

Validation Report

Validation of HPL Solar PV Bundle Project

Report No: SLCCS/VDR/2022/01

Version : 02

Sri Lanka Climate Fund
Sampathpaya, No 82,
Rajamalwatta Road
Battaramulla

Client	Horana Plantations PLC
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Contact details	Mr. Tharindu Weerakoon Manager -Sustainability & Certifications Tel: 011 2638 999 E-mail: tharindu@hplnet.com
Summary of the validation report	
<p>Validation Division of Sri Lanka Climate Fund has conducted the validation of HPL Solar PV Bundle Project of Horana Plantation PLC which is located in multiple sites in central province of Sri Lanka, on the basis of Sri Lanka Carbon Crediting Scheme (SLCCS) eligibility criteria and CDM methodologies, as well as criteria stipulated for bundling renewable energy projects</p> <p>The project activity aims at reducing GHG emissions by installing roof top solar PV systems at the facilities owned by Horana Plantation PLC. The annual average emission reduction to be achieved through the implementation of this project is about 902 tCO_{2e}.</p> <p>Validation Division of Sri Lanka Climate Fund confirms that the project correctly applies the baseline and monitoring methodology AMS I.D Version 18 and meets all relevant SLCCS requirements. Validation Division of Sri Lanka Climate Fund thus requests the registration of the project as a SLCCS project activity.</p>	
Project Title	HPL Solar PV Bundle Project
Report No	SLCCS/VDR/2022/01
Work carried out by	Validation Division - Sri Lanka Climate Fund (Pvt.) Ltd
Work Approved by	Mr. Chamara Ariyathilaka

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1 INTRODUCTION

1.1 Objective

The purpose of a validation is to have an independent review of the Carbon Management Assessment (CMA). In particular the project's baseline, the monitoring plan (MP), and the project's compliance with SLCCS standard are validated in order to confirm that the Carbon Management Assessment is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Sri Lankan Certified Emission Reductions (SCERs).

The information included in the CMA and the supporting documents were reviewed against the requirements as set out by the SLCCS. The validation team has, based on the requirements in the Validation and Verification Standard, carried out a full assessment of all evidences to assess the compliance of the project with the SLCCS. The validation is not meant to provide any consulting to the project participants. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the Carbon Management Assessment.

1.2 Scope and Criteria

The validation scope is given as a thorough independent and objective assessment of the project design including especially the correct application of the methodology, the project's baseline study, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the CMA and other relevant supporting documents, to ensure that the proposed SLCCS project activity meets all relevant and applicable SLCCS criteria.

1.3 Involved Parties and Project Participant

Title of the Project Activity	<i>HPL Solar PV Bundle Project</i>
Project Participant(s)	<i>Horana Plantations PLC</i>
Host Party(ies)	<i>Sri Lanka</i>
Consultant of the Project	-

1.4 Summary description of the project

The main purpose of the project activity is to generate electricity using solar power at facilities owned by Horana Plantations PLC and register this project as a renewable energy generation project under Sri Lanka Carbon Crediting Scheme (SLCCS). The project is a bundled project activity which involves installation of 967 kW_p solar photovoltaic (SPV) in different sites of Horana Plantations PLC and export to national CEB grid. The estimated annual power generation output of this solar power plant is 1218 MWh. This replaces an equal amount of fossil fuel dominated power in the National Grid. Due to project activities being consolidated as a bundled project activity, the 7 year crediting period adopted is not equally applicable to all projects. The project activities later commissioned are subjected to 6 year crediting period in the real scenario.

The expected annual GHG emission reduction is 902 tCO₂e/year and the expected total GHG emission reductions in first crediting period is 6011 tCO₂e.

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

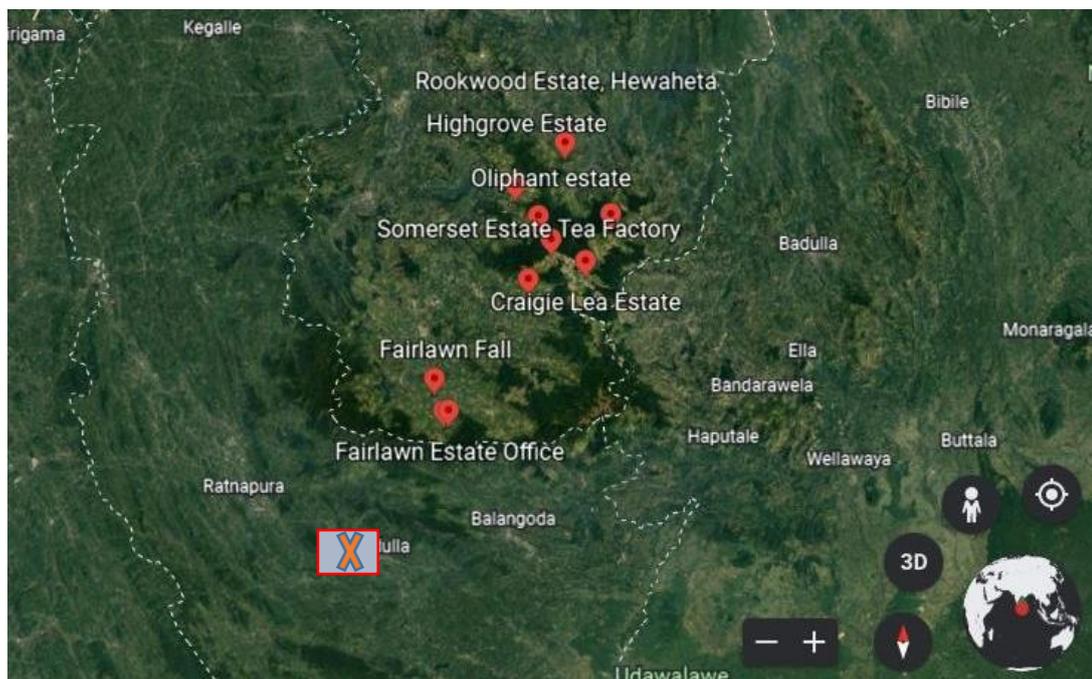
Essential data of the project is presented in the following table.

