



Carbon Management Assessment (CMA)

Version - 02

Forbes & Walker Rooftop Solar Project

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Project proponent/s	Forbes & Walker Tea Brokers (Pvt) Ltd & Forbes & Walker Warehousing (Pvt) Ltd.
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1. Description of Project Activity

1.1. Introduction of Project Activity

The solar electricity generation facility at the Forbes & Walker Warehouse in Muthurajawela, Wattala, is managed by Forbes & Walker Tea Brokers (Pvt) Ltd. The facility was established in 2024 and connected to the national electricity grid in August 2024 under the Net Plus Plus power purchasing scheme. The current installed capacity is 461.7 kW. The annual solar electricity generation is projected at 534.384 MWh, with an expected annual greenhouse gas (GHG) emission reduction of 385 tCO₂e.

The system is integrated with four inverters and comprises solar PV modules of varying capacities: 575 W (522 panels), 325 W (374 panels), and 250 W (160 panels).

1.2. Sectoral Scope and Project Type

The Forbes & Walker Rooftop Solar Project is categorized under the Renewable Energy sectoral scope, specifically as a grid-connected electricity generation project utilizing solar photovoltaic (PV) technology.

The project is classified as a non-AFOLU (Agriculture, Forestry, and Other Land Use) activity, as it does not involve afforestation, reforestation, land-use change, or other land-based emission reduction and carbon removal interventions. Instead, the project contributes to greenhouse gas (GHG) emission reductions through the generation of renewable electricity from rooftop solar PV systems.

The primary objective of the project is to support the transition towards renewable energy and contribute to the carbon neutrality goals of Forbes & Walker Tea Brokers (Pvt) Ltd and Forbes & Walker Warehousing (Pvt) Ltd. This is achieved through the installation and operation of decentralized rooftop solar power systems, which displace grid electricity consumption and promote the use of clean, sustainable energy sources.

1.3. Project Proponent

Organization Name	Forbes & Walker Tea Brokers (Pvt) Ltd./ Forbes & Walker Warehousing (Pvt) Ltd.
Contact Person	Ms. R. Amitha Kanthilatha
Address	Forbes & Walker Tea Brokers (Pvt) Ltd,

	46/38, Nawam Mawatha, Colombo 02
Title	Human Resource Manager
Telephone	0114767315/ 0741842335
Fax	
E-mail	hr@forbeswalker.com

