REQUEST FOR EXPRESSIONS OF INTEREST

Organisation of the Eastern Caribbean States Commission (OECSC)

Caribbean Efficient and Green-Energy Buildings Project

Grant No.: IDA-E4140

Assignment Title: Investment-grade audits and detailed design of Energy Efficiency Measures (EEM) and Distributed Photovoltaic (DPV) systems in Public Buildings and Facilities in Grenada, Saint Lucia and Guyana.

Reference No.: LC-OECS COMMISSION-554122-CS-QCBS

Participating Countries: Grenada**,** Saint Lucia and Guyana

The Organisation of the Eastern Caribbean States Commission (OECSC) has received financing from the World Bank toward the cost of the Caribbean Efficient and Green-Energy Buildings Project. The OECSC intends to apply part of the proceeds for Investment-grade audits and detailed design of Energy Efficiency Measures (EEM) and Distributed Photovoltaic (DPV) systems in Public Buildings and Facilities in Grenada, Saint Lucia and Guyana.

The objective of this assignment is to conduct Investment Grade Audits (IGAs), compliant with ASHRAE Level 3 standards or equivalent, for selected public buildings in Grenada, Guyana, and Saint Lucia, in order to identify, evaluate, and prioritize Energy Efficiency Measures (EEMs) and Distributed Photovoltaic (DPV) systems for implementation. The assignment will support the preparation of investment-ready interventions for approximately 250 public buildings through:

- Detailed assessment of current building energy performance;
- Identification and technical evaluation of cost-effective EEMs and DPV options;
- Economic and financial analysis of EEMs and DPV proposed measures, including lifecycle costs, savings, payback, IRR, and NPV;
- Preparation of detailed engineering designs, technical specifications, drawings, and Bills of Quantities (BOQs);
- Assessment of environmental and social (E&S) risks associated with the proposed measures in accordance with the World Bank Environmental and Social Framework (ESF), national regulations, and applicable project safeguards instruments; and
- Development of inputs required for procurement including bidding documents for the proposed measures;

The IGAs will be undertaken under a **2-year Framework Agreement**, in the first instance, with distinct batches of buildings addressed under call-off assignments expected to last 6-8 months per batch.

The OECS Commission now invites eligible consulting firms ("Consultants") to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. In the assessment of submissions, consideration will be given to technical competence, qualifications and experience, and local and regional experience on similar assignments.

Key Experts will not be evaluated at the shortlisting stage.

The shortlisting criteria are:

1. A firm with relevant international (experience outside the country where the firm is based) project experience for at least ten (10) years. Relevant technical experience would include programs related to EEMs and DPVs in buildings (especially public buildings).
2. At least Five (5) years of experience conducting ASHRAE Level 3 or equivalent energy audits in public buildings and having completed at least 3 assignments covering a combined minimum of 50 buildings.
3. At least 3 completed projects involving identification and technical evaluation of EEMs with a minimum contract value of USD $170,000.
4. At least 2 completed projects involving design or assessment of distributed solar PV systems with a minimum contract value of USD $100,000.
5. At least 3 completed projects involving preparation of engineering designs, technical specifications, drawings, and BOQs for energy efficiency and/or solar PV projects.
6. At least 3 completed projects involving financial/economic analysis of energy projects, including energy savings, lifecycle costs, payback, NPV and IRR.
7. At least 2 completed projects involving environmental and social screening and/or ESMP preparation for energy or infrastructure projects.
8. At least three (3) years of experience in providing similar services in the Latin America and Caribbean (LAC) region or SIDS.

To obtain the maximum degree of comparison among Expressions of Interests (EOIs) and facilitate the evaluation process, the EOI should be a **MAXIMUM of Thirty (30) pages** and include the following information mentioned below:

- Title page with name of firm submitting the EOI: should contain name of firm (or joint venture and/or a sub-consultancy, if applicable), address, email, telephone, name of contact person and date of submission.

- Expression of Interest: including the firm's general and specific experience.

The attention of interested Consultants is drawn to Section III, paragraphs, 3.15, 3.16, and 3.17 of The World Bank Procurement Regulations for IPF Borrowers : Procurement in Investment Project Financing - Goods, Works, Non-Consulting and Consulting Services - Sixth Edition (English), February 2025 ('Procurement Regulations') setting forth the World Bank's policy on conflict of interest.

Consulting Firms wishing to signify their interest in undertaking the prescribed services are to submit an Expression of Interest (EOI) providing information demonstrating that they have the required qualifications and relevant experience to perform the services.

Consultants must clearly indicate whether they intend to associate with other firms in the form of a joint venture or a sub-consultancy to enhance their qualifications. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

Expressions of interest can be submitted via email to the first address and copied to the second address by **October 12, 2026,** at **16:00 hours Eastern Caribbean Time (EST)**. Email submissions should include the name and address of the Consultant and shall be clearly marked in the subject line as **"Expression of Interest- Investment-grade audits and detailed design of Energy Efficiency Measures (EEM) and Distributed Photovoltaic (DPV) systems in Public Buildings and Facilities in Grenada, Saint Lucia and Guyana."**

Further information can be obtained at the address below between 09:00 and 16:00 hours (Atlantic Standard Time) Monday to Friday.