Item	Data		
Project Title	NWSDB Solar PV Bundle Project		
Project size	<input type="checkbox"/> Large Scale		<input checked="" type="checkbox"/> Small Scale
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	1	Energy industries (Renewable/ Non-renewable)	<input checked="" type="checkbox"/>
	2	Energy distribution	<input type="checkbox"/>
	3	Energy demand	<input type="checkbox"/>
	4	Manufacturing industries	<input type="checkbox"/>
	5	Chemical industries	<input type="checkbox"/>
	6	Chemical industry	<input type="checkbox"/>
	7	Construction	<input type="checkbox"/>
	8	Transport	<input type="checkbox"/>
	9	Mining / Mineral production	<input type="checkbox"/>
	10	Fugitive emissions from fuels (solid, oil and gas)	<input type="checkbox"/>
	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride	<input type="checkbox"/>
	12	Solvents use	<input type="checkbox"/>
	13	Waste handling and disposal	<input type="checkbox"/>
	14	Afforestation and Reforestation	<input type="checkbox"/>
	15	Agriculture	<input type="checkbox"/>
Applied Methodology	AMS-I.D ver. 18.0		
Technical Area(s)	Renewable Energy (Solar Power)		
Crediting period	Renewal crediting Period (7 years)		
Start Date of crediting period	From the date of registration		

2.2 Project Location

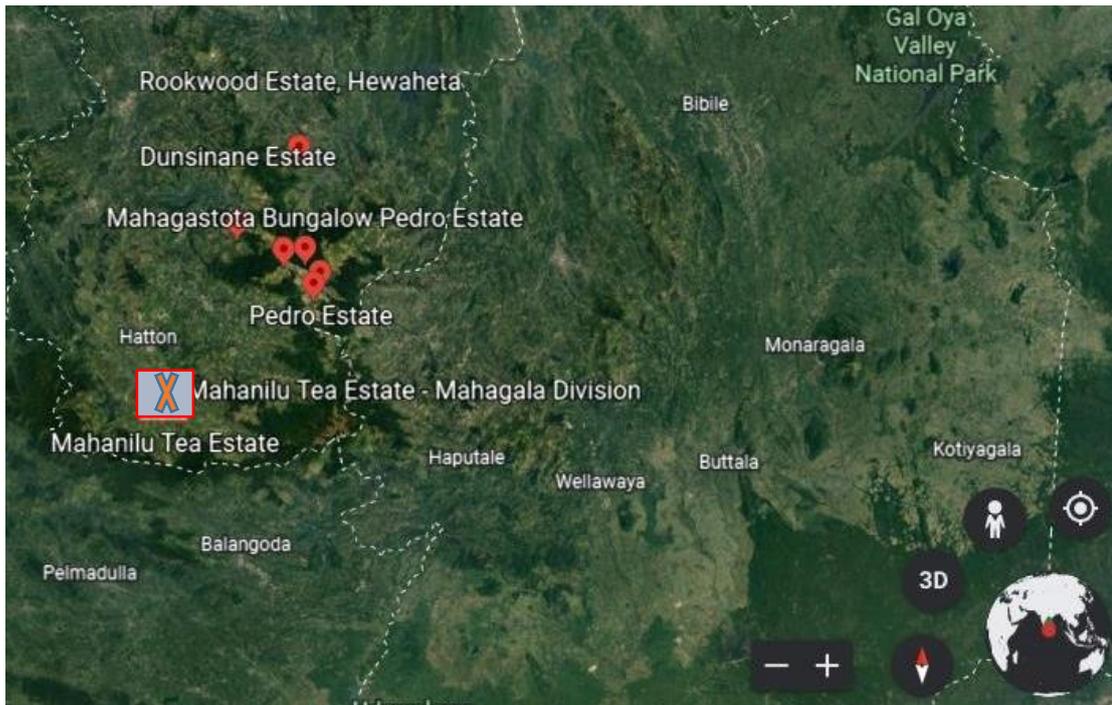
Site 1: Fairlawn Estate

Location of Project Activity	<i>Fairlawn Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Hatton</i>
Community	<i>Upcot</i>
Coordinates	<i>6°51'37" N 80°36'52" E</i>



Site 2: Mahanillu Estate

Location of Project Activity	<i>Mahanillu Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Maskeliya</i>
Community	<i>Upcot</i>
Coordinates	<i>6°59'35" N 80°42'30" E</i>



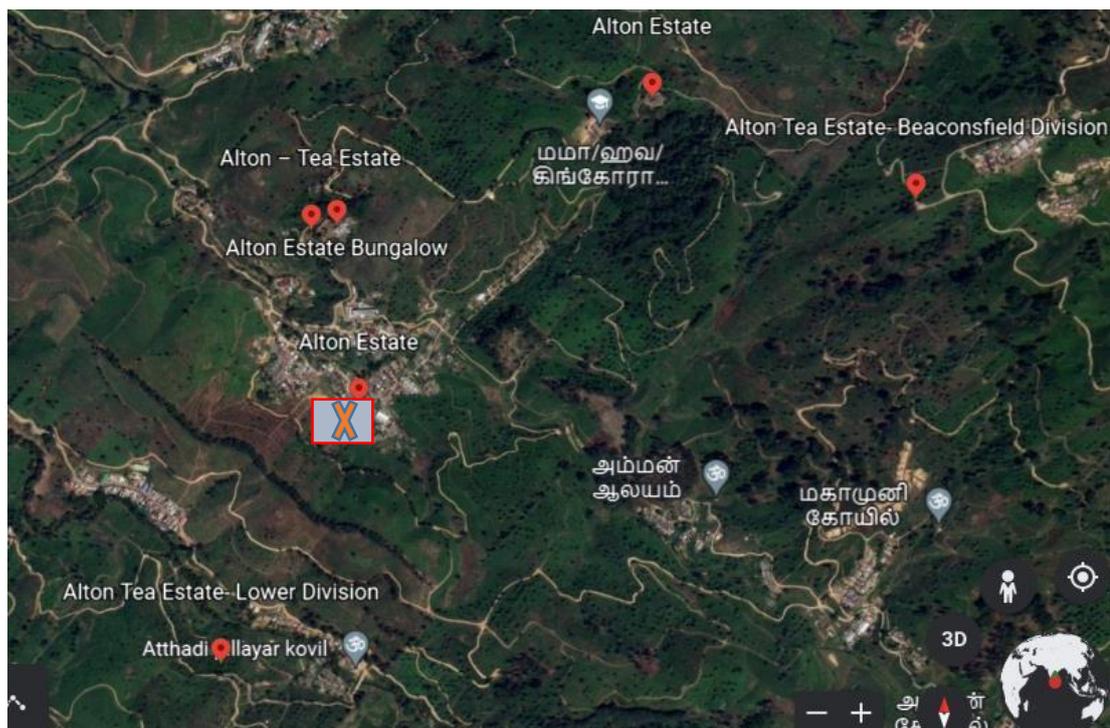
Site 3: Gouravilla Estate

Location of Project Activity	<i>Gouravilla Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Maskeliya</i>
Community	<i>Upcot</i>
Coordinates	<i>6°55'13" N 80° 36' 15" E</i>



