **Date:** 21-March-2022
As per the clarification by PP verification report for the period 01-January-2010 to 20-December-2010 vintage period is available on verra webpage is approved and issuance can be made at any time. Same has been verified by the VERRA mail confirmation for the period 01-January-2010 to 20-December-2010 submitted to assessment team dated 25-February-2022.Thus **CAR is Closed.**

Table 3. CAR from this verification:

Project Implementation Status

CAR ID	01	**Section no.**	4.1	**Date:** 03-January-2022
Description of CAR				
During review of monitoring report following inconsistencies observed: 1. Title of authorized ministry for providing indicators of sustainable development in throughout the Monitoring report is not in line with Host country webpage. Thus, corrective action sought. 2. Date format throughout the Monitoring report is not in line with the VCS Template Version4.0, Thus, corrective action sought. 3. PP requested to submit copies of technical specifications of WTGs, O&M agreement, PPA & Breakdown sheet of the project activity. Kindly submit. 4. Project activity geographic boundaries and geodetic coordinates as per requirement of VCS MR Template version 4.0 found missing in the MR. Corrective action sought. 5. VCU issuance history missing under section 1.6 of the MR. Corrective action sought. 6. Actual benefits under Section 1.11 of the MR found missing. Corrective action sought. 7. PP has mentioned commissioning date of project activity in section 1.1 of monitoring report, however to verify the same, supporting documents is missing. PP is requested to submit it to assessment team. Kindly submit.				
Project participant response				**Date:** 28-February-2022

1. Title of authorized ministry for providing indicators of sustainable development in throughout the Monitoring report is being corrected now and is in line with host country page. Please refer Section 1.11 in revised MR, Version 02 dated 28-February-2022.
2. Date format is being corrected as per VCS template Version 4.0. Please refer revised MR, Version 02 dated 28-February-2022.
3. Following documents are submitted to the VCS verifier
    a. Technical specifications of WTGs
    b. O &M agreement
    c. PPA
    d. Break-down sheet for this project activity
4. Project geo-graphic boundaries and geo-coordinates is being provided as per template guidelines of VCS MR version 4.0 in revised VCS MR, Version 02.
5. Correction has been done.
6. Actual benefits are being mentioned in section 1.11 of revised VCS MR, Version 02 attached as Annexure 1.
7. Commissioning certificates are being submitted to the VCS Verifier. Please refer Annexure 6

Documentation provided by project participant

VCS MR date 28-February-2022
Annexure 1 - Technical specifications of WTGs
Annexure 2 - O&M agreement
Annexure 3 – PPA
Annexure 4 - commissioning certificates

DOE assessment | **Date:** DD-Month-2022

1. PP has revised Title of authorized ministry for providing indicators of sustainable development in throughout the Monitoring report now this is line with host country page in revised MR. Thus, CAR is Closed.
2. PP has revised the date format as per VCS MR guideline version 4.0 throughout the Revised MR to assessment. Thus, CAR is Closed
3. PP has submitted the following document: -
    i) Technical specification brochure of WTGs for both site of states of Karnataka and Tamil Nadu
    ii) O & M agreement between PP and Suzlon infrastructure services limited and Suzlon energy limited dated
    iii) Power purchase agreement between triparty PP and Bangalore Electricity Supply Company limited and Tamil Nadu electricity board.
    iv) Break-down sheet has been updated in monitoring report.

    Assessment team verified above document and found consistent with project activity and current monitoring period.

4. PP has updated geographic boundaries and geodetic coordinates as per requirement of VCS MR Template version 4.0 in revised monitoring report. Thus, CAR is Closed.
5. PP has updated VCU history under section 1.6 of the MR. Thus, CAR is Closed.
6. PP has updated the section 1.11 revised MR as per the actual benefits. Thus, CAR is Closed.
7. PP has submitted the commissioning certificate issued by Tamil Nadu electricity board of Tamil Nadu state and Karnataka power transmission corporation ltd. of Karnataka state for all WTGs. Assessment team verified all the certificates and found consistent with current monitoring report and project activity.