Tehillah Bannis
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Organisation of the Eastern Caribbean States Commission
P.O. Box 179
Morne Fortune
Castries
St. Lucia
Tel: 1-758-455-6418
E-mail: ***procurementbids@oecs.int*** ***Copied to:*** ***shanna.emmanuel@oecs.int***

A Consultant will be selected in accordance with the Quality and Cost Based Selection (QCBS) based selection method set out in the World Bank's Procurement Regulations for IPF Borrowers, Sixth Edition, February 2025.

The Terms of Reference (TOR) for this consultancy is provided below.

Terms of Reference

Investment-grade audits and detailed design of Energy Efficiency Measures (EEM) and Distributed Photovoltaic (DPV) systems in Public Buildings and Facilities in Grenada, Saint Lucia and Guyana.

Introduction and Context

Despite the availability of indigenous renewable energy resources, many Caribbean nations continue to rely heavily on imported fossil fuels which has threatened energy security and led to high electricity prices. The vast majority of power generation capacity in countries such as Guyana, Saint Lucia, and Grenada, consists of heavy fuel oil and diesel-fired power plants. The reliance on expensive imported heavy fuel oil and diesel fuel, together with the inability to take advantage of economies of scale due to the small market sizes of individual island states, has resulted in extremely high electricity tariffs in these countries. The Governments of Grenada, Guyana and Saint Lucia have established policies and goals for transition to low carbon economies and transformation of their power sector supply mix to make use of indigenous renewable energy resources. In addition to National Energy Policies and Plans, these countries have also articulated national climate actions which speak clearly to the development of solar energy and increased energy efficiency as part of the national development.

The buildings sector is seen as an important untapped opportunity for sustainable energy in the Caribbean. Preliminary energy surveys of selected buildings in the named countries have indicated major benefits from investments in EE and distributed solar photovoltaic (PV) systems. These interventions can reduce dependency on fossil fuels while cultivating a landscape of energy independence, lower electricity costs, decrease GHG emissions, enhance resilience of critical public services and increase occupancy comfort. The results from these energy surveys indicate that EE and RE investments are economically viable with preliminary indications of payback periods of less than 5 years.

The Governments of Grenada, Guyana and Saint Lucia have received financing from the World Bank (WB) toward the costs of the multi-country Caribbean Efficient and Green Energy Buildings Project (CEGEB Project).The CEGEB Project is designed to address common challenges in the energy sector that countries in the region face and will support investment in EE measures and RE systems, such as distributed solar PV systems installed on rooftops or in public spaces. The EE retrofits will include passive and active EE measures along with improvements in building-control systems. Passive EE measures will include energy-efficient windows, shading, wall and roof insulation, and cool surfaces. Active EE measures will include the replacement of existing inefficient building equipment and appliances, or installation of new energy efficient equipment and appliances, such as lighting systems, air-conditioning equipment, air handling systems, ceiling fans, and refrigerators or freezers using refrigerants with low or no global-warming potential (GWP), where appropriate. Improvements in control systems will include smart controls, sensors, and energy-management systems to meet EE objectives. The Project will also support the safe disposal of used equipment and materials.

Part of the financing from the CEGEB Project will be used to hire consulting firms (hereafter referred to as the Consultant) to undertake investment grade audits (IGAs), with minimum ASHRAE level 3 or equivalent standards in approximately two hundred and fifty (250) public buildings in Grenada, Guyana and Saint Lucia to prepare detailed designs, technical specifications, and bidding documents for EE measures (EEMs) and distributed solar PV systems (DPVs) for these buildings. The IGAs will be undertaken under a 2-year Framework Agreement, in the first instance, with distinct batches of buildings addressed under call-off assignments expected to last 6-8 months per batch.

Objectives of the assignment

The objective of this assignment is to conduct Investment Grade Audits (IGAs), compliant with ASHRAE Level 3 standards or equivalent, for selected public buildings in Grenada, Guyana, and Saint Lucia, in order to identify, evaluate, and prioritize Energy Efficiency Measures (EEMs) and Distributed Photovoltaic (DPV) systems for implementation.

The assignment will support the preparation of investment-ready interventions for approximately 250 public buildings through:

- detailed assessment of current building energy performance;
- identification and technical evaluation of cost-effective EEMs and DPV options;
- economic and financial analysis of EEMs and DPV proposed measures, including lifecycle costs, savings, payback, IRR, and NPV;
- preparation of detailed engineering designs, technical specifications, drawings, and Bills of Quantities (BOQs);
- assessment of environmental and social (E&S) risks associated with the proposed measures in accordance with the World Bank Environmental and Social Framework (ESF), national regulations, and applicable project safeguards instruments; and
- development of inputs required for procurement including bidding documents for the proposed measures;

The assignment shall also assess structural, operational, social and environmental conditions that may affect implementation of the proposed investments and recommend any required remediation measures.

