



**Verified Carbon  
Standard**

# 13.95 MW GRID CONNECTED WIND ELECTRICITY GENERATION BY SRF LIMITED



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Certification)

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### Summary:

**Verification purpose:** SRF Limited has commissioned the LGAI Technological Center, S.A. (Applus+ Certification) to carry out the 1<sup>st</sup> verification of the project “13.95 MW grid connected wind electricity generation by SRF Limited” (VCS ID 821) for the monitoring period 16-March-2012 to 28-February-2018 (Inclusive of both days). The project activity comprises of 6 numbers of 1.5 MW, S82 type of WTGs of Suzlon make and 3 numbers of 1.65 MW, V82 type of WTGs of Vestas make located in in Radha Puram and V K Pudur taluk respectively, in Tirunelveli District of Tamil Nadu state, India. The electricity generated from the PA is supplied to Indian grid being used for captive consumption at its technical textile business (plant) through Wind Energy wheeling Agreement/14/ with the Tamil Nadu State Electricity Board (TNEB) for all WTGs.

The project activity has been commissioned on dated 27-March-2008 and continuous operational since commissioning. The project activity is a greenfield project and involves installation of windmills for the generation of electricity. The electricity generated by the project activity is supplied to Southern regional grid (now synchronized to the Indian National grid). Thus, the project has contributed to reduction of GHG emissions by displacing fossil fuel dominated grid-based electricity with renewable energy – Wind energy based renewable electricity.

Start date of the project activity is 27-March-2008. This is the day on which the first WTG of project activity was commissioned and started emission reductions. An undertaking <sup>/16/</sup> has been submitted by PP for double counting confirming that no GHG reduction will be claimed in any other GHG mechanism for current monitoring period. Project activity undergoes continued operation and no major breakdown had taken place during current monitoring period.

The current monitoring period covered the period from 16-March-2012 to 28-February-2018 (inclusive both days), under the crediting period of 27-March-2008 to 26-March -2018. During the current verification period, the project activity has supplied 166,533 MWh of electricity, and thus contributing to the GHG reductions 154,757 tCO<sub>2</sub>e.

A risk-based approach has been followed to perform this verification activity. In the course of verification, 06 Corrective Action requests (CAR), 01 Clarification Requests (CLs) and 00 Forward action requests (FARs) were raised and successfully closed. 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 VVB with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred to as Applus+ Certification) has been appointed by 'SRF Limited' to perform the verification of the "13.95 MW grid connected wind electricity generation by SRF Limited" under VCS standard 4.3 and VCS Program guide 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 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, monitoring plan is assessed against the applied methodologies "AMS I.D. "Grid connected renewable electricity generation", Version 13. The project's 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 program guide 4.2 and standard, version 4.3

- CDM Validation and Verification Standard for project activities, version 03.0/9/
- CDM Project Standard for project activities, version 03.0/9/
- VCS standard version 4.3/8/
- VCS program guide version 4.2/8/

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 carbon units (VCUs).

The scope of the verification is the independent and objective review of the monitoring report (MR). 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 the project activities, version 03.0, review against registered VCS approved PD and CDM registered PDD and Final Validation report, CDM Project Standard for project activities, version 03.0 and VCS program guide, version 4.2 and standard version 4.3.

The VVB 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 onsite audit or document verifications. The entire documents checked to arrive at positive verification conclusions.

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# 1 INTRODUCTION

## 1.1 Objective

LGAI Technological Center S.A. (Hereinafter referred as Applus+ Certification) has been appointed by SRF Limited to perform the verification of the project entitled “13.95 MW grid connected wind electricity generation by SRF Limited” under VCS standard version 4.3 and program guide version 4.2/8/. 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 and monitoring plan is assessed against applied methodologies –

- AMS I.D. (Version 13) “Consolidated methodology for grid-connected electricity generation from renewable sources”/10/
- The project’s 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 program guide, version 4.2 and standard version 4.3/8/.
- CDM Validation and Verification Standard for project activities, version 03.0/9/
- CDM Project Standard for project activities, version 03.0/9/

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 estimated verified carbon units (VCUs).

## 1.2 Scope and Criteria

The scope is defined as an independent and objective review of the Monitoring report (MR) prepared as per the registered VCS approved PD and CDM registered PDD /7/ and registered approved methodologies AMS I.D. (Version 13)/10/. 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 4.3/8/ and VCS Program guide version 4.2, including the approved baseline and monitoring methodologies applied. The verification was based on the requirements in the CDM validation and verification standard for project activities, Version 03.0/9/, CDM Project Standard for project activities, version 03.0 /9/ and VCS program guide, version 4.2/8/ and standard version 4.3/8/.

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. There are no material errors, overestimation of ER, omission or misstatement. The verification team has reviewed all the documents like commissioning certificate, Energy generation records, fuel records etc.

### 1.3 Level of Assurance

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. The entire documents checked/ onsite audit verification conducted to arrive at positive verification conclusions.

### 1.4 Summary Description of the Project

The total installed capacity of the project the project activity is 13.95 MW, which involves operation of 6 numbers of 1.5 MW, S82 type of WTGs of Suzlon make and 3 numbers of 1.65 MW, V82 type of WTGs of Vestas make and located at Navaneethakrishnapuram, Melakalangal and Thiruvambalapuram villages of Tirunelveli district of Tamil Nadu state of India. The electricity generated from the PA is used for captive consumption by PP at its textile plant. The project is promoted by SRF Limited. The project is registered with VCS with Project ID 821. The project activity was commissioned on dated 27-March-2008.

The technology employed, converts wind energy to electrical energy. In wind power generation, energy of wind is converted into mechanical energy and subsequently into electrical energy. Wind power generation technology is environment friendly technology since there are no GHG emissions associated with the electricity generation. The project activity helps in contributing to the sustainable development by using wind energy as the source of power generation and reduction of GHG Emissions.

The commissioning details of the WTGs were verified from the Commissioning certificates /01/ provided by the PP. The WTGs used in this project are of Suzlon and Vestas make at Tamil Nadu state of India. Technical description was found to be consistent with the on-site observation and registered CDM PDD and VCS PD/7/.

During the Current Monitoring Period from 16-March-2012 to 28-February-2018 (First and last date included) the project activity has supplied 166,533 MWh of electricity, and thus contributing to the GHG reductions of 154,757 tCO<sub>2</sub>e.

## 2 VERIFICATION PROCESS

### 2.1 Method and Criteria

**Verification Process:** The project assessment is based on the Clean Development Mechanism Validation and Verification Standard for project activities, version 03.0 and VCS standard 4.3 and VCS program guide, version 4.2/08/ 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:

- A desk review of the monitoring Report against the registered VCS PD and CDM-PDD/7/;
- Site visit & Follow-up interviews with project participant;
- 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. LGAI Technological Center, S.A. (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 verifying the identified criteria.

#### **Appointment of the assessment team**

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

The composition of audit team shall be approved by the LGAI Technological Center S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

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

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

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

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Jitendra Mohan Singh	LA/TE	YES	YES	NA	YES
Denny Xue	TR	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

### Document review

The Monitoring Report (version 01)/5/ submitted by the PP was reviewed against the approved methodology, registered CDM-PDD and VCD PD/7/, 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. No sampling has been used as VVB has conducted site visit of all WTGs included in PA. **A complete list of all documents and evidence materials reviewed including documents used for cross check are included in Appendix I of this report. .**

### Follow-up interviews

Site visit was conducted by LGAI Technological Center S.A. (Applus+ Certification) who performed interviews with PP and stakeholders, documents reviewed at site, to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report in the below sections.

### 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 II.

The final MR (Version 03)/5/ on dated 01-November-2022 submitted by the project participant 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 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 final 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 project owners, the positive verification opinion and relevant documents are submitted to the VCS secretariat through the VCS web-platform.