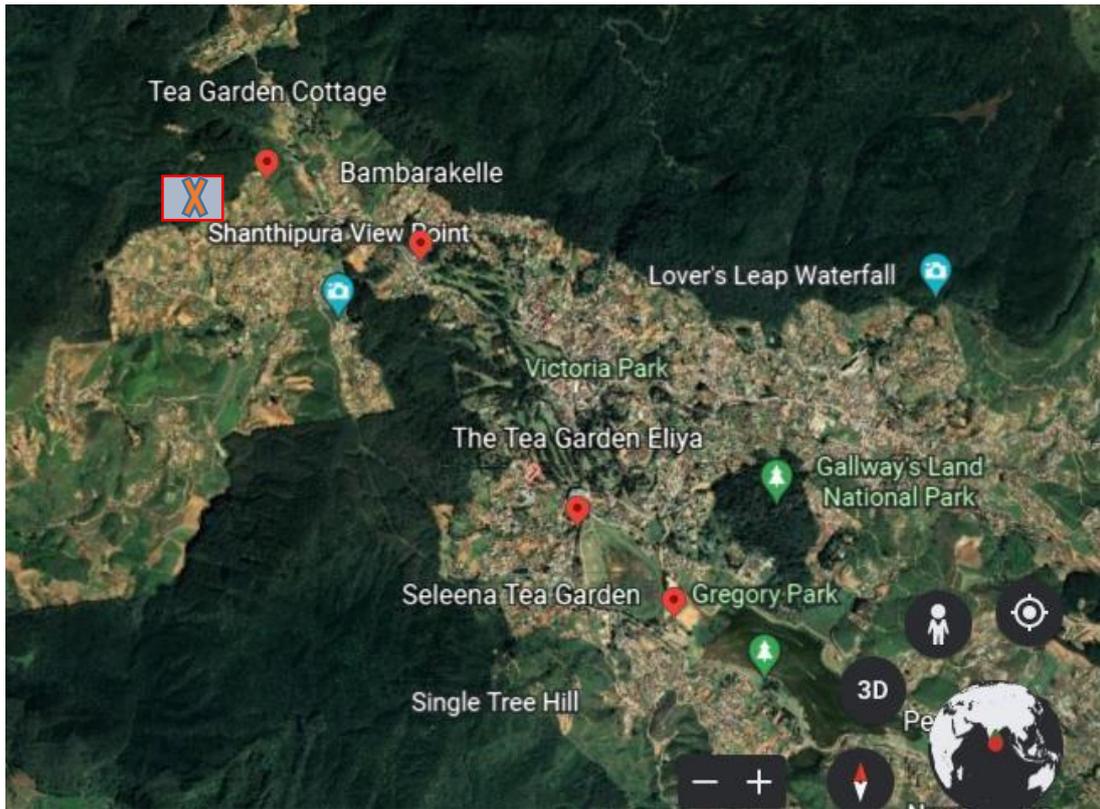
Site 4: Alton Estate

Location of Project Activity	<i>Alton Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Maskeliya</i>
Community	<i>Upcot</i>
Coordinates	<i>6°47'18 "N 80° 37' 12" E</i>



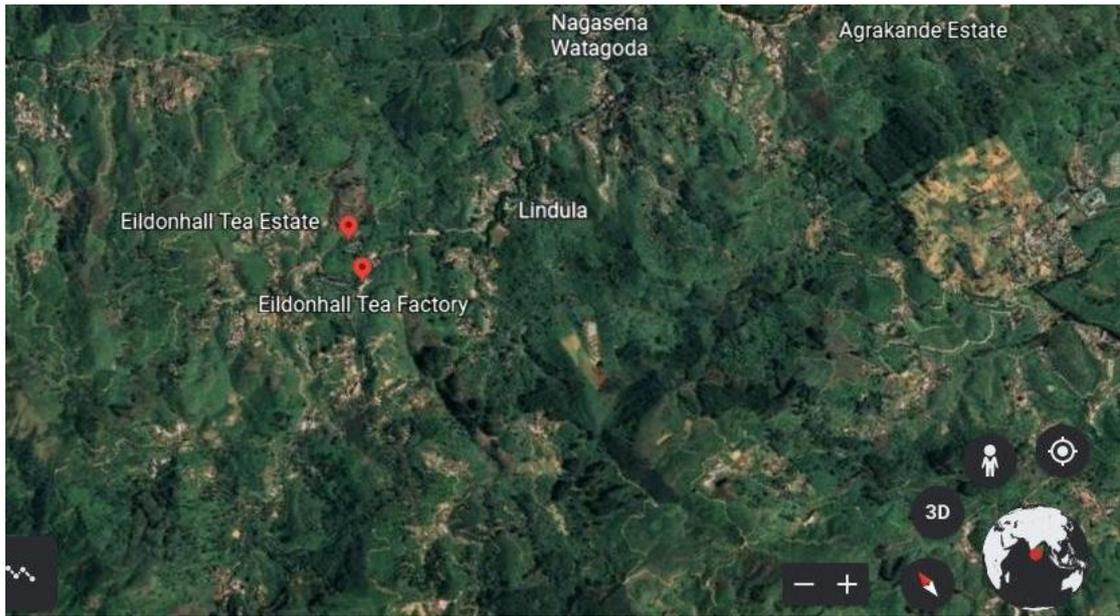
Site 5: Bambrakelly Estate

Location of Project Activity	<i>Bambrakelly Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Lindula</i>
Community	<i>Lindula</i>
Coordinates	<i>6°53'16 "N 80° 39' 49" E</i>



Site 6: Eildon Hall Estate

Location of Project Activity	<i>Eildon Hall Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Lindula</i>
Community	<i>Lindula</i>
Coordinates	<i>6°53'35 "N 80° 39' 56" E</i>



Site 7: Stockholm Estate

Location of Project Activity	<i>Stockholm Estate</i>
Province	<i>Central Province</i>
District	<i>Nuwara Eliya District</i>
DS Division	<i>Ambagamuwa</i>
City/Town	<i>Lindula</i>
Community	<i>Lindula</i>
Coordinates	<i>6^o49'00 "N 80^o 36' 03" E</i>



2.3 Technical Project description

- a. Fairlawn Estate
Power – 143.38 KW_p
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 W _p
	Output voltage under rated conditions	VOC = 41.47V
Inverter	Make	SMA
	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos SUNNY TRIPOWER 15000TL – 1 Nos
	Total Capacity	143.38kW
Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response current	15kA to 40kA
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL Cables
Over-current protection Device	Dc fuse make	Not Applicable
	Dc fuse ratings	Not Applicable
	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider

	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided
	Test certificates if any	Provided

- b. Mahanillu Estate
Power – 143.64 KWp
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 Wp
	Output voltage under rated conditions	VOC = 41.47V
Inverter	Make	SMA
	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos SUNNY TRIPOWER 15000TL – 1 Nos
	Total Capacity	143.64 kW
Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response current	15kA to 40kA
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL Cables
Over-current protection	Dc fuse make	Not Applicable
	Dc fuse make	Not Applicable

devise	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider
	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided
	Test certificates if any	Provided

- c. Gouravilla Estate
Power – 143.405 kW
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 W _p
	Output voltage under rated conditions	VOC = 41.47V
Inverter	Make	SMA
	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos. SUNNY TRIPOWER 15000TL – 1 Nos.
	Total Capacity	143.405 kW
Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response	15kA to 40kA

	current	
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL Cables
Over-current protection Device	Dc fuse make	Not Applicable
	Dc fuse ratings	Not Applicable
	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider
	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided
	Test certificates if any	Provided

- d. Alton Estate
Power – 143.38kWp
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 W _p
	Output voltage under rated conditions	VOC = 41.47V
Inverter	Make	SMA
	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos. SUNNY TRIPOWER 15000TL – 1 Nos.
	Total Capacity	143.38 kW

Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response current	15kA to 40kA
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL Cables
Over-current protection Device	Dc fuse make	Not Applicable
	Dc fuse ratings	Not Applicable
	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider
	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided
	Test certificates if any	Provided