The final list of buildings to be audited will be confirmed through Call-Off Contracts.

Scope of Work

The full scope of this assignment includes the identification, assessment, prioritization, and detailed design of Energy Efficiency Measures (EEMs) and Distributed Photovoltaic (DPV) systems, together with preparation of the technical, financial, social, environmental, and procurement documentation required for implementation.

The Consultant shall prepare:

- detailed technical assessments and energy audits;
- engineering designs and drawings;
- technical specifications;
- bills of quantities (BOQs);
- cost-benefit and financial analyses;
- measurement and verification (M&V) plans;
- environmental and social screening reports; and
- Environmental and Social Management Plans (ESMPs).

The OECS Commission and the National Project Implementing Units (PIUs) will facilitate coordination with the selected buildings' administration and provide access to available documentation, including utility bills, preliminary energy surveys, and existing drawings.

The Consultant shall verify the completeness and accuracy of all available information through site visits and field assessments. Where drawings are unavailable or outdated, the Consultant shall prepare or update as-built drawings as necessary.

The Consultant shall report (providing update on identified challenges, risks and progress to date) to the OECS Commission and participate in biweekly coordination meetings with the OECS Commission, National PIUs, and the World Bank.

The Consultant shall perform the following 4 tasks to complete the assignment:

Task 1: Review of Existing Energy Audits & Surveys, and Inception Report

The Consultant shall review all existing energy surveys, preliminary audits, utility consumption data, and related documentation for the selected buildings. These assessments shall serve as reference material for the development of the IGAs but shall not replace the detailed analyses required under this assignment.

Based on the review, the Consultant shall develop the methodology and workplan for conducting the IGAs and associated technical, financial, and environmental assessments.

The Consultant shall:

- assess the adequacy of the existing surveys and identify data gaps;
- define the methodology for conducting ASHRAE Level 3 IGAs;
- prepare a measurement and data collection plan;
- define the methodology for identification and prioritization of EEMs and DPV systems;
- establish the approach for technical design development, preparation of specifications, BOQs, and bidding documentation;
- identify environmental and social risks and define the methodology for preparing ESMPs;
- assess existing electrical infrastructure and identify areas of non-compliance with applicable electrical codes and regulations; and
- prepare a detailed work program and staffing plan.

Deliverables:

Inception Report and E&S Screening Report

The Inception Report shall include, but not be confined to:

1. findings from the review of existing surveys and documentation;
2. the finalised methodology and implementation approach (workplan);
3. site visit, data collection plans and E&S assessments (including staff allocation and details)
4. confirmed measurement and audit protocols;
5. finalised list of equipment and instruments to be used;
6. proposed schedule and deliverables;
7. identification of risks and constraints; and
8. required support from the OECS Commission and National PIUs.

Task 2: Site Assessments, Investment Grade Audits, and Identification and assessment of EEMs and DPV Systems

Site Visits and Data Collection

The Consultant shall conduct detailed site visits and consultations with facility managers, building operators, and users to collect all information necessary to complete the IGAs.

The Consultant shall undertake all measurements and inspections required to comply with ASHRAE Level 3 requirements, using appropriately calibrated instruments and equipment.

Consultants will be responsible, to arrange, calibrate and use their own (or rented) instruments and gauges for all electrical end use equipment and appliances as well as passive features of the buildings, including roof structure, strength etc. needed to locate DPV measures.

The following information shall be documented for each building, inter alia as required in ASHRAE Level 3 energy audit guidelines:

- General building characteristics, floor areas (m^2) and age (including date of any major retrofits), typology and general use of the building,
- Building layout, floorplan, and site plan with the orientation of the building and the surroundings.
- Fenestration and Solar Protection: Details on window and door types, dimensions, frame materials, and glazing (e.g., single/double pane). Documentation of building orientation relative to solar path, and the presence and condition of external shading devices, awnings, or hurricane shutters.
- Structural assessment: inspection by a qualified Engineer of structural integrity of roof, ceiling, physical condition of building, and any defects that could affect longevity, utility, safety, or feasibility of DPV and EEM installations,
- Environmental inspection: presence of water damage or mold, evidence of wood- destroying insects or other vermin or pest infestation, or presence of asbestos or other hazardous materials, but not limited to these only,
- Operations: Occupancy rate, occupancy schedules, descriptions of current energy usage and management activities for each and every electrical end use equipment, appliance and system,
- Indoor comfort: Temperature, humidity, CO_2 and lighting levels in a representative sample of occupied building spaces
- Utility information: Data available about energy consumption, loads and costs for energy services. Review and analysis of the energy bills and data on electric (and fossil fuels if any) energy consumption and water bills (if any) for at least 24 months.
- Building envelope conditions: e.g., area and composition of external walls, floors, roofs, and windows, building geometry, thermal transmittance and u-values of building elements,