## 2.2 Document Review

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

## 2.3 Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Kumar	Mr. Ravi	Site In charge, Tamil Nadu Site (SRF Limited)	30- August -2022	Project Implementation, JMR & invoicing procedure, grievance mechanism Management practices, data storage, QA/QC	Jitendra Mohan Singh
2.	Aggarwal	Mr. Vashudev	PP representative (SRF Limited)			
3.	Mohan	Mr. Sajeesh	Security (Plant) (SRF Limited)			
4.	Venugopal	Mr. B.	Local stakeholder		Local stakeholder consultation	
5.	-	Mr. Srinivas. R	Local Stakeholder			
6.	Agrawal	Ms. Neerja	EKI Energy Services Limited		GHG calculations, MR and ER preparation	

## 2.4 Site Inspections

Duration of Site visit: 30-August-2022			
Activity performed on-site	Site location	Date	Team member
<p>Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring.</p> <p>Assessment Team has visited all locations of WTGs checked that whether the monitoring plan as described in the VCS PD/ CDM PDD is actually practised onsite. Also, assessment team checked any change in host country criteria which may affect the baseline of the project activity.</p>	Taluk: V K Pudur, Radha Puram, District-Tirunelveli, Tamil Nadu, India	30-August-2022	Mr. Jitendra Mohan Singh

## 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 which need to be clarified for LGAI Technological Center S.A. (Applus+ Certification)'s positive conclusion on the project design and Monitoring report. The Corrective Action Requests and Clarification Requests raised by LGAI Technological Center S.A. (Applus+ Certification) were resolved during communications between the Client and LGAI Technological Center S.A. (Applus+ Certification) to guarantee the transparency of the validation process, the concerns raised and responses given are summarized below in the Appendix II.

The final MR Version 03 on dated on 01-November-2022 submitted by project participant 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 VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	00	00
Description of project activity	00	01	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 verification findings	No. of CL	No. of CAR	No. of FAR
Demonstration of additionality	00	00	00
Emission reductions	00	02	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 - - Regarding double counting Declaration	01	01	00
<b>Total</b>	<b>01</b>	<b>06</b>	<b>00</b>

The process for the findings raised by the verification team and their resolution (corrective actions and clarifications or other findings) during the verification is presented in Appendix II of this report.

### 2.5.1 Forward Action Requests

This first 1<sup>st</sup> verification of the project activity and no FAR has been raised during this verification process.

## 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 activity has been registered under the VCS (Project ID 821<sup>1</sup>) with crediting period from 27-March-2008 to 26-March -2018.

The project activity is also registered under CDM (UNFCCC Ref. No. 2365)<sup>2</sup> with fixed crediting period from 09-April-2009 to 08-April-2019. PP has claimed CERs under CDM for the MP from 09-April-2009 to 15-March-2010, from 16-March-2010 to 15-February-2011 and 16-February-2011 to 15-March-2012. The project activity has been registered under VERRA with VCS ID:821 (<https://registry.verra.org/app/projectDetail/VCS/821>).

<sup>1</sup> <https://registry.verra.org/app/projectDetail/VCS/821>

<sup>2</sup> CDM: 13.95 MW grid connected wind electricity generation by SRF Limited ([unfccc.int](http://unfccc.int))

As per the MR and undertaking provided, PP would not consider the credit from any other mechanism for the current monitoring period. The undertaking is /14/ provided to confirm that there is no any double accounting for current monitoring period. Further, assessment team confirms that the project activity is not participating in any other form of environmental credits. Also, the project activity is not registered for REC benefits. The same was verified by checking the REC website<sup>3</sup>.

### 3.2 Methodology Deviations

The project activity has applied correct methodology which are as per the registered VCS PD & CDM PDD. Verification team confirmed that there is no request for methodology deviation applied neither during this monitoring period nor during previous monitoring periods.

### 3.3 Project Description Deviations

PP has sought following deviations during current verification period.

Deviation 1: As per registered CDM-PDD which has been referred by VCS PD, the source of the net electricity supplied to the grid is Joint meter readings (JMRs). However, the JMR readings for the months of March 2014 and September 2015 are not available with the project proponent. Due to this, PP has sought the deviation for source of data. PP has taken the data for the month of March 2014 and September 2015 from Monthly Allocation Statement issued by the Tamil Nadu Generation and Distribution Corporation Ltd.(TANGEDCO). VVB confirms through review of document «Monthly Allocation Statement» for other months and found that data's are same as mentioned in JMRs and also, PP has used same document for cross check of data which was found consistent with the JMRs. Thus, deviation sought by the PP is acceptable to VVB.

Deviation 2: The JMR billing cycle and monitoring period (16-March-2012 to 28-February-2018) does not match, the apportioning approach has been followed for first month and last month of the monitoring period with a conservative approach. For apportioning purpose, controller meter data has been used to get the net electricity. The controller meter is microprocessor based, self-calibrated meter and does not require any calibrations, thus use of controller meter data for apportioning of export is justified.

The JMR billing cycle for all the WTGs is from 15-March-2012 to 15-April-2012 for the first month and 05-February-2018 to 05-March-2018 for the last month of the monitoring period. The export and import are monitored by the energy meters as per the billing cycle. The JMR export data is directly proportional to the controller meter reading (DGR), thus, the PP has apportioned the JMR

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<sup>3</sup> <https://www.recregistryindia.nic.in/>

export value for the first month and the last month of the monitoring period. As a conservative approach, PP has considered complete month import value for emission reduction calculations

**Deviation 3:**

In line with the Central Electricity Regulation (CEA) dated 26/11/2014<sup>4</sup>, the project proponent was requested by TNEB to change all the meters to ABT meters, PT & CT with high accuracy class & with a modem connectivity. Accordingly, the new ABT meters were installed for all the 9 WTGs involved in the project in January 2015 with below details:

HTSC No.	Installed on	Energy Meter Make	Meter Serial No.	Accuracy Class
2550	09-January-2015	Secure (Premier 300)	TNW00246	0.2
2583	09-January-2015	Secure (Premier 300)	TNW00248	0.2
2622	09-January-2015	Secure (Premier 300)	TNW00247	0.2
2538	09-January-2015	Secure (Premier 300)	TNW00169	0.2
2536	09-January-2015	Secure (Premier 300)	TNW00162	0.2
2537	11-January-2015	Secure (Premier 300)	TNW00159	0.2
2551	11-January-2015	Secure (Premier 300)	TNW00153	0.2
2633	09-January-2015	Secure (Premier 300)	TNW00149	0.2
2626	09-January-2015	Secure (Premier 300)	TNW00160	0.2

Verification team has checked the meters change reports cum initial test certificates of the ABT meters and found correct. Further, the state electricity board has not installed the check meter. Since, this is not under control of PP, thus acceptable to VVB. Further, new meter installed are not found any defect during the current meter, hence deviation sought by PP is acceptable.

VVB confirms that deviations sought by the PP does not affect the project design, methodology and additionality. Hence, accepted by VVB.

### 3.4 Grouped Project

The project does not involve any addition of new project activity and thus the project do not fall under grouped project.

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<sup>4</sup> [https://cea.nic.in/wp-content/uploads/2020/02/amend\\_15122014.pdf](https://cea.nic.in/wp-content/uploads/2020/02/amend_15122014.pdf)

# 4 VERIFICATION FINDINGS

## 4.1 Project Implementation Status

The project activity, “13.95 MW grid connected wind electricity generation by SRF Limited”, is registered as a VCS project (VCS Ref No. 821) applying the methodology AMS I.D. (Version 13)/10/. The WTGs of the project activity are owned by the Project Proponent, i.e., SRF Limited, which was verified from Commissioning certificate from the commissioning certificate/1/ and Wheeling agreement /12/ for the project activity.