CAR ID	02	Section no.	4.1	Date: 03-January-2022
Description of CAR				
PP is requested to submit an undertaking for no double accounting for current monitoring period and for project activity is participated in other GHG program other than VCS.				
Project participant response				Date: 28-February-2022
PP has submitted undertaking for no double counting for the current monitoring and for project activity is participated in other GHG program other than VCS.				
Documentation provided by project participant				
Annexure 5 – Undertaking for no double counting				
DOE assessment				Date: 21-March-2022
PP has submitted the undertaking letter issued by Simran wind project private limited for no double counting for current monitoring period dated 07-February-2022.				

CAR ID	03	Section no.	4.2.2	Date: 03-January-2022
Description of CAR				
PP requested to submit records for ongoing local stakeholder consultation including grievance register etc. to assessment team.				
Project participant response				Date: 28-February-2022
Grievance register attached in this submission as supporting for local stakeholder consultation				
Documentation provided by project participant				
Annexure 6 – Grievance register.				
DOE assessment				Date: 21-March-2022
PP has submitted grievance register to the assessment team for ongoing local stakeholder. Thus, CAR is closed.				

Accuracy of GHG Emission Reduction and Removal Calculations

CAR ID	04	Section no.	4.4	Date: 03-January-2022
Description of CAR				
PP requested to submit Emission Reduction sheet and also to verify same kindly submit JMRs/B-forms and sales invoices relevant to current monitoring period of project activity.				
Project participant response				Date: 28-February-2022
Emission reduction sheet is being submitted along with supportive documents like JMRs/B-form and sales invoices relevant to current monitoring period.				
Documentation provided by project participant				
ER sheet Annexure 7- JMRs/B-forms and Invoices				
DOE assessment				Date: 21-March-2022
PP has submitted the ER sheet calculation sheet and assessment team verified same with submitted JMR and sales invoices and found consistent and conservative. Thus, CAR is Closed.				

Quality of Evidence to Determine GHG Emission Reduction and Removals

CAR ID	05	Section no.	4.5	Date: 03-January-2022
Description of CAR				
PP is requested to provide detailed information of metering equipment like serial number, make, calibration date and validity of calibration and calibration frequency which is missing in MR. Moreover, to verify, kindly submit supporting documents of electricity meters and calibration certificate for monitoring period under verification.				
Project participant response				Date: 28-February-2022

Detailed information of metering equipment like serial number, make, calibration date and validity of calibration and calibration frequency are being update in Appendix 1 of VCS MR, Version 02, Please refer meter calibration reports attached as Annexure 8.
Documentation provided by project participant
Annexure 08 – Meter Calibration Reports
DOE assessment **Date:** 21-March-2022
PP has provided Details related to monitoring equipment and its calibration in appendix 1 of revised MR. Same is cross checked with calibration certification by assessment team and found correct. However, during review, Team observed delay in scheduled calibration during the current monitoring period and result of delayed calibration is within permissible limit of accuracy class, thus PP applied maximum error factor of 0.2% and 0.5% error factor in export (error deducted) and import (error added) of electricity for calculating emission reductions in line with para 366 (a) of the CDM project standard for project activities, Version 03.0. and found conservative with as per the para 367 (a) of CDM Project standard for project activities, Version 03.0. Thus, acceptable to assessment team and **CAR is closed**.

Table 4. FAR from this verification

FAR ID	XX	**Section No.**		**Date :** DD-Month-YYYY
Description of FAR				
There is no FAR from this verification.				
Project participant response				**Date :** DD-Month-YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD-Month-YYYY
NA				

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor/Technical Expert	OR	TAKARKHEDE	ATUL	TQC-Outsourced entity	Yes	Yes	Yes	Yes

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer (TR) / Technical Expert (TE)	EI	Shen	Simon	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

Short CVs of the Team:

1. **Dr. Atul Takarkhede** is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 11 years of experience in field of Environmental Auditing, consulting and accreditation. He is an expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management reporting for organizations' environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; conducting environmental/water audits; NABET requirements appliance, functional area expert in Water Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. Currently he is associated with True Quality Certifications Private Limited and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes.