- Energy systems: energy sources, technical characteristics of equipment comprising cooling controls, ventilation, sanitary hot water, air conditioning and lighting systems, electrical distribution systems, among others,
- Inventory of existing systems and electrical equipment: HVAC systems (including the refrigerant type and quantity), air handling systems, automatic control systems, lighting, motors, electrical infrastructure**,** including condition and capacity of main distribution boards, sub-panels, circuit breakers, and cabling, including an assessment of spare capacity for DPV integration and compliance with current electrical codes, etc.,
- Assessment of the energy performance levels of the existing systems and equipment from equipment ratings and specifications or measurements,
- Other relevant information impacting energy consumption levels, such as operating hours of the institution and energy services, number of users, indoor comfort measurements and occupant surveys (temperatures, humidity), energy consumption related to behavior of the users, thermostat settings etc.,
- Total building's electrical load and energy consumption measurement for at least one week to identify electricity consumption during weekdays and weekends,
- Energy consumption of air conditioning systems and indoor temperatures, at least for 24 hours,
    - Output values like airflow, water flow, air and water temperatures of cooling production and distribution central systems,
- Electrical consumption of lighting systems for sample circuits, and lighting level (lux) in sample representative locations, and their types and efficacy (lumens per watt).
- Verification of compliance of all electrical and electro-mechanical installations with national applicable regulations, codes and standards in consultation with the relevant governing Electrical Authority: This should include:
    - Analysis of the capacity of electrical boards,
    - Analysis of the status of the main wiring,
    - Analysis of the load demands on the mains of power equipment,
    - Verification the existence of protective earth connection and lightning protection where required,
    - Diagnosis of the state of the buildings' electrical installations, proposing necessary improvement measures, including estimated costs,
    - Identification of the location for the inverters, DC and AC cables.

The Consultant shall also identify any structural or environmental remediation works required to enable implementation of the proposed measures.

Identification and Assessment of EEMs

Based on the analysis of the above information, the Consultant shall develop calibrated baseline energy models for each building using either actual and/or normative energy performance, as appropriate.

The actual baseline shall be used as the reference case where measured indoor environmental conditions meet applicable comfort standards and installed systems comply with applicable codes and regulations.

A normative baseline shall be developed and used where: (i) measured indoor temperatures or other indoor environmental conditions fall outside acceptable comfort ranges for normal occupancy; and/or (ii) installed active systems, equipment, or operating conditions do not comply with applicable regulations, codes, or minimum performance standards. In such cases, the normative baseline shall represent energy consumption under compliant operating conditions, assuming indoor comfort levels consistent with recognized standards and equipment performance in accordance with applicable regulations.

The calibrated energy model shall provide estimates of baseline energy consumption, whether actual or normative, disaggregated by energy use for cooling, preparation of sanitary hot water, indoor lighting, ventilation and other relevant energy uses.

The Consultant shall identify and evaluate technically feasible and cost-effective EEMs, including both passive and active measures, in accordance with applicable national (for Grenada, Guyana and Saint Lucia) and regional standards and regulations (including the CARICOM Regional Energy Efficiency Buildings Code, the OECS Building Code and EE Minimum Energy Performance Standards (MEPS) and EE Labeling).

For each proposed EEM, the Consultant shall determine:

- projected energy and demand savings (kWh and kW);
- fuel savings and greenhouse gas emission reductions;
- investment and operating costs;
- implementation and maintenance requirements;
- payback period;
- internal rate of return (IRR);
- net present value (NPV); and
- associated co-benefits.

The investment costs of EEMs should be determined based, to the best extent possible, on preliminary quotes from contractors, vendors, and installers, or ESCOs .Cost estimates shall include all direct and indirect implementation costs, including remediation works, electrical upgrades, commissioning, disposal of waste materials, and associated civil works.

All HVAC-related recommendations shall prioritize low-GWP refrigerants in accordance with the Montreal Protocol and Kigali Amendment requirements.

The Consultant shall provide a complete list of all EEMs considered and prepare a prioritization of recommended EEMs based on the methodology approved by the OECS Commission and the World Bank in Task 1.

The consultants shall provide a recommended investment package for each building which shall achieve the following minimum performance thresholds:

- EE-only package : minimum 20% energy savings from the appropriate baseline and maximum simple payback of 10 years;
- EE + DPV package: minimum 30% energy savings from the appropriate baseline and maximum simple payback of 20 years.

The Consultant shall also prepare a Measurement and Verification (M&V) Plan consistent with international best practice such as the International Performance Measurement and Verification Protocol (IPMVP) or its equivalent. The M&V Plan shall specify for each EEM the parameters to be measured, the pre-implementation baseline values for these parameters, the post-implementation measurements, and the methodology for calculation of the achieved energy savings and making any needed adjustments for changes in any baseline parameters.

DPV System Assessment

The Consultant shall assess the technical feasibility of DPV systems for each building, including:

- roof condition, structural integrity, and load-bearing capacity;
- available roof and carport areas;
- solar resource and shading analysis;
- electrical interconnection requirements;
- inverter and cable routing locations;
- access and safety considerations; and
- resilience requirements for hurricane-force winds, high temperatures, and corrosive environments.

