Sri Lanka® Carbon Crediting Scheme

Monitoring Report

Happy Fish Grid-connected Solar PV Bundle (unit 01 and unit 02) *Project*

Document Prepared by *Global Sea Foods (Pvt) Ltd., Perawalawatta, Badalgama.*

Project Title	*Happy Fish Grid-connected Solar PV Bundle (unit 01 and unit 02) Project*
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Project proponent/s	*Global Sea Foods (Pvt) Ltd.*
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1. Description of Project Activity

1.1. Objective of the Monitoring

The objective of this project was to generate solar power through installing solar PV on rooftop of two sea foods factories owned by Global Sea Foods (Pvt) Ltd, Badalgama, Gampaha district, western province and to register this project as a renewable energy generation bundle project under Sri Lanka Carbon Crediting Scheme (SLCCS).

1.2. Summary Description of the Implementation of this Project

Global Sea Foods (Pvt) Ltd, has implemented grid connected Solar PV bundle Project with the total cumulative capacity of 613.7 kWp in two plants of Global Sea Foods (Pvt) Ltd at Badalgama, aiming to align with carbon crediting considering the carbon emission reduction potential.

The electricity generated from the project activity is being exported to the national grid and sold to Ceylon Electricity Board under a Standard Power Purchase Agreement. Global Sea Foods (Pvt) Ltd has selected photovoltaic solar power systems technology for its Solar PV Power Project.

The first and second solar PV systems of the registered bundle project activity were commissioned on 26.02.2020 (Unit 01) and 23.04.2021 (Unit 02) respectively. When all projects are operational, the bundle project activity is generating 557.8 MWh of solar power annually and exports to national CEB grid.

The monitoring period considered for this monitoring report is 01/01/2021 – 31/12/2023. During this monitoring period, expected and actual GHG emission reductions are 1,125 tCO_2e and 1,051 tCO_2e respectively.

1.3. Sectoral Scope and Project Type

Most of the proposed projects in CDM Sri Lanka come under small scale methodologies Type 1 Category 1.D which is renewable power generation for a grid is mostly relevant to project activity entails with renewable energy generation using the rooftop solar photovoltaic systems and applicable to be registered under SLCCS in accordance with the small scale methodologies of CDM – AMS -1.D (Version 18.0), EB 81, 2014, Grid Connected renewable energy generation.

1.4. Project Proponent

Organization Name	*Global Sea Foods (Pvt) Ltd.*
Contact Person	*Nayanajith De Silva*
Title	*Senior Manager Quality Assurance*
Address	*Perawalawattha, Badalgama*
Telephone	*+94775109253*
Fax	*-*
E-mail	*nayanajith@gsffish.com*

1.5. Other Entities Involved in the Project

Organization Name	*Sunpower Renewables (Pvt) Ltd*
Role in the project	*Installation and commissioning of Solar PV system*
Contact Person	*Eng. Gayan Karunarathna*
Address	*3rd Floor, Forbes and Walker Building, 46/38, Nawam Mawatha, Colombo 02.*
Title	*Engineer Service Marketing*
Telephone	*071-2030778*
Fax	*-*
E-mail	*info@sunpower.lk*

1.6 Project Start Date

Unit No	Site Location	Project Start date
Unit 01	Perawalawatta, Badalgama.	23.08.2019
Unit 02	171/C/11, Beatrice Estate, Badalgama.	23.08.2019

1.7 Project Crediting Period

The crediting period is the period for which the credits for emission reductions are expected.

A maximum of seven years from 01/01/2021 which may be renewed at most two times provided that, for each renewal, a designated operational entity recognized by SLCCS determines and informs the top management that the original project baseline is still valid or has been updated taking account of new data where applicable.

1.8 Registration date of the project activity

The project was registered under SLCCS on 01/01/2023

1.9 Project track and credit use

The project activity is registered under TRACK II, since the project activity has been already started with the objective of generating renewable energy and GHG emission reductions. The Carbon Credits achieved through this project activity is used for internal offsetting purpose.