- e. Bambrakelly Estate
Power – 125 kWp
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 W _p
	Output voltage under rated conditions	VOC = 41.47V
	Make	SMA

Inverter	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos SUNNY TRIPOWER 15000TL – 1 Nos
	Total Capacity	125 kW _p
Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response current	15kA to 40kA
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL Cables
Over-current protection Device	Dc fuse make	Not Applicable
	Dc fuse ratings	Not Applicable
	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider
	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided
	Test certificates if any	Provided

- f. *Eildon Hall Estate*
Power – 125 kW_p
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 W _p
	Output voltage under rated conditions	VOC = 41.47V
Inverter	Make	SMA
	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos SUNNY TRIPOWER 15000TL – 1 Nos
	Total Capacity	125 kW
Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response current	15kA to 40kA
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL
Over-current protection Device	Dc fuse make	Not Applicable
	Dc fuse ratings	Not Applicable
	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider
	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided
	Test certificates if any	Provided

- a) *Stockholm Estate*
Power – 143.38 kW_p
Billing System – Net Plus

Item	Parameter	Value
PV Panel	Make	JA Solar
	Model	JAM72S30-535/MR
	Amount installed	268 Nos
	Peak Wattage	535 W _p
	Output voltage under rated conditions	VOC = 41.47V
Inverter	Make	SMA
	Model & amount	SUNNY TRIPOWER STP 110-60 – 1 Nos SUNNY TRIPOWER 15000TL – 1 Nos
	Total Capacity	143.38 kW
Cabling	DC Side Cables	Siechem Technologies Pvt. Ltd.
	AC Side Cables (Inverter out cables)	Kelani Cables/ ACL Cables
	AC Cables to main breaker	Kelani Cables/ ACL Cables
	DC Side surge arrestor make	Phoenix Contact
	DC side Surge arrestor response current	15kA to 40kA
	AC side surge arrestor make	OBO
	AC side Surge arrestor response current	5000A to 100,000A
Earthing	Earth resistance	≈2Ω
	Solar panel earth cables	Kelani Cables/ ACL Cables
	Cables to earth rods	Kelani Cables/ ACL
Over-current protection Device	Dc fuse make	Not Applicable
	Dc fuse ratings	Not Applicable
	AC side breaker make from inverter to panel	Schneider
	AC side breaker rating from inverter to panel	250A
	Main breaker makes and model at the CEB connection point	Schneider
	Main breaker rating at the CEB connection point	250A
Documents and Drawings	Complete final drawings	Provided
	Datasheet and Manuals	Provided
	Warranty certificates	Provided

	Test certificates if any	Provided
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3. VALIDATION METHODOLOGY

3.1 Method and Criteria

The validation of the project consisted of the following steps:

- Appointment of team members and technical reviewers
- Publication of the Carbon Management Assessment (CMA)
- Desk review of the CMA and supporting documents
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

3.1.1 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities, a validation team, consisting of team leader, team member as well as the one technical review personnel was appointed.

The list of involved personnel and their qualification status are summarized in the section 07.

Name	Company	Function	Task Performed
Ms. Ganesha Krishmanthi	Sri Lanka Climate Fund	TL	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI <input type="checkbox"/> TR
Mr. Gayan Madusanka	Sri Lanka Climate Fund	TM	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Mr. Dinuka Hewawalpita	Sri Lanka Climate Fund	TE	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Ms. Harshani Abeyrathna	Sri Lanka Climate Fund	ITR	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input checked="" type="checkbox"/> TR

TL -Team Leader TE- Technical Expert TM- Team Member ITR- Internal Technical Review
DR- Document Review SV- Site Visit RI- Report Issuance ITR- Internal Technical Review

3.1.2 Publication of the Carbon Management Assessment for Public Review

According to the SLCCS requirement the draft CMA, as received from the project participants, has been made publicly available on the dedicated SLCCS website prior to the validation activity

commenced. Stakeholders have been invited to comment on the CMA within the 30 days public commenting period.

No comments were received for this project

3.1.3 Desk Review of CMA and supporting documents

Desk review was conducted as an on-site assessment on 28th April at the project sites of Horana Plantation PLC, Alton, Fairlawn, Gouravilla and Mahanilu Estates. The objective of desk review is to confirm the accuracy and validity of information provided in the CMA against the respective supporting documents. As part of desk review, following documents were reviewed by the validation team.

- Carbon Management assessment report
- Feasibility studies and preliminary assessments undertaken for the individual project activities.
- Contract agreements entered into with suppliers
- Completion / taking over certificate
- Inspection and certification report by Horana Plantation PLC
- Compliance certificates issued to the equipment manufactures
- Power purchasing agreements, Testing and Commissioning certificates,
- Data management systems adopted by individual facilities
- Competency of personnel engaged in the defined monitoring process

3.1.4 On- Site Inspection

Validation team conducted a site visit to check whether the design reflects the description provided in the CMA and confirms that the project description provided in the CMA reflects the actual implementation. Out of seven sites, four sites were sampled to be visited during the validation. Accordingly, on 28th April 2022, Alton, Fairlawn, Gouravilla and Mahanilu Estates were visited and confirmed the availability and functioning of roof top solar system at the respective sites.

3.1.5. Background investigation and follow-up interviews

Personnel and stakeholders relating to the project activity were interviewed to confirm the background information of issues raised by the validation team. A summary of information resulted in the interviews are given in the following tabulated format

Name	Designation	Organization/Entity	Method (Face to face/ Telephone)	Main topics covered
Mr. Tharindu Weerakoon	Manager, Sustainability & Certifications	Head Office, Horana Plantation PLC	Face to Face	Procurement procedures, issues in the installation of systems, funding options and regular maintenance and operation

Mr. Dinuka Shehan	Factory Manager	Fairlawn Estate	Face to Face	Facilities bundled in the project activity, billing systems of solar systems, Monitoring mechanism and personnel engaged in it
Ms. Ishara Sanjeewani	IT Assistant	Head Office-Horana Plantation PLC	Telephone	Working mechanism of real time monitoring system provided by the service provider. Potential error reporting and rectification
Ms. Shehara Jayakodi	Executive	Head Office-Horana Plantation PLC	Telephone	Monitoring plan and parameters detailed in CMA, Working mechanism of real time monitoring system provided by the service provider. Potential error reporting and rectification

3.2 Definition of Clarification Request, Forward and Corrective Action Request

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Corrective Action Request (CAR)** will be issued where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence on the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.3 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.4 Resolutions of findings

The findings of validation process are summarized in the tables below

Type of the Finding	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> FAR
Finding No	CAR-1		
Ref. To CMA	Section 1.13		

Validation team Assessment	<p>Commissioning dates provided in revised CMA were cross-checked with those in the relevant supporting documents and confirmed to be correct as follows</p> <p>Commissioning dates:</p> <p>Alton Estate : 05.01.2022 Fairlawn Estate : 05.01.2022 Gouravilla Estate : 28.03.2022 Mahanillu Estate : 29.03.2022</p>
Conclusion	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken (finding remains open)</p> <p><input type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input checked="" type="checkbox"/> Appropriate action was taken. The finding CAR-2 is closed</p>