The assessment will be conducted through visual inspection, analysis of the existing data and roof specifications. Where roof information is insufficient, the Consultant may recommend Finite Element Analysis (FEA), subject to approval by the requesting country in consultation with the OECS Commission and the World Bank. Technical requirement for an FEA is provided in Annex 3. The consultant shall also propose the estimated price for undertaking a FEA of a typical building to be considered when a FEA is required and approved. The FEA cost shall not be used in the financial evaluation but shall be considered later in the project for the payment of each approved FEA.

The Consultant shall:

- Model each DPV system using PVsyst; or equivalent
- Define DC and AC capacities, considering a minimum 25% DC/AC oversizing ratio;

  - ✓ Provide the area available for solar PV modules in m^2 and consider a high efficiency PV module (not less than 21.5%) for the conversion to kWp. The consultant shall explain the area considered versus the available area for the PV modules and refrain from providing only kWp. To estimate AC capacities, a minimum of 25% DC/AC oversizing shall be considered.
  - ✓ The DPV systems will be designed to be climate- and weather-resilient, including resistance to high winds-specifically, structural integrity to withstand impacts equivalent to a Category 5 hurricane, high temperatures, and, where relevant, corrosion risk.

Deliverables

Detailed Task 2 Report, consisting of an Executive Summary and an agreed standardized template for building-level outputs, an excel sheet showing calculations/formulae used in deriving the recommended measures and associated slide deck, a separate section for each building, including:

- all data collected
- complete list of EEMs and list of recommended EEMs for implementation, based on cost-benefit and financial analysis, and M&V plan.
- Proposed DPV systems: areas available, loads and indicative yields

Task 2 Report, including:

- Executive Summary;
- detailed findings for each building;
- baseline analyses;
- list of all assessed and recommended EEMs;
- financial and economic analyses;
- M&V Plan;
- proposed DPV systems and indicative designs

Task 3. Detailed design of EEMs and DPV, technical specifications, and bills of quantities

EEM

Following approval by the Countries of the proposed EEMs in Task 2, the Consultant shall prepare the detailed designs (including the appropriate architectural, mechanical, and electrical drawings) technical specifications, bills of quantities and bidding documents for each EEM in each building.

The Consultant shall prepare:

- Architectural (plans, sections, facades, technical details of building envelope and layout), mechanical, electrical, and structural drawings;
- Design calculations;
- Technical specifications;
- Bills of quantities;
  Remediation or structural correction plans (mold, pests, roof elements) if required;
- Implementation requirements; and
- bidding documentation inputs.

For technical requirements and specifications that will be linked to new materials or equipment not included in country- specific norms or standards, the Consultant shall follow relevant recognized international norms and codes. The technical design shall also take into account relevant regulations in the participating countries on health, environmental protection and safety, any existing environmental management plans for public buildings and facilities, and the environmental and social management framework for the project (ESMF) provided by the OECS Commission. The technical design documentation shall be certified by the Consultant according to relevant provisions in the Law on Construction of the respective country.

In case approval from local authorities/state expertise for the reconstruction/building retrofits in accordance with local legislation is needed, provide technical support in the approval process if required.

Deliverables
The Report shall specify the EEMs and related detailed design (including the appropriate architectural, mechanical, and electrical drawings (in DWG and PDF formats) technical specifications, bills of quantities as needed for preparation of the bidding documents for each EEM.

DPV systems
Following approval by the countries of the proposed DPV systems in Task 2, the Consultant shall prepare the detailed designs (including the appropriate architectural, mechanical, and electrical drawings) technical specifications, bills of quantities and bidding documents for each DPV in each building.

The Consultant shall undertake, at a minimum, the following activities:

Solar Resource Assessment and Energy Yield Modelling

- Model each proposed solar DG system using PVsyst or equivalent and provide energy yield assessments, including P50 and P90 generation estimates.
- Conduct a detailed solar resource assessment and demonstrate that the solar irradiation data source used is reliable, current, and of acceptable quality.
- Design all solar PV systems, including grid-connected systems, to maximize the use of available installation areas for energy generation while maintaining a minimum DC/AC oversizing ratio of 25%.

System Capacity Assessment and Sizing

Determine the optimal AC system capacity for each site based on:

- Historical electricity consumption data covering a minimum of one (1) year and, where available, up to three (3) years.
- On-site load measurements conducted over a minimum period of one (1) full week for each building, where feasible.
- The contracted AC capacity and/or available grid connection capacity as confirmed by the utility company.
- Report the ratings of all relevant breakers and electrical protection devices associated with the point of interconnection.
- Identify and report the maximum feasible AC and DC capacities that can be installed at each building while maintaining a minimum DC/AC oversizing ratio of 25%.

Site Assessment and Equipment Location Identification

- Conduct site visits and identify all buildings included in the project.
- Consult with building owners and/or responsible personnel to determine suitable locations for:
- PV modules;
- Inverters;
- DC cabling routes;
- AC cabling routes;
- Main switchboards or equivalent equipment for grid interconnection; and
- Utility meters and metering infrastructure.
- Assess and document roof access arrangements, constraints, and any installation considerations.