The total installed capacity of the project activity is 13.95 MW, which involves operation of 6 numbers of 1.5 MW, S82 type of WTGs of Suzlon make and 3 numbers of 1.65 MW, V82 type of WTGs of Vestas make and located at Navaneethakrishnapuram, Melakalanga and Thiruvambalapuram villages of Tirunelveli district of Tamil Nadu state of India. Project location is confirmed by the assessment team during the site visit. Assessment team also checked with the GPS meter regarding the latitude and longitude of the project site and confirm that the details as mentioned in the registered CDM PDD are correct. The detail is as below:

S.No.	HTSC No.	Location	Capacity(in MW)	Date of Commissioning	Location	Latitude (N)	Longitude (E)
1	2550	Site 2/3	1.65	29-March-2008	Village - Navaneethakrishnapuram, Taluk - V K Pudur, District - Tirunelveli in Tamil Nadu	9° 00' 57.9"	77° 28' 49.8"
2	2583	Site 12	1.65	31-March-2008	Village - Navaneethakrishnapuram, Taluk - V K Pudur, District - Tirunelveli in Tamil Nadu	9° 01' 07.9"	77° 29' 07.5"
3	2622	Site 69/70	1.65	30-April-2008	Village - Melakalanga, Taluk - V K Pudur, District - Tirunelveli in Tamil Nadu	9° 01' 45.2"	77° 28' 46.1'
4	2536	R231	1.5	27-March-2008	Village - Thiruvambalapuram, Taluk - Radhapuram, District - Tirunelveli in Tamil Nadu	8° 15' 26.5"	77° 45' 58.5"
5	2537	R404	1.5	27-March-2008	Village Thiruvambalapuram, Tal	8° 15' 32.8"	77° 48' 14.1"

					uk – Radhapuram, District - Tirunelveli in Tamil Nadu		
6	2551	R352	1.5	29-March-2008	Village – Thiruvambalapuram, Taluk – Radhapuram, District - Tirunelveli in Tamil Nadu	8° 15' 58.4"	77° 47'43.9"
7	2626	R308	1.5	17-May-2008	Village – Thiruvambalapuram, Taluk – Radhapuram, District - Tirunelveli in Tamil Nadu	8° 13' 45.6"	77° 46'46.4"
8	2633	R325	1.5	03-June2008	Village – Thiruvambalapuram, Taluk – Radhapuram, District - Tirunelveli in Tamil Nadu	8° 14' 55.1"	77° 47'11.7"
9	2538	R367	1.5	27-March-2008	Village – Thiruvambalapuram, Taluk – Radhapuram, District - Tirunelveli in Tamil Nadu	8° 14' 15.9"	77° 46'25.2"

The start date of the project is 27-March-2008. This is the date on which project started emission reduction which is in line with VCS Standard version 4.3. Assessment team checked the Commissioning certificates /**Error! No se encuentra el origen de la referencia.**/ and confirmed that the dates of Commissioning for each WTG are correct.

The project activity fulfilled the contribution of sustainable development to the host country by implementing environmentally friendly technology and creating employment opportunities to the local community. Same is confirmed during site visit.

The technical parameters have been verified with the nameplates as well as the technical specifications of WTGs.

Project location is confirmed by the assessment team during the site visit. Assessment team also checked with the GPS meter regarding the latitude and longitude of the project site and confirm that the details as mentioned in the registered VCS PD and CDM PDD/7/ are correct. The detail is as below:

The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period except to the changes in contact details of PPs. Moreover, PP has sought deviations and the same has been assessed in Section 3.3 of this report. The technical details were checked by the verification team with technical specification of /11/ and found consistent. The specification of wind project as below:

WTG Parameters	Values
Rotor Diameter	82 m
Hub height	78.5 m

Power Regulation	Independent electromechanical pitch system foreach blade
Rated Voltage	3 Phase 690 V AC
Cut in wind speed	4 m/s
Cut out wind speed	20 m/s
Rated wind speed	14 m/s
Survival wind speed	52.5 m/s
Frequency variation	50 Hz – 2.5 Hz to + 2 Hz
<b>Gear Box</b>	
Type model make	Type: On planetary stage / Two helical stagesMake: Winergy (Flender)
Gear ratio	1: 95.09
No. of steps	3 stages
<b>Generator</b>	
Type of Generator	Asynchronous type single speed induction generator with slip rings, variable rotor resistance
Rated Power output	1500 kW
Type	Single
Voltage	3 phase 690 V AC +/- 15%
No. of poles / RPM	4 / 1511 rpm (at rated power and short-circuitedrotor)
<b>Tower</b>	
Height	76 m
Type	Tubular tower made of welded steel plates
<b>Yawing system</b>	
Yaw bearing type	Slide bearing with gear ring and automatic greasingsystem
Yaw motor & gear type	Active electric yaw drive having electric motorwith brake, gearbox and pinion.
<b>Brake System</b>	
Aerodynamic	3 independent systems with blade pitching mechanism
Mechanical	Hydraulic disc brake, activated by hydraulic pressure + mechanical rotor lock, activated by hydraulic pressure
<b>Rotor</b>	
No of Blades	3
Rotor diameter	82 m
Swept Area	5281 m <sup>2</sup>
<b>Transformer</b>	
Transformer Rating	1750 kVA, 50 Hz

## Technical specification of Vestas V-82

WTG Parameters	Values
Rotor Diameter	82 m
Hub height	78.5 m
Power Regulation	Active Stall
Cut in wind speed	3.5 m/s
Cut out wind speed	20 m/s
Rated wind speed	13 m/s
<b>Gear Box</b>	
Type model make	Planetary / Helical stages
<b>Generator</b>	

Type of Generator	Asynchronous water cooled
Rated Power output	1650 kW
Type	Single
Operational Data	50/60 Hz 690/600 V
<b>Control</b>	
Type	Microprocessor-based monitoring of all turbine functions with the option of remote monitoring. Output regulation and optimization via Active- Stall®
<b>Weight</b>	
Nacelle	52 t
Rotor	43 t
<b>Rotor</b>	
Diameter	82 m
Area swept	5281 m <sup>2</sup>
Nominal Revolutions	14.4 rpm
No of Blades	3
Power regulation	Active stall
Air Brake	Full blade pitch by three separate hydraulic pitch cylinders.

The assessment team confirmed through interview with O & M personnel during site visit that there are no changes into the project design during this monitoring period. It was found that the monitoring plan was implemented as per the requirement of the VCS approved PD/CDM registered PDD /7/ & approved methodology AMS I.D. (Version 13) applied in project activity. The organisational role and responsibility as mentioned in the registered VCS approved PD and CDM registered PDD /7/ is followed onsite. There is meter change during current monitoring period refer appendix 5 regarding same. All the emergency preparedness as mentioned in the registered VCS approved PD and CDM registered PDD /7/ is followed onsite and no discrepancies were found regarding the same.

The Project participant contribution from the project activity towards sustainable development in accordance to host country: The project implementation has led in contribution to SDG 07, SDG 08 and SDG 13. The same has been described in Section 1.11 of MR. The project supplies clean, affordable and renewable energy (166,533 MWh net electricity under the monitoring period) without reliance on fossil fuels for generation of electricity for captive use. The generated electricity avoided release of 154,757 tCO<sub>2</sub> in to the atmosphere. The project has created job opportunities through operation and maintenance (O & M) work for WTGs and has employed total 09 nos.

It was also observed during verification process that project is not rejected by any other GHG program around the world. Declaration dated 30-September-2022 /14/ in that effect is provided by PP.

The project is not involved in other form of GHG emission trading program except CDM mechanism. VVB confirms through review of project activity web page under CDM<sup>5</sup> and confirms that PP has not claimed CERs under CDM. VCU's generated from this verification will not be used for other trading program to avoid any kind of double counting. Assessment team also conducted independent review

regarding the same and found that the statement of the PP is accurate and project is not involved in any other kind of GHG trading for the present verifications/monitoring period.