Type of the Finding	<input type="checkbox"/> CL <input checked="" type="checkbox"/> CAR <input type="checkbox"/> FAR
Finding No	CAR-3
Ref. To CMA	Section 7.1, 1.11
Action requests by validation team	<p>a. Solar power generation systems operating under this project are connected to national grid as Net plus industrial scheme, however in the section 7.1 of CMA, generation units are indicated as net metering systems.</p> <p>b. For the calculation of baseline emission, emission factor published by SLSEA for the year 2019 is used, however in the section 7.1: <i>data and parameters</i> of CMA, published year of emission factor is mentioned as 2018.</p> <p>c. Data and parameters relevant to average energy output are not updated with the revised plant capacities</p> <p>d. In the section 1.11, start date of project crediting period is indicated as 01.04.2022 which should be revised as per the date provided in baseline emission calculation attached to the CMA.</p>
Summary of Project owner response	<p>a. Net plus industrial scheme was misstated as net metering systems by an oversight. It was corrected in the revised CMA.</p> <p>b. The published year of emission factor was updated as 2019 in the section of 7.1: <i>data and parameters</i></p> <p>c. Data and parameters relevant to average energy output were updated with the revised plant capacities.</p> <p>d. Start date of project crediting period was corrected as 05/01/2022 in the revised CMA</p>

Validation team Assessment	Revisions and changes made to the sections of 7.1. <i>data and parameters</i> and section 1.11 <i>start date of project crediting period</i> were reviewed and verified to be correct during the course of validation
Conclusion	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input type="checkbox"/> Project documentation was corrected correspondingly <input checked="" type="checkbox"/> Appropriate action was taken. The finding CAR-3 is closed

Type of the Finding	<input type="checkbox"/> CL <input checked="" type="checkbox"/> CAR <input type="checkbox"/> FAR
Finding No	CAR-4
Ref. To CMA	Section 7.3
Action requests by validation team	As per the section 7.3 <i>monitoring plan</i> , Estate Managers are responsible for maintaining the data records, ensuring completeness of data and reliability of data (calibration of equipment), recording for all the parameters as well as communicating with the General Manager (CA) through regional General Manager. Training needs required for performing these tasks are not identified and described in the above section.
Summary of Project owner response	Due to less exposure to the data quality management requirements of SLCCS, the training needs of personnel engaged in QA/QC functions were not identified, analyzed and clearly described in the the section 7.3 <i>monitoring plan</i> . In response to the CAR raised, the requirements relating to the training & development of personnel were identified and described in the revised CMA.
Validation team Assessment	Validation team reviewed the corrective action taken by the project proponent. It was evident that project proponent has identified the training needs of personnel engaged in the QA/QC functions of power plant operations and well described in the relevant section of revised CMA. Based on the adequacy and effectiveness of action, the CAR was successfully closed by the validation team.
Conclusion	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input type="checkbox"/> Project documentation was corrected correspondingly <input checked="" type="checkbox"/> Appropriate action was taken. The finding CAR-4 is closed

Type of the Finding	<input type="checkbox"/> CL <input checked="" type="checkbox"/> CAR <input type="checkbox"/> FAR
Finding No	CAR-5
Ref. To CMA	Section 7.3
Action requests by validation team	Plant factor (16%) applied baseline emission reduction calculation is not conservative which can lead to an over estimation of baseline emission reduction

Summary of Project owner response	After a proper expert elicitation process, a more conservative plant factor (14.38%) was applied in the baseline emission reduction calculation.
Validation team Assessment	The project proponent has undergone a proper expert elicitation process and obtained a more conservative plant factor for baseline emission reduction calculation. The supporting documents relating to expert elicitation process was reviewed and confirmed to be valid and objective during the validation.
Conclusion	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input type="checkbox"/> Project documentation was corrected correspondingly <input checked="" type="checkbox"/> Appropriate action was taken. The finding CAR-5 is closed

In the following table the findings from the desk review of the published CMA, Site visits, interviews and supporting documents are summarised:

Table: Summary of CARs, CLs and FARs issued

Validation Category	Specific section	No. of CAR	No. of CL	No. of FAR
General description of project activity	General description Project Location Project boundary			
	Involved Parties and Project Participants			
	Project specification	01		
	Start date /Commissioning date	01		
	Technical project description	01		
	Contribution to sustainable development			
	Technology employed			
Project Baseline, Additionality and Monitoring Plan	Application of the Methodology			
	Baseline identification			
	Calculation of GHG emission reductions Project emissions Baseline emissions Leakage	01		
	Additionality determination			
	Monitoring Methodology			
	Monitoring Plan	01		
	Project management planning			
Duration of the Project / Crediting Period				
Environmental impacts				
Stakeholder Comments				
SUM		05		

3.5 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent was replied on those and the requests are “closed out” by the validation team in case the responses were assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team was assessed whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team. In this project activity positive validation opinion is granted by Executive Board (EB).

3.6 Internal Technical Review

Carbon Management Assessment (CMA) and additional background documents related to the project design submitted by Horana Plantations PLC and baseline was reviewed. Furthermore, the validation team has used additional documentation by third party legislation, technical reports referring to the project design or to the basic conditions and technical data.

Technical data was reviewed by technical team based on information given in the CMA, supporting documents and observations on validation site visit. Before submission of the final validation report a technical review of the whole validation procedure was carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.7 Final approval

After successful technical review of the final report an overall assessment of the complete validation was carried out validation team of SLCCS and final approval is granted by EB.

4. DATA FOR VALIDATION PROCESS

4.1 Project Details

4.1.1 General Description

The main purpose of the project activity is to generate electricity using solar photovoltaic power in facilities owned by Horana Plantations PLC and register this project as a renewable energy generation project under Sri Lanka Carbon Crediting Scheme (SLCCS). Seven (07) individual project activities operating in the facilities located in central province have been consolidated into a single bundled project activity and total project capacity so declared is 967 kW^p. Renewable energy generated through the system is delivered to national CEB grid under single billing system, Net Plus.

Prior to this project activity, there was no solar power plant belonging to project participant in that region. Hence the project can be considered as a Greenfield project activity. Baseline scenario for this project activity will be the electricity from the grid.

4.1.2 Employed Technology

Under project activity, different capacities of solar PV modules have been installed in roof top of the seven facilities owned by Horana Plantation PLC as follows.

Fairlawn Estate	143.38 kW _p
Gouravilla Estate	143.405 kW _p
Mahanillu Estate	143.64 kW _p
Alton Estate	143.38 kW _p
Stockholm Estate	143.38 kW _p
Bambrakelly Estate	125 kW _p
Eildon Hall Estate	125 kW _p

The modules in the each array are connected in parallel and/or series in order to get the preferred current & voltage which match with the rated input parameters of the inverter. The estimated annual power generation output of this small solar photovoltaic based power plant is 1218.35 MWh which is exported to the national electricity grid of Ceylon Electricity Board.