2. **Mr. Simon Shen** (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD for 3.5 years before he joined Applus+. Mr. Simon Shen has extensive experience also as former Applus+ Shanghai CDM Technical Manager.

APPENDIX 4: ABBREVIATIONS

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
PP	Project Participant
TNEB	Tamil Nadu electricity board
KPTCL	Karnataka Power Transmission Corporation limited

APPENDIX 5: CALIBRATION DETAILS

WEG ID No.	HT SC No.	Make & Type	Meter Sl.No.	Accuracy Class	Fixed on	Valid till	Test 1	Valid till	Test 2	Valid till	Applicable period of error factor	Error factor applied
E767	D 171	Elster, Main	4954907	0.5%	30-Sep-2008	30-Sep-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 10-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
E777	D 156	Elster, Main	4954363	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 10-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
		Elster, Check	4954306	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017		
E778	D 170	Elster, Main	4954892	0.5%	30-Sep-2008	30-Sep-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 10-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
E779	D 155	Elster, Main	4954702	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 10-Jan-2015	Dec-2010 to April-2011, April-2013
		Elster, Check	4954703	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	26-Apr-2013	11-Jan-2015	11-Jan-2017		

												to Jan-2015
E780	D 154	Elster, Main	4954705	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 10-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
		Elster, Check	4954706	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017		
E781	D 157	Elster, Main	4954307	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	20-Jan-2015	19-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 19-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
		Elster, Check	4954664	0.5%	28-Jul-2008	28-Jul-2010	26-Apr-2011	25-Apr-2013	20-Jan-2015	19-Jan-2017		
E782	D 158	Elster, Main	4954685	0.5%	05-Aug-2008	05-Aug-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 10-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
		Elster, Check	4954688	0.5%	05-Aug-2008	05-Aug-2010	26-Apr-2011	25-Apr-2013	26-Jan-2015	25-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 25-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015

E797	638	Elster, Main	4901341	0.5%	28-Sep-2008	28-Sep-2010	07-May-2011	06-May-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 06-May-2011, 07-May-2013 to 10-Jan-2015	Dec-2010 to May-2011, May-2013 to Jan-2015
E86	631	Elster, Main	4954683	0.5%	01-Sep-2008	01-Sep-2010	07-May-2011	06-May-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 06-May-2011, 07-May-2013 to 10-Jan-2015	Dec-2010 to May-2011, May-2013 to Jan-2015
G-557	D 146	Elster, Main	4940859	0.5%	31-Mar-2008	31-Mar-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 25-April-2011, 26-April-2013 to 25-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
		Elster, Check	4940858	0.5%	31-Mar-2008	31-Mar-2010	26-Apr-2011	25-Apr-2013	11-Jan-2015	10-Jan-2017		
G-970	1529	Elster, Main	4940857	0.5%	31-Mar-2008	31-Mar-2010	28-Apr-2011	27-Apr-2013	28-Jan-2015	27-Jan-2017	21-Dec-2010 to 27-April-2011, 28-April-2013 to 27-Jan-2015	Dec-2010 to April-2011, April-2013 to Jan-2015
		Elster, Check	4940856	0.5%	31-Mar-2008	31-Mar-2010	28-Apr-2011	27-Apr-2013	28-Jan-2015	27-Jan-2017		
Q-48	589	Elster, Main	4901332	0.5%	30-Mar-2008	30-Mar-2010	07-May-2011	06-May-2013	13-Jan-2015	12-Jan-2017	21-Dec-2010 to 06-May-2011, 07-May-2013 to 12-Jan-2015	Dec-2010 to May-2011, May-2013 to Jan-2015
		Elster, Check	4940872	0.5%	30-Mar-2008	30-Mar-2010	07-May-2011	06-May-2013	13-Jan-2015	12-Jan-2017		