VVB team hereby also confirms from the declaration /14/ made by PP the projects are not registered under the any other scheme except CDM (UN Ref. No.2365<sup>6</sup>). Other environmental or GHG credits (i.e., GS4GG, GCC etc.) & REC mechanism of India and the same is cross-checked at <https://recregistryindia.nic.in>.

The assessment team observed that the project is in line with the approved methodology AMS I.D. (Version 13) applied in project activity registered and applied methodologies and thus no clarification/deviation is sought.

Finding: CAR 01 & CAR 02 were raised and successfully closed. Please refer Appendix ii for more information.

## 4.2 Safeguards

### 4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the verification of the project activity during the site visit and review of grievance register /18/. The project is renewable energy project and thus no negative impact observed.

Further, 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 <sup>7</sup> clearly mentioned that Solar/Wind based 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<sup>8</sup> solar/wind project falls under White category and are non-polluting.

However, assessment team still conducted the No net harm assessment for some of the parameters and the result is described below:

Sr. No.	Indicator	Assessment team opinion
1	Air quality	The project generates clean energy which replaces the fossil fuel intensive electricity generation.

<sup>6</sup> <https://cdm.unfccc.int/Projects/DB/SGS-UKL1231860367.09/view>

<sup>7</sup> <https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf>

<sup>8</sup> [http://envfor.nic.in/sites/default/files/Latest\\_118\\_Final\\_Directions.pdf](http://envfor.nic.in/sites/default/files/Latest_118_Final_Directions.pdf)

Sr. No.	Indicator	Assessment team opinion
		<p>Also report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013 clearly mentioned that wind plant operations do not result in direct air pollution.</p> <p>Therefore, it is validated that mitigation measures were robustly implemented on ground for air quality issues project will have a positive impact on air quality.</p>
2	Soil condition	<p>There are negligible impacts envisaged during operation of the project activity being Wind/Solar power-based power project. For mitigating the impacts during construction, various mitigation measures were taken which is validated from the plant records of PP and the interview with local villagers.</p> <p>It was also confirmed that, the vegetation planted at project site helps to reduce soil erosion. The same is confirmed during the discussion with stakeholders.</p> <p>Therefore, it can be concluded that the project has no effect on soil conditions during its operation because it has no waste coming out.</p>
3	Biodiversity	<p>During the onsite audit, it was observed that the condition of ground vegetation is good and no rare species is found in the around area.</p> <p>The project site is not on the migration route of migratory bird nor is the project affecting aquatic life.</p> <p>With the implementation of Project, the green cover has increased at the Project site; the biodiversity in the vicinity will be improved with the vegetation improvement.</p>
4	Employment Generation	<p>The project activity employed local population as skilled workers as well as security guards. The personnel employed by the project activity are also provided trainings and exposed to various awareness programs therefore a positive indicator has been accepted.</p>
5	Livelihood of the poor	<p>The project is associated with infrastructure development like roads in the nearby areas and promoting economic activities like grants to local school and communities’ temples etc. Also, project employed local villagers as guards for the security of power project.</p>

#### 4.2.2 Local Stakeholder Consultation

Project participant has kept a grievance register /18/ at project site & sought comments/grievances/suggestions from ongoing communication with local stakeholders including

local community, government agencies and NGOs which is accessible to stakeholders to provide their feedback on the project as a part of ongoing communication with stakeholders in line with requirement of clause 3.16.17 of VCS Standard, ver. 4.3. However, no comments/grievances/suggestions have been received from the aforementioned stakeholders during the current monitoring period. Project participant has also submitted the copy of grievance register and the same has been checked by the verification team and confirms that during the current monitoring period, no any grievances received. Verification team confirmed the same during the onsite and document review. VVB further confirms that there are no changes in project design. CL 01 and CAR 02 were raised during the verification process and closed successfully. Please refer Appendix II of this report for the detail closure of the CL and CAR.

### 4.3 AFOLU-Specific Safeguards

Not applicable

### 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 MR. 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 CDM PDD/7/
Findings	CAR 04 and CAR 05 were raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	<p>As per the registered CDM PDD and applied methodology, Formula used to calculate achieved emission reduction is as follow;</p> $ER_y = BE_y - PE_y - L_y$ <p>Where,</p> <p>BE<sub>y</sub> : Baseline Emissions in year y (t CO<sub>2</sub>e/yr)</p> <p>PE<sub>y</sub> : Project Emissions in year y (t CO<sub>2</sub>e/yr.)</p> <p>L<sub>y</sub> : Leakage Emissions in year y (t CO<sub>2</sub>e/yr)</p> <p>Baseline emission: The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the grid emission factor of the grid.</p> <p>Formula Used: -</p> $BE_y = EG_y \times EF_y$ <p>Where;</p> <p>Where:</p> <p>BE<sub>y</sub> = Baseline emissions in year y (tCO<sub>2</sub>)</p> <p>EG<sub>y</sub> : Electricity generation by the project activity (MWh/year)</p>

	<p><math>EF_{y}</math> = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year <math>y</math> (MWh/yr)</p> <p><b>Ex-ante fixed parameters:</b></p> <p>The baseline emission factors are sourced from the registered VCS PD. Combined margin CO<sub>2</sub> emission factor (<math>EF_{grid,CM,y}</math>) is 0.92931 tCO<sub>2</sub>/MWh. The calculation approach was in line with the registered VCS PD.</p> <p>Values of ex-ante parameters are as follows:</p> <p><math>EF_{OM,y}</math> = Calculated as per “Tool to calculate the emission factor for an electricity system, version 01.1 as 3-year generation weighted average using data for the years 2007-05, 2005-06 &amp; 2006-07. The data are obtained from “CO<sub>2</sub> Baseline Database for Indian Power Sector” version 3, published by the Central Electricity Authority, Ministry of Power, Government of India.</p> <p>The value 1.00393 is used for the calculation of the Baseline Emission and is found to be consistent with the VCS PD and registered CDM PDD/7/.</p> <p><math>EF_{BM,y}</math> = The Build Margin emission factor is sourced from Central Electricity Authority: CO<sub>2</sub> Emission Database CEA CO<sub>2</sub> Baseline database Version 3.0, with latest date available for the most recent year i.e. 2006-07 published by the Central Electricity Authority, Ministry of Power, Government of India. which is based on “Tool to calculate emission factor for an electricity system, version 01.1”</p> <p>The value 0.70545 tCO<sub>2</sub>/MWh is used for the calculation of the Baseline Emission and is found to be consistent with the registered CDM PDD /7/.</p> <p>The combined margin emissions factor is calculated as follows:</p> $EF_y = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ <p>Where:</p> <p><math>EF_{grid,BM,y}</math> = Build margin CO<sub>2</sub> emission factor in year <math>y</math> (tCO<sub>2</sub>/MWh)</p> <p><math>EF_{grid,OM,y}</math> = Operating margin CO<sub>2</sub> emission factor in year <math>y</math> (tCO<sub>2</sub>/MWh)</p> <p><math>W_{OM}</math> = Weighting of operating margin emissions factor (0.75)</p> <p><math>W_{BM}</math> = Weighting of build margin emissions factor (0.25)</p> <p>After calculation, the Combined Emission factor is obtained as 0.92931 tCO<sub>2</sub>/MWh (Sourced from the registered CDM PDD/7/, Annex 3) is used for the calculation of the Baseline Emission and is found to be consistent with the registered VCS PD and CDM PDD/7/.</p> <p><b>Monitored Parameters:</b> As per VCS PD and registered CDM PDD/7/, the following monitoring parameter is monitored</p> <p><math>EG_y</math> = Net electricity supplied to the grid by the Project.</p> <p>This parameter is monitored continuous and recorded monthly in electricity generation statement (JMR) records/3/ measured through two-way export meter installed at substation by Tamil Nadu State Electricity Board (TNEB).</p> <p>The net electricity supplied is then calculated as a difference of the electricity exported and electricity imported. The energy meters (main and check meter) are of accuracy class 0.5s Main Meter and Check meter located at substations prior</p>
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to January 2015. All meters were replaced with pre-calibrated meters of accuracy class 0.2s in January 2015 in compliance with the regulation of Central Electricity Regulation (CEA) dated 26-November-2014<sup>9</sup> and check meters are not installed by TNEB as this is not under control of PP. The meters used for monitoring during the current monitoring period are as follows:

Meter used prior to January 2015

Energy Meters	HTSC No.	Meter Serial No.	Accuracy Class	Make
Main	2550	208320404	0.5	Wallaby
Check		208320405	0.5	Wallaby
Main	2583	208320406	0.5	Wallaby
Check		208320407	0.5	Wallaby
Main	2622	208320408	0.5	Wallaby
Check		208320409	0.5	Wallaby
Main	2536	208320410	0.5	Wallaby
Check		208320411	0.5	Wallaby
Main	2537	208320412	0.5	Wallaby
Check		208320414	0.5	Wallaby
Main	2551	208320415	0.5	Wallaby
Check		208320416	0.5	Wallaby
Main	2626	208320419	0.5	Wallaby
Check		208320420	0.5	Wallaby
Main	2633	208320302	0.5	Wallaby
Check		208320614	0.5	Wallaby
Main	2538	208320417	0.5	Wallaby
Check		208320418	0.5	Wallaby

New meters installed in January 2015

Main Meter Serial No.	HTSC No.	Accuracy Class	Energy Meter Make
TNW00246	2550	0.2	Secure (Premier 300)
TNW00248	2583	0.2	Secure Premier 300)
TNW00247	2622	0.2	Secure (Premier 300)
TNW00169	2538	0.2	Secure (Premier 300)
TNW00162	2536	0.2	Secure (Premier 300)
TNW00159	2537	0.2	Secure (Premier 300)
TNW00153	2551	0.2	Secure (Premier 300)
TNW00149	2633	0.2	Secure (Premier 300)
TNW00160	2626	0.2	Secure (Premier 300)

As per requirement of Central Electricity Regulation (CEA) dated 26-November-2014, PP was requested by TNEB to change all the meters to ABT meters, PT & CT with high accuracy class & with a modem connectivity. Accordingly, the new pre-calibrated ABT meters were installed for all the 9 WTGs involved in the project in January 2015 by the TNEB. The same has been checked with the meter change report submitted by the PP to VVB. The meter is jointly inspected and sealed on behalf of the parties and is not interfered with by either party except in the presence of the other party or its accredited representatives. Also, no check

<sup>9</sup> [https://cea.nic.in/wp-content/uploads/2020/02/amend\\_15122014.pdf](https://cea.nic.in/wp-content/uploads/2020/02/amend_15122014.pdf)

meters were installed by Tamil Nadu State Electricity Board during the replacement of old meters which not under control of PP. The calibration details of meters are provided in Appendix VI of this report.

The WTGs wise details of electricity meter are as follows. In Monthly electricity generation statement (JMR)/3/, net electricity exported by the project activity to the grid is reported which calculated from export and import readings. The verification team has checked monthly JMRs/3/ and confirms that during the current monitoring period, PA has exported 166,533 MWh of net electricity to the grid as reported in emission reductions sheet/06/. verification team has cross checked the net electricity exported to grid with consolidated statement of generation issued by the TNEB. Moreover, there is no crosscheck process mentioned in registered monitoring plan. Also, being a captive power plant, no invoice has been raised. However, VVB has cross checked the net electricity export to grid with as per monthly allocation statements issued by the Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO)/4/. Also, monthly JMRs issued by the state utility, hence the same is considered as authentic and reliable. Further, there were gaps in calibration of meters related to WTGs ID IDs (2550, 2583, 2622, 2538 2536 ,2633 from 09-January-2016 to 28-February-2018. Also, calibration gaps identified with the meter related to WTG IDs 2537 & 2583 from 10-January-2016 to 28-February-2018. The observed error in next calibration found in within permissible error. Hence, PP has applied maximum permissible error of 0.2% complete month of delayed period in export and import to calculate the net electricity exported to grid as per requirement of paragraph 366(a) of VVS, version 03.0 as a conservative approached and thus acceptable to DOE.

The calculation of baseline emissions is as below,

$$BE_y = EG_y \times EF_y$$

$$BE_y = 166,533 \text{ MWh} \times 0.92931 \text{ tCO}_2 / \text{MWh}$$

$$BE_y = 154,757 \text{ tCO}_2\text{e (round down)}$$

Thus, Emission Reductions are:

The emission reductions ( $ER_y$ ) by the Project activity during a given year  $y$  is the difference between baseline emissions ( $BE_y$ ), project activity emissions ( $PE_y$ ) and leakage, as follows

$$ER_y = BE_y - PE_y - LE_y$$

Where,

$PE_y$  = Emissions from the project activity

As per applied methodology AMS-I.D, version 13 emissions from the project activity is zero. Hence,  $PE_y = 0$

Therefore,

$$\begin{aligned} ER_y &= 154,757 \text{ tCO}_2 - 0 - 0 \\ &= 154,757 \text{ tCO}_2\text{e} \end{aligned}$$

Verification team confirmed that the GHG emission reductions and removals have been quantified correctly in line with the CDM-PDD referred in VCS PD/07/.

Verification team also confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered CDM PDD referred by VCS PD/07/.

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

Means of verification	<p>The verification team checked the shutdown/break down log for the monitoring period. During the verification of onsite audit, the energy meters are also checked. The Calibration details of the monitoring meters are also checked with calibration certificates.</p>
Findings	<p>CAR 06 was raised and successfully closed. Please refer Appendix 4 for more information.</p>
Conclusion	<p>The metering arrangement is tri-vector bi-directional energy meters (main and check) at the substation as well as at WTG yard. These meters record several parameters including electricity exported &amp; imported. The electricity meters located at the sub-station are being used by state electricity board (TNEB) for JMR. During commissioning of the WTGs monitoring meters of accuracy class i.e., 0.5s were installed. The meters are monitored continuously &amp; cumulative readings are taken at the end of the month by joint meter reading procedure.</p> <p>As per requirement of Central Electricity Regulation (CEA) dated 26-November-2014, PP was requested by TNEB to change all the meters to ABT meters, PT &amp; CT with high accuracy class &amp; with a modem connectivity. Accordingly, the new pre-calibrated ABT meters were installed for all the 9 WTGs involved in the project in January 2015 by the TNEB. The same has been checked with the meter change report submitted by the PP to VVB. The meter is jointly inspected and sealed on behalf of the parties and is not interfered with by either party except in the presence of the other party or its accredited representatives. The calibration details of meters are provided in Appendix VI of this report. Also, no check meters were installed by Tamil Nadu State Electricity Board during the replacement of old meters which not under control of PP.</p> <p>The calibration frequency of meters is annually. The calibration details of meters are provided in Appendix VI of this report. There were gaps in calibration of meters identified in meters calibration related to WTGs ID IDs (2550 ,2583, 2622, 2538 2536 ,2633 from 09-January-2016 to 28-February-2018. Also, calibration gaps identified with the meter related to WTG IDs 2537 &amp; 2583 from 10-January-2016 to 28-February 2018. The observed error in next calibration found in within permissible error. Hence, PP has applied maximum permissible error of 0.2% complete month of delayed period in export and import to calculate the net electricity exported to grid as per requirement of paragraph 366(a) of VVS, version 03.0 as a conservative approached.</p> <p>The calibration of meters is carried out by Tamil Nadu electricity board which is accredited agency byis a Govt Agency for testing of meters thus acceptable to the verification team.</p>

	<p>The break down log book /17/ is checked and breakdowns reported in Appendix 3 of MR during the current monitoring period and same have been verified with the plant logbook. No unforced error observed.</p> <p>No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the verification team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. Thus, verification team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals.</p> <p>The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the onsite visit.</p> <p>The shutdown / break down reports/17/are checked and found that the plant undergone scheduled maintenance and break down. Verification team checked the routine maintenance log book and confirmed that it does not have any impact on project design and monitoring procedures. No unforced error observed.</p> <p>Verification team confirmed that data/ information used for determining GHG reductions and removals were sufficient in quantity and of appropriate quality. Calibration certificates of meters/ QA/QC procedure checked and found to be appropriate.</p>
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#### 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	
1.	Not applicable	Not applicable	Not applicable	Not applicable

## 5 VERIFICATION CONCLUSION

Applus+ Certification has been engaged by SRF Limited to perform periodic verification of the “13.95 MW grid connected wind electricity generation by SRF Limited”.