1.10 Project Location

Location of Project Activity	*Perawalawatta, Badalgama*
Province	*Western*
District	*Gampaha*
DS Division	*Divulapitiya*
City/Town	*Badalgama*
Community	
Coordinates	*Latitude: 7.288829151858031* *Longitude: 79.97688626319083*

Location of Project Activity	*171/C/11, Beatrice Estate, Badalgama.*
Province	*Western*
District	*Gampaha*
DS Division	*Divulapitiya*
City/Town	*Badalgama*
Community	

Coordinates	*Latitude: 7.2888825142785025,* *Longitude: 79.97574115182503*

1.11 Title and Reference of Methodology

Title: Grid connected renewable electricity generation
Reference: AMS I.D./Version 18/EB 81/2014

1.12 Participation under other GHG Programs

The project activity has not been registered under any other program.

1.13 Other Forms of Credits

This project has not been sought or received another form of GHG-related environmental credit, including renewable energy certificates.

1.14 Sustainable Development

This renewable energy generation facility can reduce the contribution from thermal electricity generation to meet the electricity demand. Unlike in thermal power plants, this project is positively contributing to the electricity demand without compromising the ability of future generations to meet their own needs. The implementation of this project activity would contribute to the sustainable development of the region in the following ways.

Social wellbeing.
This project contributes an indirect impact on social wellbeing as there are no direct employment opportunities created but harnessing solar energy reduces the use of environmentally polluted petroleum products for power generation at the National level. Growth of company business due to high product demand will be improve social status of its employees.

Economic well-being
No extra cost for mounting structures has been invested by Global Sea Foods since already it had the structures constructed for carbon neutral process when the Solar PV projects are initiated. Therefore, extra land utilization was not required for the project. It saves lands that can be used for other purposes in the area.

Environmental well-being

This project activity is to use the available solar potential on rooftops for the power generation process, which has associated with very low amount of GHG emissions. The project contributes to an improvement of the Global environment through reducing emissions such as SOx and NOx from thermal power plants which must be operated to generate an equal amount of power. This certainly has a positive impact on the environment both at the local and global level.

Technological well-being

The project activity has used the reliable and proven technology available nationally to ensure that an environmentally safe technology is only being implemented in this project activity.

2. Implementation Status

2.1 Implementation Status of the Project Activity

As per the SLCCS approved CMA dated 15 May 2024, it was planned to install rooftop solar PV systems at two (02) facilities owned by Global Sea foods (Pvt) Ltd, Perawalawattha, Badalgama, Gampaha District, western province in Sri Lanka. The total cumulative capacity of these projects is 613.7 kWp.

No	Site Location	Capacity (kWp)	Operational status
01	Global Sea Foods (Pvt) Ltd – Unit 01, Perawalawatta, Badalgama.	122.4 kWp	Operational
02	Global Sea Foods (Pvt) Ltd - Unit 02, 171/C/11, Beatrice Estate, Badalgama.	491.3 kWp	Operational

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 CO_2 emissions. The estimated annual power generation output of this bundle project is 557.8 MWh which is exported to the national electricity grid of Ceylon Electricity Board. This replaces an equal amount of fossil fuel dominated power in the National Grid. The total estimated emission reduction corresponding to the annual energy generation is 375 tCO_2e.

2.2 Deviations

2.2.1 Methodology Deviations

No change in methodology and Methodology AMS-I.D Version 18.0 is further applicable

2.2.2 Project Description Deviations

No any changes

3 Safeguards

3.1 Total Impact

The project has been implemented in existing structures, all of which were constructed in compliance with Sri Lanka's prevailing terms and regulations. Notably, as a solar PV project, it does not require an Environmental Impact Assessment under current regulations. Therefore, the project has been executed in accordance with the legal framework in Sri Lanka, contributing to climate change mitigation.

3.2 Local Stakeholder Consultation

The stakeholder consultation process for the Happy Fish Grid-Connected Solar PV Bundle Project began with the identification of the most relevant stakeholders. The primary participants were employees of Global Seafood (Pvt) Ltd., as the solar project has no impact on external parties. It was found that various types of stakeholders with different social statuses were interested in the project. Stakeholders were supportive for the implementation of the project as a SLCCS project, and they believe that solar power project is environmentally safe and may help them.

3.3 AFOLU-Specific Safeguards

Not applicable.