1.4. Other Entities Involved in the Project

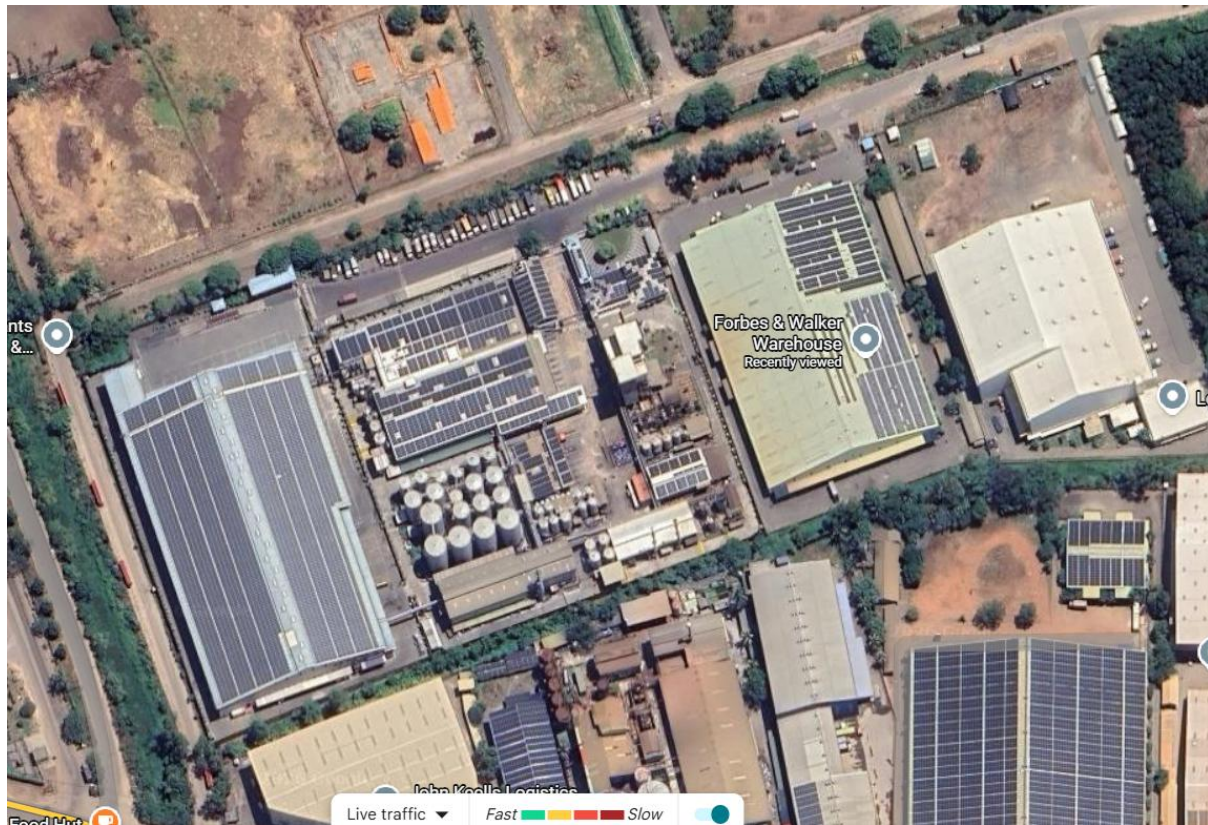
No any other entities involved in the project

Organization Name	
Role in the project	
Contact Person	
Address	
Title	
Telephone	
Fax	
E-mail	

1.5. Location of Project Activity

Location of Project Activity	Kerawalapitiya Industrial Zone, Muthurajawela, Wattala
Province	Western Province
District	Gampaha District
DS Division	Wattala
City/Town	Kerawalapitiya/ Wattala

Community	Sinhala, Tamil & Muslims
Coordinates	7.01665 N , 79.87515 E



1.6. Project Ownership

The project is fully owned by Forbes & Walker Tea Brokers (Pvt) Ltd & Forbes & Walker Tea Warehousing (Pvt) Ltd.

Forbes & Walker Tea Brokers (Pvt) Ltd is one of Sri Lanka's leading tea brokerage companies, with a history spanning over 140 years. The company provides tea brokerage, auctioneering, market intelligence, warehousing, and logistics services, serving tea producers and exporters across the country. As a key participant in the Colombo Tea Auction, Forbes & Walker plays an important role in the marketing and promotion of Ceylon Tea globally. The company is also committed to sustainability and has undertaken initiatives to reduce its carbon footprint, including the adoption of renewable energy solutions.

1.7. Project Fundings

No public funds were used for this project.

2. Duration of the project activity / Crediting period

2.1. Starting date of the project activity

3rd October 2023

2.2. Commissioning Date of the project activity

26th August 2024.

2.3. Expected operational lifetime of the project activity

25 Years

2.4. Project Track

The project intends to be registered under track II and issued carbon credits from project will only be used for internal offsetting of emissions.

2.5. Renewable crediting period

2.5.1 Starting date of the first crediting period:

26th August 2024 to 26th August 2031.

2.5.2 Length of the first crediting period:

Seven years

2.5.3 Fixed crediting period:

Not applicable

2.6. Scale of Project and Estimated Emission

Project Scale	
Small	√
Large	

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 1 (2024/25)	385
Year 2 (2025/26)	385
Year 3 (2026/27)	385
Year 4 (2027/28)	385
Year 5 (2028/29)	385
Year 6 (2029/30)	385
Year 7 (2030/31)	385
Total estimated ERs	2695
Total number of crediting years	07
Average annual ERs	385

2.7. Description of the Project Activity/ Technical Description

The solar electricity generation facility at the Forbes & Walker Warehouse in Muthurajawela, Wattala, is managed by Forbes & Walker Tea Brokers (Pvt) Ltd. The facility was established in 2024 and connected to the national electricity grid in August 2024 under the Net Plus Plus power purchasing scheme. The current installed capacity is 461.7 kW. The annual solar electricity generation is projected at 534.384 MWh, with an expected annual greenhouse gas (GHG) emission reduction of 385 tCO₂e.