The management of the project participant/owner is responsible for the preparation of the GHG emissions data and the reported/estimated GHG emissions reductions on the basis set out within the project’s Monitoring Plan in the registered CDM PDD referred by the VCS PD and the approved methodology applied in the project activity.

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 and VCS Standard version 4.3. 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. The verification 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
- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan
- 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 during the verification.
- No limitation observed for the present verification
- Project complies with the verification criteria for projects and their GHG emission reductions or removals set out in VCS program guideline version 4.2 and VCS Standard version 4.3.
- Project has been implemented in accordance with the project description and subsequently validated deviations

Verification period: From 16-March-2012 to 28-February-2018 (first and last date included).

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

Year	Baseline emissions or removals (tCO <sub>2e</sub> )	Project emissions or removals (tCO <sub>2e</sub> )	Leakage emissions (tCO <sub>2e</sub> )	Net GHG emission reductions or removals (tCO <sub>2e</sub> )
16-March-2012 to 31-December -2012	29,874	0	0	29,874
01-January-2013 to 31-December-2013	23,330	0	0	23,330

01-January-2014 to 31-December-2014	23,946	0	0	23,946
01-January-2015 to 31-December-2015	17,755	0	0	17,755
01-January-2016 to 31-December-2016	26,984	0	0	26,984
01-January-2017 to 31-December-2017	29,979	0	0	29,979
01-January-2018 to 28-February-2018	2,889	0	0	2,889
<b>Total</b>	<b>154,757</b>	<b>0</b>	<b>0</b>	<b>154,757</b>

The estimated emission reduction achieved from the project activity for the current monitoring period is 207,978 tCO<sub>2e</sub> (34,886 tCO<sub>2e</sub>/365 days x 2176 days), whereas actual emission reductions achieved are 154,757 tCO<sub>2e</sub>, which is 25.59% lower than estimated emission reductions which is due to natural phenomena and nature dependent. The variability in the environmental conditions is beyond the control of the project participant which is the main reason for the variation in emission reductions values. Further, reductions in emission is also due to break downs during the current monitoring period.

# APPENDIX I: DOCUMENT REVIEWED DURING VERIFICATION

No.	Author	Title	References to the document	Provider
1.	NA	Commissioning Certificates	Commissioning Certificates of Wind Power Plant.	Project participant
2.	Applus	Contract of the project participant with the DOE A+SH_SYST_TQC_CDM_VCS_VER_12522	Dated: 18-May-2022	Project participant
3.	State Utility	Electricity Generation statement (JMR) by Tamil Nadu Electricity Generation and Distribution Corporation Ltd	Electricity Generation Reports (Tamil Nadu)	Project participant
4.	PP	Monthly allocation statements issued by the Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO)	Invoices raised by PP for all WTGs	Project participant
5.	NA	Monitoring Report, (Initial Version)  Monitoring Report, (Final Version)	Version 01, dated 02-August-2022 Version 03 dated 01-November-2022	Project participant
6.	NA	Emission Reduction sheet (initial) Emission Reduction sheet (final)	Version 01, dated 02-August-2022(Initial) Version 03 dated 01-November-2022(Final)	Project participant
7.	NA	VCS approved PD  CDM registered PDD  Validation report	Version: 05 dated 27-March-2009  Version: 05 dated 27-March-2009  CDM.VAL 2127 dated 29-December-2008	UNFCCC / VERRA
8.	VERRA	VCS Standard VCS Programme guide	Version 4.3 Version 4.2	VERRA
9.	UNFCCC	CDM validation and verification standard for project activities, Version 03.0 CDM Project Standard for project activities, version 03.0	UNFCCC CDM web site	UNFCCC
10.	UNFCCC	AMS I.D.: Grid-connected electricity generation from renewable sources	Version 13	UNFCCC
11.	NA	Technical specifications of WTGs.	-	Project participant
12.	NA	Wheeling Agreement	Agreement signed with Tamil Nadu Electricity for all WTGs Ltd. Dated 29-March-2009	Project participant

No.	Author	Title	References to the document	Provider
13.	NA	Operation and Maintenance agreement	-	Project participant
14.	NA	Declaration of No Double Counting	30-September-2022	Project participant
15.	NA	Calibration certificates	Calibration Certificates of all Meters	Calibration certificates
16.	SEB	Meter change certificate	Meter Change Report issued by Tamil Nadu Electricity Generation and Distribution Corporation Ltd.	Project participant
17.	PP	Plant logbook/Break Down details of plant	Log book records onsite	Project participant
18.	PP	Grievance register	16-March-2012 to 28-February-2018	Project participant

# APPENDIX II: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION

**Table 1. Remaining FAR from validation and/or previous verifications**

<b>FAR ID</b>	-	<b>Section no.</b>	-	<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
No FAR was raised from Validation and previous verification.				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
NA				
<b>Documentation provided by project participant</b>				
NA				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY
NA				

**Table 2. CL from this verification**

<b>CL ID</b>	01	<b>Section no.</b>	4.2.2	<b>Date:</b> 22- September-2022
<b>Description of CL</b>				
VVB found that monitoring report has also been webhosted under CDM for the same monitoring period. PP is requested to clarify the same.				
<b>Project participant response</b>				<b>Date:</b> 06-October-2022
<p>The project is also registered under Clean Development Mechanism (CDM) at United Nations Framework Convention on Climate Change (UNFCCC), UNFCCC Ref no. 2365. The project proponent shall not claim any credit under CDM for the monitoring period, i.e., 16-March-2012 to 28-February-2018. A declaration to this regard is submitted to the assessment team.</p> <p>The monitoring report web hosted at UNFCCC web page for the monitoring period under consideration shall be withdrawn once the issuance request for the same monitoring period is submitted at VERRA.</p>				
<b>Documentation provided by project participant</b>				
1. Declaration for avoidance of double accounting of the emission reductions.				
<b>DOE assessment</b>				<b>Date :</b> 17-October-2022
<p>PP has submitted the declaration letter on dated 30-September-2022 to VVB team, for current monitoring period 16-March-2012 to 28-February-2018, project participant is not claiming any credit under CDM for reported monitoring period under VERRA.</p> <p>Hence <b>CL 01 is closed.</b></p>				

**Table 3. CAR from this verification**

<b>CAR ID</b>	01	<b>Section no.</b>	4.1	<b>Date:</b> 22- September-2022
<b>Description of CAR</b>				