Carport Assessment

- Evaluate the feasibility of solar PV carports at each site.
- Characterize, quantify, and describe all potential carport installation areas, including their estimated generation potential and associated infrastructure requirements.

Preliminary System Design

- Prepare and submit for each solar DG system:
- Indicative layouts;
- Single-line diagrams (SLDs);
- Electrical configurations; and
- A description of the main equipment and system components.

Economic, Financial and Environmental Analysis

- Develop cost estimates for each proposed solar PV system based on both local market pricing and international benchmark pricing.
- For each building and proposed system, calculate and report:
- Electricity savings;
- Fuel savings (where applicable);
- Greenhouse gas (GHG) emission reductions;
- Cost savings;
- Operation and maintenance (O&M) costs;
- Capital investment requirements;
- Simple payback period;
- Internal Rate of Return (IRR); and
- Net Present Value (NPV).

Draft Feasibility Report

- Prepare and submit a draft report on the proposed Distributed Photovoltaic (DPV) systems to the countries.

The report shall include the technical assessment, proposed system configurations, and the results of all economic, financial, and environmental analyses for review and approval.

Procurement and Tender Documentation

- Prepare the technical documentation required for DPV procurement, including:
- Detailed designs;
- Technical specifications;
- Bills of Quantities (BOQs); and
- Any other technical information required for the bidding documents covering goods, services, and works.

As the implementation contracts will be based on an Engineering, Procurement and Construction (EPC) approach, the Consultant shall avoid over-specification of equipment and technologies. Technical specifications shall focus on minimum performance, energy generation, reliability, and delivery requirements while allowing bidders sufficient flexibility to propose compliant technical solutions.

Deliverables

- Detailed design (including the appropriate architectural, mechanical, and electrical drawings (in DWG and PDF formats) technical specifications, bills of quantities needed for preparation of the bidding documents for each DPV system.

Task 4 : Identify environmental and social risks and prepare Environmental and Social Management Plans (ESMPs)

The Consultant shall identify environmental and social risks associated with the proposed investments and prepare the required environmental and social management documentation in accordance with the project's ESMF, the World Bank ESF and Environmental Health and Safety (EHS) Guidelines and applicable national regulations.

The Consultant must adhere to and include in the ESMP the Environmental and Social Standards (ESS) relevant to the assignment which include:
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts;
ESS 2: Labour and Working Conditions;
ESS 3: Resource Efficiency and Pollution Prevent and Management and
ESS 10: Stakeholder Engagement and Information Disclosure.

Environmental and Social Assessment and Management

Under this Task, the Consultant shall undertake the following activities:

1. Environmental and Social Risk Assessment

- Identify and assess the environmental and social risks and impacts associated with each proposed EE and DPV intervention and determine the corresponding risk level.
- Identify the presence, location, condition, and estimated quantities of hazardous and non-hazardous materials that may require removal, handling, storage, transportation, or disposal during implementation. Hazardous materials may include, but are not limited to:

- Asbestos-containing materials;
- Mercury-containing lamps and lighting equipment;
- Ozone-depleting substances (ODS) and refrigerants;
- Electronic waste (e-waste); and
- Other hazardous construction or demolition waste.

2. Preparation of Site-Specific Environmental and Social Management Plans (ESMPs)

- Based on the findings of the E&S screening and risk assessment, prepare site-specific Environmental and Social Management Plans (ESMPs) and any other E&S instruments (such as Labour Management Procedures and a Stakeholder Engagement Plan) required under the ESMF using the agreed templates.
- Submit all ESMPs to the OECS Commission for review and approval.
- The ESMPs shall include all mitigation, monitoring, reporting, and institutional measures required to manage identified environmental and social risks throughout project implementation and operation.

- The ESMPs shall also include technical specifications, environmental and social requirements, contractual clauses, and Bills of Quantities (BOQs) for incorporation into the bidding documents and subsequent contracts for design, supervision, supply, installation, and construction works.

3. Waste Management Assessment

For each building or site, the ESMP shall:

- Identify all waste streams expected to be generated during implementation;
- Estimate the quantities of each waste stream;
- Classify waste streams as hazardous or non-hazardous;
- Identify materials requiring special handling, including but not limited to asbestos-containing materials, mercury-containing lamps, ozone-depleting substances, refrigerants, and electronic waste;
- Define procedures for waste segregation, collection, packaging, temporary storage, transportation, treatment, recycling, and final disposal;
- Identify approved disposal facilities and any interim storage locations in accordance with national legislation and the requirements of the ESMF;
- Specify occupational health and safety requirements, including personal protective equipment (PPE), handling procedures, worker protection measures, and monitoring requirements in accordance with national legislation and the World bank's EHS Guidelines and ESS 2; and
- Provide cost estimates for implementation of all environmental, social, health, and safety mitigation measures.