Q-51	588	Elster, Main	4901311	0.5%	31-Mar-2008	31-Mar-2010	07-May-2011	06-May-2013	13-Jan-2015	12-Jan-2017	21-Dec-2010 to 06-May-2011, 07-May-2013 to 12-Jan-2015	Dec-2010 to May-2011, May-2013 to Jan-2015
Q-199	1533	Elster, Main	4901307	0.5%	31-Mar-2008	31-Mar-2010	03-May-2011	02-May-2013	10-Jan-2015	09-Jan-2017	21-Dec-2010 to 02-May-2011, 03-May-2013 to 09-Jan-2015	Dec-2010 to May-2011, May-2013 to Jan-2015
		Elster, Check	4940998	0.5%	31-Mar-2008	31-Mar-2010	03-May-2011	02-May-2013	10-Jan-2015	09-Jan-2017		
Q-220	1535	Elster, Main	4901309	0.5%	31-Mar-2008	31-Mar-2010	03-May-2011	02-May-2013	10-Jan-2015	09-Jan-2017	21-Dec-2010 to 02-May-2011, 03-May-2013 to 09-Jan-2015	Dec-2010 to May-2011, May-2013 to jan-2015
		Elster, Check	4940999	0.5%	31-Mar-2008	31-Mar-2010	03-May-2011	02-May-2013	10-Jan-2015	09-Jan-2017		
Q-394	1525	Elster, Main	4940874	0.5%	30-Mar-2008	30-Mar-2010	03-May-2011	02-May-2013	10-Jan-2015	09-Jan-2017	21-Dec-2010 to 02-May-2011, 03-May-2013 to 09-Jan-2015	Dec-2010 to May-2011, May-2013 to Jan-2015
		Elster, Check	4901428	0.5%	30-Mar-2008	30-Mar-2010	03-May-2011	02-May-2013	10-Jan-2015	09-Jan-2017		
H-29	NA	L&T, Main	6760723	0.2%	30-Sep-2008	30-Sep-2009	11-Jan-2011	10-Jan-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 10-Jan-2011, 11-Jan-2013 to 10-Jan-2015	Dec-2010 to Jan-2011, Jan-2013 to Jan-2015

		L&T, Check	7041036	0.2%	30-Sep-2008	30-Sep-2009	13-Jan-2011	12-Jan-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 12-Jan-2011, 13-Jan-2013 to 10-Jan-2015	Dec-2010 to Jan-2011, Jan-2013 to Jan-2015
H-34	NA	L&T, Main	7041049	0.2%	30-Sep-2008	30-Sep-2009	11-Jan-2011	10-Jan-2013	11-Jan-2015	10-Jan-2017	21-Dec-2010 to 10-Jan-2011, 11-Jan-2013 to 10-Jan-2015	Dec-2010 to Jan-2011, Jan-2013 to Jan-2015
		L&T, Check	7041050	0.2%	30-Sep-2008	30-Sep-2009	13-Jan-2011	12-Jan-2013	14-Jan-2015	13-Jan-2017	21-Dec-2010 to 12-Jan-2011, 13-Jan-2013 to 10-Jan-2015	Dec-2010 to Jan-2011, Jan-2013 to Jan-2015
K-75	NA	L&T, Main	8001330	0.2%	31-Dec-2008	31-Dec-2009	20-Jun-2010	19-Jun-2012	20-Jan-2015	19-Jan-2017	20-Jun-2012 to 19-Jan-2015	Jun-2012 to Jan-2015
		L&T, Check	8001331	0.2%	31-Dec-2008	31-Dec-2009	20-Jun-2010	19-Jun-2012	20-Jan-2015	19-Jan-2017		
K-76	NA	L&T, Main	8001334	0.2%	05-Feb-2009	05-Feb-2010	20-Jun-2010	19-Jun-2012	20-Jan-2015	19-Jan-2017	20-Jun-2012 to 19-Jan-2015	Jun-2012 to Jan-2015
		L&T, Check	8001333	0.2%	05-Feb-2009	05-Feb-2010	20-Jun-2010	19-Jun-2012	20-Jan-2015	19-Jan-2017		
K-342	NA	L&T, Main	7041790	0.2%	31-Dec-2008	31-Dec-2009	19-Nov-2010	18-Nov-2012	04-Jan-2015	03-Jan-2017	19-Nov-2012 to 03-Jan-2015	Nov-2012 to Jan-2015
		L&T, Check	7041792	0.2%	31-Dec-2008	31-Dec-2009	19-Nov-2010	18-Nov-2012	04-Jan-2015	03-Jan-2017		