<p>PP has mentioned commissioning date of project activity in section 1.1 of monitoring report, however to verify the same, supporting evidence is not submitted. VVB team. Kindly submit. PP requested to submit wheeling agreement document of all WTG. Corrective action sought.</p>	
<b>Project participant response</b>	<b>Date:</b> 06-October-2022
<ul style="list-style-type: none"> <li>Commissioning Certificates are submitted to the assessment team.</li> <li>Wheeling Agreements are submitted to the assessment team.</li> </ul>	
<b>Documentation provided by project participant</b>	<b>Date:</b> 06-October-2022
<ol style="list-style-type: none"> <li>Commissioning Certificates</li> <li>Wheeling Agreements</li> </ol>	
<b>DOE assessment</b>	<b>Date:</b> 17-October-2022
<p>PP has submitted following supporting to VVB team: -</p> <ol style="list-style-type: none"> <li>Commissioning for the all WTG issued by Tamil Nadu Electricity Board. Verification team has checked the commissioning dates of all WTGs contained in Section 1.1 and 3.1 of revised MR and found correct.</li> <li>Wheeling agreement signed with Tamil Nadu Electricity Board for all WTG on dated 29/03/2009. The electricity generated by the project activity is being used for captive consumption by the PP, and thus PP has entered wheeling agreement with Tamil Nadu Electricity Board (TNEB).</li> </ol> <p>Thus <b>CAR 01 is closed.</b></p>	

<b>CAR ID</b>	02	<b>Section no.</b>	4.1	<b>Date:</b> 22- September-2022
<b>Description of CAR</b>				
<p>PP requested to submit declaration regarding avoidance of double counting of emission reductions in the other GHG trading programmes and REC mechanism of India. Further, provide details of any GHG credits claimed under such programs.</p>				
<b>Project participant response</b>				<b>Date:</b> 06-October-2022
<p>Declaration regarding avoidance of double counting of emission reductions is submitted to the assessment team.</p> <p>The project is also registered under Clean Development Mechanism (CDM) at United Nations Framework Convention on Climate Change (UNFCCC), UNFCCC Ref no. 2365. The project proponent shall not claim any credit under CDM for the monitoring period, i.e., 16-March-2012 to 28-February-2018.</p>				
<b>Documentation provided by project participant</b>				
1. Declaration regarding avoidance of double counting of emission reductions				
<b>DOE assessment</b>				<b>Date:</b> 17-October-2022
<p>PP has submitted the declaration letter dated on 30-September-2022 for avoidance of double counting of emission reduction in any other GHG trading programmes and REC mechanism of India. Thus, acceptable to VVB team and <b>CAR 02 is closed.</b></p>				

<b>CAR ID</b>	03	<b>Section no.</b>	4.2	<b>Date:</b> 22- September-2022
<b>Description of CAR</b>				
<p>In Section 2.2, PP has mentioned about process of ongoing mechanism for communication with local stakeholder as per the requirement of Para 3.17.3 and 3.17.4 of the VCS standard V.4.3. However, to verify, PP is requested to provide the grievance register placed at site.</p>				
<b>Project participant response</b>				<b>Date:</b> 06-October-2022

The grievance register is submitted to the assessment team.	
<b>Documentation provided by project participant</b>	
1. Grievance Register	
<b>DOE assessment</b>	<b>Date:</b> 17-October-2022
PP has submitted the grievance register for current monitoring period to VVB team. During review of same VVB team found no any major grievance received from local stakeholder during current monitoring period due to implementation of project activity. Thus, <b>CAR 03 is closed.</b>	

<b>CAR ID</b>	04	<b>Section no.</b>	4.4	<b>Date:</b> 22- September-2022
<b>Description of CAR</b>				
1. PP has submitted emission reduction sheet during review of same found apportioning not done for the mismatch in date of JMR cycle and Monitoring period start and end date. Further export electricity generations value of WTG NO-2536 for the month of Dec 2016 is not consistent with in JMR.				
2. Process of cross check of data is not included in emission reduction sheet. PP is request to clarify the same.				
<b>Project participant response</b>				<b>Date:</b> 06-October-2022
<ul style="list-style-type: none"> <li>• Apportioning is now done in the revised emission reduction sheet to resolve the mismatch in date of JMR cycle and Monitoring period start and end date.</li> <li>• Electricity generations value of WTG NO-2536 for the month of December 2016 is now made consistent with the value in the JMR in the revised emission reduction sheet.</li> <li>• The data for cross check is now submitted to the assessment team.</li> </ul>				
<b>Documentation provided by project participant</b>				
1. Emission Reduction Sheet				
2. Data for cross check (Monthly consolidated Statements)				
<b>DOE assessment</b>				<b>Date:</b> 17-October-2022
1. PP has now done apportioning for mismatch in date of JMR cycle and monitoring period start and end date in revised emission reduction sheet for conservative approach and export electricity generations value of WTG NO-2536 for the month of December 2016 is now corrected in revised emission reduction sheet.				
2. PP has provided crosscheck in revised ER sheet and values found inline with consolidated data for all WTG provided for crosscheck of net electricity value. Thus, <b>CAR 04 is closed.</b>				

<b>CAR ID</b>	05	<b>Section no.</b>	4.4	<b>Date:</b> 22- September-2022
<b>Description of CAR</b>				
1. MR contains incorrect numbers' format in Section 5.4 of monitoring report. PP is requested to follow international number system				
2. Vintage wise baseline emission value found not rounded down in emission reduction sheet.				
<b>Project participant response</b>				<b>Date:</b> 06-October-2022
1. Section 5.4 of the revised monitoring report (version 2.0) is corrected in accordance with the international number system.				
2. Vintage wise baseline emission value is rounded down in the revised emission reduction sheet.				
<b>Documentation provided by project participant</b>				
1. Monitoring Report (Version 2.0)				
2. Emission reduction sheet				
<b>DOE assessment</b>				<b>Date:</b> 17-October-2022

1. PP has now revised the number format as per international number system in the revised monitoring report in section 5.4 of MR.
2. Vintage wise baseline emission value is rounded down is revised emission reduction sheet for conservative approach.  
Thus, **CAR 05 is closed.**

<b>CAR ID</b>	06	<b>Section no.</b>	4.5	<b>Date:</b> 22- September-2022
<b>Description of CAR</b>				
Details related to Monitoring meters provided in Appendix 2 of MR. However, its calibration date validity found missing in the monitoring report. Moreover, to verify the same, PP is requested to submit copy of calibration certificates to VVB team relevant to current monitoring period of project activity. Corrective action sought.				
<b>Project participant response</b>				<b>Date:</b> 06-October-2022
<ul style="list-style-type: none"> <li>• Calibration of the energy meters for all WTGs was not found to be valid from January 2016 to February 2018. As per paragraph 4 of Annex 60 - Guidelines for Assessing compliance with the calibration frequency requirements (Version 01), it is mentioned that if during verification of a certain monitoring period, the DOE identifies that the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (i.e., the results of delayed calibration are available), the DOE may conclude its verification provided that a conservative approach is adopted in the calculation of emission reductions, the error factor identified in the delayed calibration test can be applied. The post calibration of the energy meters revealed that the meter was working accurately and the deviation of the errors were found to be within the permission limit (0.2 accuracy). Therefore, in line with the guidelines, maximum permissible error (0.2%) is applied in the readings for the above-mentioned period during which the calibration of the energy meter was not valid.</li> <li>• The latest calibration certificates are provided to the assessment team.</li> </ul>				
<b>Documentation provided by project participant</b>				
1. Calibration Certificates (2012, 2013, 2014, 2022)				
<b>DOE assessment</b>				<b>Date:</b> 17-October-2022
PP has submitted the calibration certificate for current monitoring period main and check meter used. The same has been checked by the verification team and observed that Calibration of meters are not covered from start date of monitoring period. Further, validity of calibration is not indicated in MR. Thus, CAR is open.				
<b>Project participant response</b>				<b>Date:</b> 19-October-2022
<ul style="list-style-type: none"> <li>• The details of the calibration of meters done in 2011 is now included in the revised monitoring report (version 2.0), therefore covering from the start date of the monitoring period.</li> <li>• Validity of calibration in now indicated in the revised monitoring report (version 2.0)</li> </ul>				
<b>Documentation provided by project participant</b>				
1. Monitoring Report (Version 2.0)				
<b>DOE assessment</b>				<b>Date:</b> 03-November -2022
PP has included the calibration detail covering start date of monitoring period in Appendix 02 of revised monitoring report. further validity of meter calibration now provided in revised monitoring report. Thus, <b>CAR is closed.</b>				