The system is integrated with four inverters and comprises solar PV modules of varying capacities: 575 W (522 panels), 325 W (374 panels), and 250 W (160 panels).

This project has contributed to reducing GHG emissions arising from fossil fuel combustion in power generation.

2.8. Conditions Prior to Project Initiation

The available rooftop capacity at the Forbes & Walker Warehouse has been utilized to install a solar PV system. The generated electricity is fed into the national grid, reducing dependence on fossil fuel-based power generation.

2.9. Compliance with Laws, Statutes and Other Regulatory Frameworks

The project has been implemented in compliance with all applicable legal, regulatory, and administrative requirements. This includes obtaining the necessary permits and approvals, adhering to grid connection regulations, complying with relevant environmental regulations, and meeting applicable building codes and technical standards. Furthermore, the project operates in accordance with the terms of the Power Purchase Agreement (PPA), applicable tax and financial regulations, and all other relevant local, regional, and national laws, statutes, and regulatory frameworks governing renewable energy projects.

2.10. Participation under Other GHG Programs

The project has not been registered, nor is it intended to be registered, under any other GHG program, and it has not been subject to rejection by any such program

2.11. Other forms of Credit

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

2.12. Sustainable Development

As a renewable energy initiative, the project aligns with the triple bottom line of the sustainability framework by delivering environmental, economic, and social benefits. It contributes to reducing fossil fuel consumption for power generation, thereby minimizing environmental impacts and lowering the outflow of foreign exchange required for fuel imports. Furthermore, the inherent potential of solar energy can be effectively harnessed in a country like Sri Lanka, where solar irradiance remains consistently high throughout the year.

2.13. Leakage Management

Not relevant

2.14. Commercially Sensitive Information

No commercially sensitive information has been included in this project scope.

3. Environment Impacts

3.1. Analysis of environmental impacts

The implementation of the project results in positive environmental benefits through the reduction of greenhouse gas (GHG) emissions and the promotion of renewable energy generation.

3.2. Environmental impact assessment

The environmental impacts of this project are not considered significant.

4. Local Stakeholder Consultation

4.1. Stakeholder Consultation Process

Board approval was obtained following the required financial analysis. Approval and consultation for the project were also secured from Ceylon Electricity Board. In addition, the necessary training and awareness sessions were provided to factory staff, supervisors, and managers on all aspects related to solar electricity generation, hazard analysis, maintenance and online meter reading.

4.2. Summary of Comments Received

Stakeholder consultations conducted during project development did not result in any significant concerns or objections. Feedback received from management, operational staff, and relevant authorities, including the Ceylon Electricity Board (CEB), was generally supportive of the project. Stakeholders acknowledged the environmental and economic benefits associated with renewable energy generation, particularly the reduction of greenhouse gas (GHG) emissions and the contribution towards the organization's sustainability objectives. No adverse comments requiring modifications to the project design or implementation were received.

4.3. Consideration of Comments Received

The comments and feedback received during the stakeholder consultation process were reviewed and considered by the project proponents. As no significant concerns, objections, or recommendations requiring corrective action were raised, no modifications to the project design, implementation approach, or monitoring

arrangements were deemed necessary. The feedback received reinforced stakeholder support for the project and its environmental objectives.