4. Stakeholder Consultation Support

1. Support the countries in conducting site-specific stakeholder and public consultations on the energy audits, proposed investments, and draft ESMPs.
2. The countries will lead and organize the consultations; however, the Consultant shall prepare all technical materials, presentations, summaries, and supporting documentation required for the consultation process.
3. The Consultant shall participate in consultations as requested and provide technical explanations of proposed mitigation, monitoring, and management measures.
4. Consultations shall present:
    - The proposed EEM and DPV interventions;
    - The identified environmental and social risks and impacts;
    - The mitigation and monitoring measures proposed in the ESMPs;
    - Institutional responsibilities for implementation and monitoring;
    - Resource requirements for implementation of the ESMPs; and
    - The project grievance mechanism.

- Following the consultations, the Consultant shall document stakeholder feedback, address comments as appropriate, and revise the ESMPs accordingly.
- The final ESMPs shall include a summary of the consultation process, stakeholder comments received, and actions taken in response to those comments.

Deliverables

Environmental and Social Management Plans (ESMPs)

- Site-specific ESMPs for all buildings and proposed interventions, including consultation records and summaries.

Buildings with similar characteristics, risks, and intervention types may be grouped under a common ESMP approach and pricing of interventions per unit area, subject to agreement with the OECS Commission following review of the Inception Report and Screening Report. The building categories proposed are

1) Healthcare Buildings;

2) Educational Buildings;

3) Government Administrative Offices;

4) Storage Facilities and;

5) Security Buildings (eg police and military)

Services to be provided to the Consultant

The OECS Commission will provide the Consultant with the preliminary energy surveys already conducted and introductions to the respective building administrators.

The Consultant will be responsible for all other arrangements to ensure coordination with the respective buildings' administrations and all relevant entities.
It will be the responsibility of the consultant, when site visits are carried out, to ensure that all safety precautions are taken.

Qualifications/Experience

Consulting Firm:

1. The Consultant should be a firm with relevant international (experience outside the country where the firm is based) project experience for at least ten (10) years. Relevant technical experience would include programs related to EEMs and DPVs in buildings (especially public buildings).
2. At least Five (5) years of experience conducting ASHRAE Level 3 or equivalent energy audits in public buildings and having completed at least 3 assignments covering a combined minimum of 50 buildings.
3. At least 3 completed projects involving identification and technical evaluation of EEMs with a minimum contract value of USD $170,000.
4. At least 2 completed projects involving design or assessment of distributed solar PV systems with a

minimum contract value of USD $100,000.

5. At least 3 completed projects involving preparation of engineering designs, technical specifications, drawings, and BOQs for energy efficiency and/or solar PV projects.
6. At least 3 completed projects involving financial/economic analysis of energy projects, including energy savings, lifecycle costs, payback, NPV and IRR.
7. At least 2 completed projects involving environmental and social screening and/or ESMP preparation for energy or infrastructure projects.
8. At least three (3) years of experience in providing similar services in the Latin America and Caribbean (LAC) region or SIDS.

Key/Non-Key Experts

The Consultant must propose a team capable of successfully carrying out all aspects of the TOR with local/international in-depth experience in executing similar assignments, including certified energy auditors, EE and DPV experts, financial specialists, structural integrity expert, environmental and social specialists, and M&V specialists, etc. The Consultant shall demonstrate the capability to mobilize enough skilled staff for carrying out the project activities within the allocated time covering all buildings.

The following key expertise and specialists are expected to be included in the team (to be evaluated as part of the technical proposal):

Key Expert 1: Energy Efficiency Specialist/Project Manager
The expert has certified energy auditor qualifications and specific experience of 10+ years in similar international EE assessments, Investment grade audits ASHRAE energy audits, energy simulations and EE analysis for buildings. He/she has been project manager of similar international projects involving EE assessments and/or conducting energy audits, developing energy baselines, assessing EEMs in buildings, project commissioning etc. The expert has a university degree in architecture, engineering in the relevant field, energy economics, energy management, or similar field, and solid experience in the identification and assessment of EEMs in buildings and performance of energy audits. Experience in similar countries is an advantage. Fluency in English required.

Key Expert 2: Solar PV specialist
Solar PVs engineer with a minimum 10 years of experience in similar international investment activities for solar PVs system. University degree in civil/electrical engineering, energy management, or equivalent. Prior experience in preparation of design, construction and bidding documents. Strong knowledge of international and national standards and norms on renewable energy efficiency and building codes. Fluency in English required.

Key Expert 3: Energy Economist/Financial Modeling Expert
The expert should hold a Master of Science in Economics, Finance, Engineering, or a related field, with a minimum of ten years of demonstrated experience in economic and financial analysis of energy sector projects. This should include a proven track record in conducting investment-grade audits for energy efficiency and renewable energy projects, with strong command of standard financial modeling techniques (NPV, IRR, LCOE, CBA) and experience preparing or reviewing similar models. The expert should also have hands-on experience with technical and financial due diligence for EE and RE investments, including energy savings calculations, M&V frameworks (e.g., IPMVP protocols). Fluency in English required.