4. Data and Parameters

4.1 Data and Parameters Available at Validation

Data / Parameter	*Grid emission factor (EFy)*
Data unit	*tCO_2e/MWh*
Description	*Grid emission factor calculated using methodological tool to calculate the emission factor or an electricity system.*

Source of data	*Table 9.5 and Figure 9.1: Grid Emission Factors of Sri Lanka by Energy balance 2021 published by Sustainable Energy Authority*
Value applied	*0.7079 tCO_2e/MWh*
Justification of choice of data or description of measurement methods and procedures applied	*Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. (getting published data - SEA,Energy 2021)*
Purpose of Data	*Calculate the emission reduction*
Comments	

4.2 Data and Parameters Monitored

Data / Parameter	*Average Energy Output (EGy)*
Data unit	*MWh*
Description	*Quantity of net electricity export to the grid as a result of the implementation of the proposed project activities in the year for the two projects.*
Source of data	*This parameter is continuously monitored and recorded. Monthly electricity export voucher issued by CEB.*
Description of measurement methods and procedures to be applied	*When net plus connection is available, all the generated electricity will be exported to the Grid. The export energy is continuously measured using Main meters (CEB meters). The meter readings are taken monthly on a specified date by an authorized officer and recorded in a logbook.*
Frequency of monitoring/recording	*Monthly*
Value applied	*1,485.3*
Monitoring equipment	*Energy meter*
QA/QC procedures to be applied	*The CEB meters are properly calibrated and maintained to ensure accuracy. Testing/Calibration interval: Annually by*

	CEB; Cross checking of the data with the cheque received from CEB for exported electricity to the grid
Purpose of data	*Calculation of baseline emissions*
Calculation method	*Direct observation*
Comments	*The recorded data will be checked periodically by the relevant Manager or CE(M&E)*

4.3 Description of the Monitoring Plan

The inverters of Happy fish grid connected Solar PV Bundle Project which was installed by Global Sea Foods (Pvt) Ltd. are fronius make; they have provided access to the online portal of frornius real-time monitoring of the system. Monthly production details are monitored, and the performance changes are identified and informed to the CEB to be rectified.

In sites, Relevant officers 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. Required technical trainings and knowledge sharing sessions have conducted at the initial stage and plan to have more session's correspondingly.to uplift the solar power generation and its basic technical knowledge.

Regarding the document control, the following procedures are followed:

- Documents should be stored either electronically or physically in a location with controlled access.

- Only authorized personnel should be allowed to view or modify the documentation, and a logbook should be maintained to record all modifications. As a best practice, this logbook should include detailed records of every change. As a monitoring tool, Global Sea Foods (Pvt) Ltd has created an online WhatsApp platform to record daily solar meter readings via an online web portal.

- All records and any relevant payments strictly follow the rules and regulation issued by Global Sea Foods (Pvt) Ltd.

5. Quantification of GHG Emission Reductions and Removals

5.1 Baseline Emissions

A baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors are extracted by Table 9.4 and Figure 9.1: Grid Emission Factors of Sri Lanka by Energy balance 2021 published by Sri Lanka Sustainable Energy Authority.

. $BE_y = EG_y \times EF$

Where,

BEy= Baseline Emissions in year y (t CO_2)

EGy = Quantity of net electricity supplied to the grid as a result of the implementation of the Clean Development Mechanism (CDM) project activity in year y (MWh).

EFy= CO_2 Emission factor of the grid in the year 2021 (tCO_2/ MWh)

Note: t CO_2 is a ton of Carbon Dioxide emission

5.2 Project Emissions

Project emission may include the emissions associated with the project installation, operation and maintenance. As per the methodology applied, these emissions are not significant and attributable to the project activity, hence project emissions are reported as zero.

PEy = 0.

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5.3 Leakage

No equipment or materials transferring from outside for this project, so there will be no impact on the project. leakage for this part is zero

LEy = 0

5.4 Net of GHG Emission Reductions and Removals

The emission reduction achieved by the project activity is the difference between the baseline emission and the sum of the project emission and leakage.

ERy = BEy – PEy -LEy

Since PEy = 0;
LEy = 0;

Therefore

ERy = BEy

Emission reduction = Baseline Emissions in year y (t CO_2)

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2021	*319*	*0*	*0*	*319*
Year 2022	*358*	*0*	*0*	*358*
Year 2023	*374*	*0*	*0*	*374*
Total	*1,051*	*0*	*0*	*1,051*

5.5 Comparison of actual emission reductions with estimates in the CMA

Item	Values applied in ex-ante calculation of the registered CMA	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	*1,125*	*1,051*

5.6 Remarks on difference from estimated value in the CMA

Not Applicable

Document Information

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Revisions

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01.0	21-08-2019	Initial issuance
02.0	20-10-2019	Editorial changes
03.0	02-02-2021	Editorial changes