5. Eligibility Criteria

5.1. General Criteria

Sub Section	Eligibility Criteria	Project Activity	Yes/No
5.1.1	The project activity shall be a new project, which will reduce/absorb GHG emissions or the project activity shall be a project, which was implemented on or after 2020 in order to offset GHG emission within the organization.	<i>The project was implemented in year 2024.</i>	Yes
5.1.2	The project activity shall be located in Sri Lanka.	Kerawalapitiya, Muthurajawela, Wattala	Yes.
5.1.3	The project activity shall not happen in the absence of benefits received from trading Sri Lanka Certified Emission Reduction units (SCERs). (<i>This is not applicable Track II</i>)	Not applicable	Not applicable
5.1.4	The project shall be implemented voluntarily by the project owner but not implemented based on legislation or regulations in the country	This project activity has been implemented on a voluntary basis, and grid interconnection was carried out in consultation with the CEB	Yes
5.1.5	The project activity satisfies environmental standard and regulations of the country	Yes	Yes
5.1.6	The project shall not have been registered under any other national or international scheme. However, if a registered project under other scheme	This project has not been registered under any other	Yes

	is willing to register with SLCCS, then, such project shall be deregistered from the other scheme in order to be eligible	national or international schemes.	
5.1.7	The amount of renewable electricity or thermal energy substituted by the project activity shall be measurable directly or indirectly.	Direct measurement can be done.	Yes.

5.2. Bundling Criteria

This project is not identified as a bundle project. Hence, this section is not applicable.

Sub Section	Eligibility Criteria	Project Activity	Yes/No
4.2.1	The composition of bundles shall not change over time		
2.2.2	All project activities in the bundle shall have the same crediting period		
2.2.3	All project activities in the bundle shall have the same baseline.		
2.2.4	All project activities in the bundle shall have the same project type, methodologies and technology/measure		
2.2.5	Maximum number of project activities per bundle shall be seven.		
2.2.6	Maximum capacity of a project activity of the bundle shall be less than 1.5 MW.		

6. Application of Methodology

6.1. Title and Reference of Methodology

AMS-1.D "Grid connected renewable electricity generation" Version 18.0

6.2. Applicability of Methodology

The selected methodology, AMS-I.D: *Grid Connected Renewable Electricity Generation* (Version 18.0), is applicable to the Forbes & Walker Rooftop Solar Project as the project involves the generation of electricity from a renewable solar photovoltaic (PV) energy source and the export of the generated electricity to the national grid. The project does not involve the switching of fossil fuels, capacity expansion of existing fossil fuel-based power plants, or any activities excluded under the applicability conditions of the methodology. Therefore, the project fully complies with the applicability requirements of AMS-I.D and is eligible for the quantification of greenhouse gas (GHG) emission reductions resulting from the displacement of grid electricity generated from fossil fuel sources.

6.3. Project Boundary

The project boundary covers the physical and geographical site of the rooftop solar PV installation and associated infrastructure, including solar panels, inverters, transformers, and the interconnection with the national electricity grid.

Source		Gas	Included?	Justification/Explanation
Baseline	Emissions from fossil fuel fired power plants connected to National Grid of Sri Lanka	CO ₂	Yes	Main Emission Sources
		CH ₄	No	Minor Emission Sources
		N ₂ O	No	Minor Emission Sources
		Other	No	Minor Emission Sources
	Solar Electricity Generation	CO ₂	No	Minor Emission Sources
		CH ₄	No	Minor Emission Sources
		N ₂ O	No	Minor Emission Sources
		Other	No	Minor Emission Sources

6.4. Baseline Scenario

The baseline scenario represents the situation that would have occurred in the absence of the project activity. Prior to the implementation of the Forbes & Walker Rooftop Solar Project, the electricity demand associated with the facility was met primarily through electricity supplied by the national grid. The Sri Lankan grid comprises a combination of thermal, hydro, wind, solar, and other generation sources, with a significant proportion of electricity being generated from fossil fuel-based power plants.

In the absence of the project, the electricity generated by the rooftop solar photovoltaic (PV) system would not have been available, and an equivalent quantity of electricity would have been generated and supplied through the national grid. Consequently, greenhouse gas (GHG) emissions associated with grid-connected fossil fuel-based power generation would have continued to occur.