# APPENDIX III: 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	Singh	Jitendra Mohan	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)	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

## Short CVs of the Team:

1. **Jitendra Mohan Singh**, has done Advanced MSc in Sustainable Energy Systems and Management from International Institute of Management, University of Flensburg, Germany and B.Tech. in Agricultural Engineering from Allahabad University, India. He has more than (22) years of working experience in different organizations like IARI, IIT Delhi, ICAR, IRADe, CAPART, SMEC and Perenia Carbon and M B Power (Madhya Pradesh) Ltd. in the area of Agriculture, Energy & Environment and Climate Change. He also worked on contract basis (adhoc) as a RIT expert in UNFCCC from 2010 to 2013. Currently, he is empanelled with Applus+ Certification since 2020 and has been involved Verifications of Pas/PoAs as Lead Auditor and Technical Expert for Renewable and non-Renewable as well as Energy Demand.
2. **Mr. Denny Xue** (Master's Degree in Environmental Engineering, Bachelor's Degree in Thermal 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 technical review with Applus+. Before he joined Applus+ LGAI, he has been working for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

## APPENDIX IV: 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
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	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
SEB	State electricity board
PP	Project Participant
TNEB	Tamil Nadu Electricity Board
TANGEDCO	Tamil Nadu Generation and Distribution corporation Limited

# APPENDIX V: DECLARATION OF NO DOUBLE COUNTING



Date: 30-September-2022

## TO WHOMSOEVER IT MAY CONCERN

We **SRF Limited**, Project Proponent of the VCS Project titled "**13.95 MW grid connected wind electricity generation by SRF Limited**", VCS Project Reference no: **821** (the project) hereby confirm that:

- SRF Limited has the sole right of use of emission reduction generated from this project activity.
- The project activity has not rejected by any other GHG programme. The project activity is not claiming any REC benefits for the current monitoring period (16-March-2012 to 28-February-2018)
- The project neither has nor intended to generate any other form of GHG related environment credit for GHG emission reductions claimed under the VCS program.
- The project has been registered as CDM project titled "13.95 MW grid connected wind electricity generation by SRF Limited" (UNFCCC No. 2365). This is to clarify that though the monitoring report for the corresponding period 16-March-2012 to 28-February-2018 is uploaded at the UNFCCC page of the project, the CERs issuance under CDM shall not be proceeded further for this period and the monitoring report shall be withdrawn once the issuance request for VCU for this period is submitted to VERRA. SRF Limited will not claim emission reduction achieved from this project in multiple GHG mechanism for this monitoring period (16-March-2012 to 28-February-2018), hence it will avoid double counting.

For SRF Limited



Authorized Person: **Mr. Manish Mittal**

Authorized Seal & Signature: **(Sr VP and CFO – Technical Textile Business)**



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## APPENDIX VI: CALIBRATION DETAILS OF THE METERS

HTSC No.	Meters	Make	Accuracy Class	Meter Serial no.	Date of calibration (Test 1)	Validity of calibration	Date of calibration (Test 2)	Validity of calibration	Date of calibration (Test 3)	Validity of calibration	Date of calibration (Test 4)	Validity of calibration
2550	Main	Wallaby	0.5S	208320404	14-December-2011	13-December-2012	03-December-2012	02-December-2013	05-June-2013	04-June-2014	01-February-2014	31-January-2015
	Check	Wallaby	0.5S	208320405	14-December-2011	13-December-2012	03-December-2012	02-December-2013	05-June-2013	04-June-2014	01-February-2014	31-January-2015
2583	Main	Wallaby	0.5S	208320406	14-December-2011	13-December-2012	03-December-2012	02-December-2013	05-June-2013	04-June-2014	01-February-2014	31-January-2015
	Check	Wallaby	0.5S	208320407	14-December-2011	13-December-2012	03-December-2012	02-December-2013	05-June-2013	04-June-2014	01-February-2014	31-January-2015
2622	Main	Wallaby	0.5S	208320408	14-December-2011	13-December-2012	03-December-2012	02-December-2013	05-June-2013	04-June-2014	01-February-2014	31-January-2015
	Check	Wallaby	0.5S	208320409	14-December-2011	13-December-2012	03-December-2012	02-December-2013	05-June-2013	04-June-2014	01-February-2014	31-January-2015

2536	Main	Wallaby	0.5S	208320410	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
	Check	Wallaby	0.5S	208320411	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
2537	Main	Wallaby	0.5S	208320412	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
	Check	Wallaby	0.5S	208320414	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
2551	Main	Wallaby	0.5S	208320415	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
	Check	Wallaby	0.5S	208320416	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
2626	Main	Wallaby	0.5S	208320419	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
	Check	Wallaby	0.5S	208320420	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
2633	Main	Wallaby	0.5S	208320302	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015

	Check	Wallaby	0.5S	208320614	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
2538	Main	Wallaby	0.5S	208320417	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015
	Check	Wallaby	0.5S	208320418	16-December-2011	15-December-2012	10-December-2012	09-December-2013	12-June-2013	11-June-2014	07-February-2014	06-February-2015

Above Main check meter associated with each WTGs were got replaced with pre calibrated 0.2 s ABT meter in January 2015. the details of replaced meter detail are given below in the table, PP has submitted meter change from 0.5s to 0.2s for current monitoring period (16-March-2012 to 28-february-2018): -

HTSC No.	Energy Meter Make	Meter Serial No.	Meter change date	Validity of calibration	Accuracy Class	Calibration Date	Calibration due date	Delayed period
2550	Secure (Premier 300)	TNW00246	09-January-2015	08-January-2016	0.2s	10-August-2022	09-August-2023	09-January-2016 to 28-February-2018
2583	Secure (Premier 300)	TNW00248	09-January-2015	08-January-2016	0.2s	10-August-2022	09-August-2023	09-January-2016 to 28-February-2018
2622	Secure (Premier 300)	TNW00247	09-January-2015	08-January-2016	0.2s	10-August-2022	09-August-2023	09-January-2016 to 28-February-2018
2538	Secure (Premier 300)	TNW00169	09-January-2015	08-January-2016	0.2s	16-August-2022	15-August-2023	09-January-2016 to 28-February-2018
2536	Secure (Premier 300)	TNW00162	09-January-2015	08-January-2016	0.2s	16-August-2022	15-August-2023	09-January-2016 to 28-February-2018
2537	Secure (Premier 300)	TNW00159	11-January-2015	10- January-2016	0.2s	23-July-2023	22-July-2023	10- January-2016 to 28-February-2018
2551	Secure (Premier 300)	TNW00153	11-January-2015	10- January-2016	0.2s	23-July-2023	22-July-2023	10- January-2016 to 28-February-2018
2633	Secure (Premier 300)	TNW00149	09-January-2015	08-January-2016	0.2s	16-August-2023	15-August-2023	09-January-2016 to 28-February-2018
2626	Secure (Premier 300)	TNW00160	09-January-2015	08-January-2016	0.2s	16-August-2023	15-August-2023	09-January-2016 to 28-February-2018

PP has submitted meter change certificate and latest calibration certificate replaced meter and applied maximum permissible 0.2% error factor in export and import value for calculating emission reductions in line with para. 366 (a) of the CDM project standard for project activities for complete month of delayed period from January 2016 to February 2018, Version 03.0. This is acceptable to verification team.