Project activity produces electricity from the solar radiation. Hence it eliminates the generation of carbon dioxide which was happening earlier due to the fossil fuel burning from thermal power plants sites in the National Grid. Thus, the technology eliminates use of fossil fuel for generation of electricity, uses solar radiation and helps in avoidance of CO₂ emissions. The expected annual GHG emission reductions is 902 tCO₂e. Therefore, the technology employed can be said to be environmentally safe.

Validation team has confirmed the accuracy of the project description through a combination of steps consisting of review of purchase agreement related to the project activity, commissioning and taking over certificate for the project, physical site visit and interview of the project participant and their representatives. The confirmation that the electricity will be exported to the grid is available through Standard Power Purchasing Agreement (SPPA) with Ceylon Electricity Board. The Project will result in annual emission reductions of 902 tCO₂e. The processes undertaken by the validation team to validate the accuracy and completeness of the CMA include conducting a physical site inspection, sampling, reviewing available designs and feasibility studies, conducting comparison analysis with equivalent projects. SLCF Validation Division hereby confirms that the project description in the final CMA is accurate and complete in all respects.

4.2 Approvals

Project Proponent has obtained all approvals regarding the projects activities from related institutions operating under Government of Sri Lanka and validation team was checked those approvals during site visit.

4.3 Application of Methodology

4.3.1 Title and reference

Since CDM methodologies are applicable to SLCCS registration, Type I: Renewable Energy Projects and rightly applies the approved methodology AMS-I.D. Grid connected renewable electricity generation, Version 18.0

4.3.2 Applicability

4.3.2.1. Applicability Criteria of Methodology

All criteria for applicability of selected methodology are fulfilled. The project is a grid connected renewable solar power project which is confirmed from feasibility study and the validation site visit. The project activity is Greenfield projects activity and there will not be any significant emissions related to project as no fossil fuels are used and leakage, no equipment is transferred.

The project activity is renewable energy project and the capacity is less than 15 MW supplying power to the grid and the project activity fulfils the conditions of small scale project. Hence the project activity fulfils all the criteria of the small scale methodology AMS-ID Version 18 “Grid connected renewable energy generation.

Table: Applicability of selected methodology

No	Applicability Criteria	Project Activity	Applicability Criteria Met?
1	This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity comprises renewable energy generation units 967 kW _p based on solar photovoltaic that supply electricity to CEB grid, which has been dominated by several fossil fuels fired generating units. The developer has no intention to increase the capacity of the project from 714.55 kW _p during the chosen crediting period.	Yes
2	Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A)	The project is solar photovoltaic plant supplying electricity to the national grid, so methodology AMS I.D is only applicable.	Yes
3	This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition; (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a rehabilitation of (an) existing	The project was concerned with the installation of new solar photovoltaic plant and there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant)	Yes

	plant(s)/unit(s) or(e)Involve a replacement of (an) existing plant(s).		
4	<p>Hydropower plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m²; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m². 	No reservoir is built for this power plant	Not applicable
5	If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project comprises of only renewable components. The capacity of the entire bundled unit is 967 kW _p which is less than limit of 15 MW. The developer has no intention to increase the plant capacity during the crediting period,	Not applicable
6	Combined heat and power (co-generation) systems are not eligible under this category.	This is not a co-generation system and project activity comprises solar PV electricity generation only.	Not applicable
7	In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	Project activity does not involve any addition of renewable energy generation units at an existing renewable power generation facility.	Not applicable

8	In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	As a project activity is a greenfield project. There was no retrofit or replacement of existing power plant. PP has no intention to increase the capacity of power plant beyond 967 kW _p during the chosen crediting period. Therefore the project shall not exceed the limit of 15 MW.	Not applicable
9	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	No recovered methane used for this project activity	Not applicable
10	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	No biomass used for this project activity	Not applicable

4.3.2.2. Applicability Criteria of TRACK I

Project activity is a new project activity supplying renewable energy to national grid harnessing solar energy. Prior to starting the project, as required by SLCCS TRACK I, the status of project activity has been communicated to SLCCS by the project proponent through an initial notification form. Further, the project activity fulfils the Additionality requirements stipulated in the TRACK I of SLCCS. Under this circumstances, project activity is eligible to be validated under TRACK I of SLCCS.

4.3.3 Project Boundary

The project boundary of HPL Solar PV Bundle Project encompasses the physical, geographical site of the power plant and associated physical structure. The project boundary includes the Solar PV arrays, inverters, transformers and metering/substation system and national electricity grid of power plant pictorially presented below.

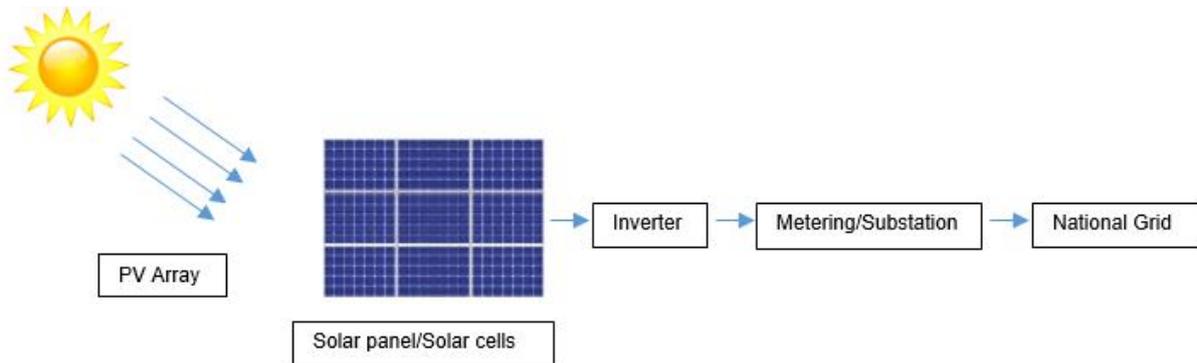


Figure 1: Project boundary of the solar photovoltaic power plant

4.3.4 Baseline Identification

This project activities is grid connected renewable (solar photovoltaic) power generation and purpose of the project is to generate electricity through renewable resources (Solar) and displace equivalent amount of electricity in the national grid which is predominantly fossil fuel based. In the absence of the project activity, equivalent amount of power would have been drawn from the grid which is the baseline scenario. Calculations are based on data published by Sri Lanka Sustainable Energy Authority. The baseline for the project activity is the carbon intensity of the national grid.

The baseline for the project activity is power generated from renewable energy source multiplied by the grid emission factor of the National grid which is published by Sri Lanka Sustainable Energy Authority.

The grid emission factor for year 2019 calculated and published by SLSEA has used for determining emission reductions.

4.3.5 Formulas used to determine Emission Reductions

The baseline under the adopted methodology AMS I.D Version 18 .0 is the product of energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor (tCO_{2e}/MWh)

4.3.6 Quantification of GHG Emission Reductions and Removal

Calculation of baseline emission factor

As per AMS I.D and AMS I.F, the grid emission factor was calculated using the latest approved version of “Tool to calculate the emission factor for an electricity system” CDM methodology. The grid emission factor calculated and published by the Sustainable Energy Authority in Sri Lanka is used.