The project activity involves the installation and operation of a 461.7 kW grid-connected rooftop solar PV system at the Forbes & Walker Warehouse facility in Muthurajawela, Wattala. The electricity generated by the system is exported to the national grid under the Net Plus Plus scheme, thereby displacing electricity that would otherwise be generated by grid-connected power plants. As a result, the project contributes to reducing GHG emissions associated with conventional electricity generation.

Accordingly, the baseline emissions are determined as the emissions that would have resulted from the generation of an equivalent amount of electricity by the national grid in the absence of the project activity. Baseline emissions are calculated by multiplying the net electricity exported to the grid by the applicable combined margin grid emission factor for Sri Lanka, in accordance with the requirements of AMS-I.D: Grid Connected Renewable Electricity Generation (Version 18.0).

6.5. Additionality

The project is intended to be registered under Track II; therefore, demonstration of additionality is not required.

6.6. Methodology Deviations

Not applicable.

7. Quantification of GHG Emission Reductions and Removals

7.1. Baseline Emissions

The baseline reduction of GHG emission for a particular period is calculated by multiplying net electricity units exported to national grid and combined margin grid emission factor.

GHG Reduction (tCO₂e) = Net Electricity units exported x combined margin grid emission factor.

7.2. Operational Emissions

The project activity utilizes rooftop solar photovoltaic (PV) technology for renewable electricity generation. Under normal operating conditions, the solar PV systems function independently and do not require auxiliary energy inputs from standby generators, fossil fuel-based equipment, or other mechanical support systems for electricity generation. As a result, the project activity does not generate any significant direct greenhouse gas (GHG) emissions during operation. Therefore, in accordance with the applicable methodology, project emissions associated with the electricity generation process are considered negligible and are reported as zero.

$$PE_y = 0$$

7.3. Leakage

Leakage due to transfer of equipment from another activity. The equipment installed in the project activity is not transferred from any other activity. Hence leakage for this part is zero.

$$LE_y = 0$$

7.4. Net GHG Emission Reductions and Removals

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project / Operational emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
Year 1	385	0	0	385
Year 2	385	0	0	385
Year 3	385	0	0	385
Year 4	385	0	0	385
Year 5	385	0	0	385
Year 6	385	0	0	385
Year 7	385	0	0	385

Total	2695	0	0	2695
Annual nu. of crediting period	385			
Annual average over the crediting period	385			

8. Monitoring

8.1. Data and Parameters Available at Validation

Data / Parameter	EF _{CM,Grid,y}
Data unit	tCO ₂ e/kWh
Description	Combined margin CO ₂ emission factor for grid connected power generation in year y
Source of data	Energy Balance – 2022 published by Sustainable Energy Authority
Value applied	0.6803 kgCO ₂ /kWh
Justification of choice of data or description of measurement methods and procedures applied	Methodological tool published by UNFCCC to calculate the emission factor for an electricity system.
Purpose of Data	Calculate the emission reduction
Comments	This factor was applied to calculate baseline emission reduction of the project activity.

8.2. Data and Parameters Monitored

Data / Parameter	Average Energy Output (EG)
Data unit	MWh/year
Description	Quantity of net electricity export to the grid as a result of the implementation of the proposed project activity in the year y

Source of data	Monthly CEB vouchers and bills
Description of measurement methods and procedures to be applied	This parameter will be continuously monitored by project participants using an electronic meter supplied by CEB
Frequency of monitoring/recording	Daily/Monthly.
Value applied	534.384
Monitoring equipment	Energy meter Accuracy class of the meter- class 01
QA/QC procedures to be applied	The meter will be properly calibrated and maintained in order 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	Calculate baseline emission
Calculation method	
Comments	The plant factor and solar electricity generation, in relation to the facility's potential capacity, are monitored by the management of Forbes & Walker Warehouse and Forbes & Walker Tea Brokers (Pvt) Ltd.

8.3. Monitoring Plan

There is no designated plant manager for the facility; however, clerical staff are responsible for maintaining operational records and calculating monthly electricity generation. These records are reported to the Director of Forbes & Walker Warehouse, who in turn coordinates the required maintenance activities and engages appropriate service providers as needed.

9. Appendix

Annixture 1: Estimated Emission Reduction Calculation