K-345	NA	L&T, Main	7041803	0.2%	31-Dec-2008	31-Dec-2009	20-Nov-2010	19-Nov-2012	15-Jan-2015	14-Jan-2017	19-Nov-2012 to 14-Jan-2015	Nov-2012 to Jan-2015
		L&T, Check	7041821	0.2%	31-Dec-2008	31-Dec-2010	20-Nov-2010	19-Nov-2012	15-Jan-2015	14-Jan-2017		
K-346	NA	L&T, Main	7041796	0.2%	30-Sep-2008	30-Sep-2009	20-Nov-2010	19-Nov-2012	21-Jan-2015	20-Jan-2017	20-Nov-2012 to 20-Jan-2015	Nov-2012 to Jan-2015
		L&T, Check	7041808	0.2%	30-Sep-2008	30-Sep-2009	20-Nov-2010	19-Nov-2012	21-Jan-2015	20-Jan-2017		
K-347	NA	L&T, Main	7041778	0.2%	31-Dec-2008	31-Dec-2009	20-Nov-2010	19-Nov-2012	24-Jan-2015	23-Jan-2017	20-Nov-2012 to 23-Jan-2015	Nov-2012 to Jan-2015
		L&T, Check	8001337	0.2%	31-Dec-2008	31-Dec-2009	20-Nov-2010	19-Nov-2012	24-Jan-2015	23-Jan-2017		
K-350	NA	L&T, Main	7041817	0.2%	30-Sep-2008	30-Sep-2009	20-Nov-2010	19-Nov-2012	22-Jan-2015	21-Jan-2017	20-Nov-2012 to 21-Jan-2015	Nov-2012 to Jan-2015
		L&T, Check	7041818	0.2%	30-Sep-2008	30-Sep-2009	20-Nov-2010	19-Nov-2012	22-Jan-2015	21-Jan-2017		
K-69	NA	L&T, Main	7341551	0.2%	30-Sep-2008	30-Sep-2009	18-Jun-2010	17-Jun-2012	15-Jan-2015	14-Jan-2017	18-Jun-2012 to 14-Jan-2015	Jun-2012 to Jan-2015
		L&T, Check	7341558	0.2%	30-Sep-2008	30-Sep-2009	18-Jun-2010	17-Jun-2012	15-Jan-2015	14-Jan-2017		
K-70	NA	L&T, Main	7341559	0.2%	30-Sep-2008	30-Sep-2009	18-Jun-2010	17-Jun-2012	18-Jan-2015	17-Jan-2017	18-Jun-2012 to 17-Jan-2015	Jun-2012 to Jan-2015
		L&T, Check	7341560	0.2%	30-Sep-2008	30-Sep-2009	18-Jun-2010	17-Jun-2012	18-Jan-2015	17-Jan-2017		
K-71	NA	L&T, Main	7341571	0.2%	30-Sep-2008	30-Sep-2009	19-Jun-2010	18-Jun-2012	19-Jan-2015	18-Jan-2017	19-Jun-2012 to	Jun-2012

		L&T, Check	7341577	0.2%	30-Sep-2008	30-Sep-2009	19-Jun-2010	18-Jun-2012	19-Jan-2015	18-Jan-2017	18-Jan-2015	to Jan-2015