Grid Emission Factor ($EF_{CM,Grid,y}$)	0.7404	tCO_{2e}/MWh	Published by SLSEA (2019)
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Plant factor

GHG emission reduction achieving through the project activity is purely determined by the average annual energy output from the system. Project proponent has accounted average energy output in a conservative approach using a valid plant factor which is about 14.38%. This factor had been derived under the consultation of experts who are having substantial competency in the Solar PV installation and energy generation accounting relating to the corresponding systems

Project Emission

As a result, the project does not involve project emissions as per AMS I.D. Version 18.0. Project emissions are thus zero tonnes of CO₂e, and no relevant formulas need to be considered.

Annual Emission Reduction Calculation

Project proponent has set crediting period for seven year (07) starting from 05th January 2022. In the calculation of emission reduction for the first two years of crediting period, the actual operating capacity of respective years have been considered. Applicability of relevant factors and accuracy of calculation was confirmed to be valid during the validation assessment.

The summary of emission reduction calculation validated by validation team is as follows

Year 2022

Parameter	Value	Unit	Source
Project Capacity (Tc)	717.19	kW	Calculated
Plant Factor	14.38	%	Expert Judgment
Average Energy Output (EGy)	809.32	MWh/year	Calculated
Grid Emission Factor (EFy)	0.7404	tCO ₂ /MWh	SLSEA
Emission Reduction (ERy)	599	tCO ₂ /year	Calculated

Year 2023

Parameter	Value	Unit	Source
Project Capacity (Tc)	967.19	kW	Calculated
Plant factor	14.38	%	Expert Judgment
Average Energy Output (EGy)	1218.35	MWh/year	Calculated
Grid Emission Factor (EFy)	0.7404	tCO ₂ /MWh	SLSEA
Emission Reduction (ERy)	902	tCO ₂ /year	Calculated

4.3.7 Methodology deviations

Applied methodology was AMS-1.D "Grid connected renewable electricity generation" Version 18.0. These projects are Greenfield solar power plants which are in design stage. This project does not imply any methodology deviations observed in validation process.

4.3.8 Monitoring Plan

Validation team assessed the compliance with the requirements of monitoring plan, as follows:

i) Compliance of the monitoring plan with the approved methodology:

- Project proponent has identified data and parameters to be monitored within the project activity. The available data and parameter identified and reported in the CMA is grid emission factor. It was published at the point of validation by the national responsible entity; Sri Lanka Sustainable Energy Authority. As data and parameters to be monitored in the due monitoring period has been identified as average annual energy output. These parameters satisfy the requirements of selected approved methodology, AMS I.D. AMS I.D, Version 18
- Validation team confirmed that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the applied methodology AMS I.D. AMS I.D, Version 18. The project involves measuring, recording, reporting, monitoring and controlling of various key parameters of the solar systems. These monitoring and controls would be the part of the Control Systems proposed for the project activity.
- It was evident that project proponent has identified and taken adequate measures to put the proposed monitoring plan into action. As per the pre-defined monitoring plan, the qualified and experienced personnel will be employed in the project monitoring activities. A project specific monitoring team has been assigned at each facility with the clearly communicated responsibilities for overseeing the collection, recording the data in the log books and storage of the data required to calculate and monitor the greenhouse gas emission reductions from the project activity. At regional sites, Estate Managers are responsible for maintaining the data records, ensuring completeness of data and reliability of data (calibration of equipment), recording for all the parameters as well as communicating with the General Manager (CA) through regional General Manager.

ii) Implementation of the plan:

- The monitoring arrangements described in the monitoring plan are feasible within the project design;
- The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the project activity can be reported and verified.

The assessment has been conducted by the validation team by means of reviewing of the documented procedures, interviewing with relevant personnel, project plans and physical inspections of the project activity site.

4.4 Carbon Management Assessment

Sri Lanka Climate Fund Validation Division hereby confirms that the CMA complies with the latest forms of the guidance documents for completion of CMA version 2.0 is compliant with Sri Lanka Carbon Crediting Scheme.

4.5 Changes of the Project Activity

Out of seven project activities, five projects activities commissioned and did not change the project activity during crediting period.

4.6 Environment Impact

Installation of Solar PV on sound roof structures does not pose severe impacts on the environments. Moreover, environmental regulatory authorities do not recommend to obtain approvals for solar rooftop installation less than 1 MW.

4.7 Comments of Stakeholders

The project activities are not implemented in the community-owned or related premises, the facilities are fully owned by Horana Plantation PLC. Thus projects do not lead to community issues and therefore the stakeholder consultation process has not been executed as a part of the project activities.

5. VALIDATION OPINION

Horana Plantations PLC has granted the SLCF Validation Division to conduct the validation of HPL Solar PV Bundle Project with regard to the relevant requirements of the SLCCS for GHG reduction project activities, as well as criteria for consistent project operations, monitoring and reporting. The validation team confirmed that the project is a small scale project applied AMS-I.D version 18 and the project is bundled small scale project.

The validation consisted of the following phases:

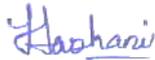
- i. Desk review of the CMA and additional background documents;
- ii. Follow-up interviews with project stakeholders;
- iii. Issue of checklist with corrective action requests (CARs) and the draft validation report
- iv. Desk review of revised CMA applying AMS.I.D Version 18
- v. Review of proposed corrections and clarifications
- vi. Issue of the final validation report and opinion
- vii. Resolution of outstanding issues and the issuance of the final validation report and opinion.

In the course of the validation, five (05) corrective actions were raised and all were successfully closed.

The review of the CMA and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders have provided SLCF Validation Division with sufficient evidence to validate the fulfillment of the stated criteria.

In detail the conclusions can be summarized as follows:

- The project is in line with criteria in Sri Lanka and all relevant requirements of SLCCS TRACK I for carbon credits. This is to be verified at verification. Further the project activity is in compliance with the requirements set up by the applied approved CDM methodology AMS-I.D ver.18
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions are most likely to be achieved within the



.....
Ms. Harshani Abeyrathna
Internal Technical Reviewer

Date : 11.07.2022
crediting period.



.....
Ms. Ganesha Krishnanthi
Team Leader

Date : 11.07.2022

The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

6. REFERENCES

Documents provided by the Client that relate directly to the project

1. Carbon Management assessment (CMA) for Small-Scale project Activity
2. Feasibility Study reports
3. Technical Data for PV module

Documents referred by the validation team that relate directly to the project

4. Grid emission factor
<http://www.energy.gov.lk/images/energy-balance/energy-balance-2018.pdf>
5. SRI LANKA ELECTRICITY ACT, No. 20 OF 2009
<http://powermin.gov.lk/english/wp-content/uploads/2017/11/2009-Act-No.-20-Sri-Lanka-Electricity-Act-E.pdf>

<http://powermin.gov.lk/english/wp-content/uploads/2017/11/2013-Act-No.-31-Amendment-to-Act-No.-20-Sri-Lanka-Electricity-Act-E.pdf>
6. CEB LONG TERM GENERATION EXPANSION PLAN 2015-2034
https://www.ceb.lk/front_img/img_reports/1532408363CEB_LONG_TERM_GENERATION_EXPANSION_PLAN_2015-2034.pdf
7. CDM Validation and Verification Manual
https://cdm.unfccc.int/public_inputs/2008/VVM/vvm.pdf
8. IPCC guideline on national greenhouse gas inventories (2006)
9. AMS-I.D Grid connected renewable electricity generation --- (Version 18)
https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_r epan24_AMS-I.D_ver18.pdf?t=c2h8cHk0Y3k4fDC2EXQVmnso7VteREFAW8_M
10. Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion
<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v3.pdf>
11. CDM Methodology Booklet
https://cdm.unfccc.int/methodologies/documentation/meth_booklet.pdf#AMS_I_D

7. APPENDIX

Appendix 01: Validation Team

<p>Ms. Ganesha Krishmanthi</p>	<p>Sri Lanka Climate Fund</p>	<p>Team Leader</p> <p>Ganesha Krishmanthi has a Bachelor's degree in Environmental Science and Natural Resource Management and has conducted over 30 greenhouse gas verifications of annual GHG Inventories with 3 years of experience. She has served as a validator in two project activities under Sri Lanka Carbon Crediting Scheme. She has completed Training Programme on ISO 14064/5/6 Green House Gas (GHG) Validation and Verification conducted by Sri Lanka Accreditation Board. While engaging in organization and product level GHG verification, she has worked in a number of national level projects focused on GHG emission quantification and reduction.</p>
<p>Mr. R A Gayan Madusanka</p>	<p>Sri Lanka Climate Fund</p>	<p>Team Member</p> <p>Having bachelor degree in Geography, he has specialization in environment management and organizational level GHG quantification and verification. He has undergone and completed management system ISO 14064:2018 and ISO 9001:2015. For last three years he has worked as a verifier for more than 15 GHG assessments conducted in service based and industrial facilities. In the project: Third National Communication on climate change implemented by Ministry of Mahaweli Development and Environment, he contributed for the preparation of GHG inventory for the forestry and land use sector.</p>

<p>Ms. Harshani Abeyrathna</p>	<p>Sri Lanka Climate Fund</p>	<p>Internal Technical Reviewer</p> <p>Ms. Harshani Abeyrathna, (MSc. in Environmental Science, BSc Special in EcoBusiness Management, and completed Lead Auditor training programme for ISO 14001:2015). She has completed over 30 greenhouse gas verifications of annual GHG inventories as a verifier for different industries with four years of experience. She is a qualified GHG assessor recognized by SLCCS for the validation and verification activities of micro and mini scale solar & hydro projects.</p>
<p>Mr. Dinuka Hewawalpita</p>	<p>Sri Lanka Climate Fund</p>	<p>Technical Expert</p> <p>Post graduated in Renewable Energy, he has more than 08 years' industrial experience in Process Engineering, Electrical Engineering, Solar PV technology, Energy Management, Renewable Energy and Project Management. He has been a Technical Director in a leading solar energy service company in Sri Lanka and remain responsible for the operations of Solar PV purchasing, installing, commissioning and sales/Marketing. To date, he has amassed over 5MW project experience including 10 Nos of commercial premises and more than 250 residential premises. Further he has a sound knowledge and understanding on project level GHG accounting and management.</p>

Appendix 02: Validation Plan

VALIDATION PLAN

INITIAL ISSUANCE : 26.04.2022
VERSION NO : 02
VERSION DATE : 05.07.2022

Title of Project	HPL Solar PV Bundle Project	
Validation Entity	Validation Division, Sri Lanka Climate Fund	
Client	Horana Plantations PLC	
Objective of Assessment	The purpose of validation is to ensure a thorough, independent assessment of proposed SLCCS project activities submitted for registration as a proposed SLCCS project activity against the applicable SLCCS Requirements.	
Criteria	SLCCS Validation Standard, Requirements of Carbon Management Assessment (CMA) and adopted methodologies	
Scope	Objective review of the CMA, the project's baseline study and monitoring plan and other relevant documents.	
Validation Team	Ganeshia Krishmanthi (GK)	Team Leader
	Gayana Madusanka (GM)	Team member
	Dinuka Hewawalpita (DH)	Technical Expert
	Harshani Abeyrathna (GK)	Internal Technical Reviewer
Output	Validation Report	

Schedule of Verification Activities

Date	Time	Activity/ Function	Scope of Assessment	Location/ Place	Responsibility
28/04/2022	0930h – 0945h	Opening Meeting		Regional Office, HPL	GK/GM/DH
	0945h – 1130h	Document Review & Site Visit- Stockholm Estate	Feasibility studies or preliminary assessments undertaken for the project activities. Contractual arrangements entered into between client and service providers. Power purchasing agreements, Testing and commissioning certificates, Data management systems adopted by facilities etc.	Project Site	
	1130h – 1300h	Document Review & Site Visit- Alton Estate		Project Site	
	1300h – 1330h	Lunch Break			
	1330h – 1530h	Document Review- Fairlawn Estate	Feasibility studies or preliminary assessments undertaken for the project activities. Contractual arrangements entered into between client and service providers. Power purchasing agreements, Testing and commissioning certificates, Data management systems adopted by facilities etc.	Project Site	
02/05/2022	0900h – 1230h	Document Review- Gouravilla Estate & Mahanilu Estate	Feasibility studies or preliminary assessments undertaken for the project activities. Contractual arrangements entered into between client and service providers.	SLCF Office	

			Power purchasing agreements, Testing and commissioning certificates, Data management systems adopted by facilities etc.		
	1230h – 1300h	Lunch Break			
	1300h – 1600h	Document Review- Bambrakelly Estate, Eildon Hall Estate	Feasibility studies or preliminary assessments undertaken for the project activities. Contractual arrangements entered into between client and service providers. Power purchasing agreements, Testing and commissioning certificates, Data management systems adopted by facilities etc.	SLCF Office	
05- 06/05/2022	0900h – 1600h	Evaluation of Carbon Management Assessment (CMA)	Baseline and project level emission estimation and reporting, proposed monitoring plan, Adherence to requirements applicable to TRACK I Scheme of SLCCS, compliance with stipulated requirements and Principles.	SLCF Office	GK/GM
12- 15/06/2022	0900h – 1600h	Conclusion and Draft Validation Report		SLCF Office	GK/GM
4-5/07/2022	0900h – 1600h	Internal Technical review		SLCF Office	HA
07/07/2022	0900h – 1600h	Final Validation Report		SLCF Office	GK
02/08/2022	0900h – 1600h	SLCCS Executive Board Meeting		SLCF Office	GK/GM

02/08/2022		Project Registration			SLCCS Administration
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Prepared by

Gayan Madusanka
Team Member



Date: 02.08.2022

Reviewed & Approved by

Ganesh Krishnanthi
Team Leader



Date: 02.08.2022

Document Information

Title of document	Validation Report
Document No	SLCCS-VLDR-FRM
Document Type	Form
Business Function	Validation of Project Activity
Version	01.0

Revisions

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	21-08-2019	Initial issuance