Key Expert 4: Environmental and Social Expert
University degree in environmental engineering or equivalent with at least 10 years of experience in environmental assessments. Focus on hazardous material inventories in buildings, in particular asbestos/mold, and experience with international requirements for proper asbestos and mercury containing CFLs removal,

handling and possible treatment options, including costs is preferred. Some expertise in social issues, social risk management and stakeholder consultations will be a plus. Knowledge of international best practices, and development of simplified, low-cost options. Fluency in English required.

Key Expert 5: Structural Integrity Expert

Master of Science in civil/structural engineering or equivalent, Professional certifications in building envelope performance and retrofitting or equivalent. At least 10 years' experience in building envelope performance or retrofitting or structural integrity for energy efficiency upgrades. Fluency in English required.

The proposed team must possess key skills and credentials, including:

On EEMs

- Education of at least bachelor's degree in engineering, architecture or economics.
- Strong knowledge of international and local standards and norms on energy efficiency and building codes.
- Professional experience in the field of this project (energy efficiency, and/or building design/construction, structural integrity)
- Prior experience on energy auditing of buildings and preparation of detailed project designs and technical specifications for EEMs
- Prior experience on preparation of design, construction and bidding documents
- Good communication, management, organization and reporting skills

On DPVs:

- Education of at least bachelor's degree in energy engineering or economics.
- Strong knowledge of international and national standards and norms on renewable energy (solar PV), energy efficiency and building codes.
- Relevant professional experience in the field of this project
- Prior experience on similar activities for solar PVs systems
- Prior experience on preparation of design, construction and bidding documents
- Good communication, teamwork, and reporting skills

Timeframe and implementation arrangements

The estimated time frame is expected to be 8 months from the day of the contract signing. Expenditure on logistics, including international travel, is to be included in the proposed costs.
The Consultant will provide all necessary equipment or resources for the activities.

Deliverables and timeline

The proposed timeline is outlined below.

	Deliverables	**Delivery Date**
1	Inception Report and E&S Screening Report	• 1.5 months from signing the contract
2	Task 2- Report on Site visits, data collection for EEMs and DPVs; Identification and assessment of EEMs	• Draft report for one building: 3 months after signing the contract • Draft report for the remaining buildings: 4 months after signing the contract

		• Submission of updated report incorporating all recommended changes 1 month after comments have been received • Submission of Final approved reports, 8 months after signing the contract
3	Task 3- Detailed design of EEMs, technical specifications, and bills of quantities Detailed design, technical specification & BOQ of DPVs systems	• 6.5 months after signing the contract • 7 months after signing the contract for the remaining buildings • Submission of updated report incorporating all recommended changes 1 month after comments have been received/design • Submission of Final approved reports/designs, 8 months after signing the contract
4	Task 4. ESMPs	• 5.5 months after signing the contract • Submission of updated report incorporating all recommended changes 1 month after comments have been received • Submission of final approved ESMP, 8 months after signing the contract

Payment Terms

The maximum proposed cost per square-feet per building classification agreed upon during the Framework Contract award shall serve as absolute fee ceilings. No Call-Off Assignment shall exceed these pre-agreed rates. Individual Call-Off Assignments will be issued on a Lump-Sum basis (linked to specific deliverables) and payments will be disbursed in installments upon formal written acceptance of key deliverables by the Contracting Authority. Travel, accommodation, and per diems are not included in fee rates. Reasonable travel costs directly linked to a Call-Off Assignment will be reimbursed at actual cost as per rates agreed to during the Framework Contract award.

ANNEX 1: Terms of Reference for the Finite Elements Analysis (FEA)

Scope of work
Rooftops at the buildings/facilities to be used to install PV rooftops includes:

Number	Building Name

One of the concerns that needs to be addressed is the structural capacity of the rooftops to withstand the PV modules plus structures as well as during installation for safety reasons. The finite element analysis (FEA) for the roof shall include:

a) The design criteria for the roofs.

b) Specifications for the roof materials used.

c) The design criteria for the PV systems: the roof shall be simulated full of PV modules along the longest dimension. The nodes for the FEA should not be spaced more than 1 meter.

d) A list of live loads: environmental loads such as worst-case wind conditions perpendicular to the roof and 50 and 100 years data to be used. In addition, seismic criteria, and any other special loads should be considered in the analysis:

1. PV modules plus supporting structures of around 30 kg/m2.

2. Humans during installation at 150 kg/m2.

e) Deflection values of structural elements and the PV systems under several live loads and wind directions as defined above. A graph with the deflection of the roof should be presented with a resolution not more than 1 meter.

f) Vertical and lateral load analysis for:

1. PV modules plus supporting structures of around 30 kg/m2.

2. Humans during installation at 150 kg/m2.

g) Dynamic and vibration analyses with and without the PV system.

h) Computer analysis and design results with reports for all the cases mentioned above and a set of recommendations if applicable.

i) For the case that an analysis proves a roof being incapable for solar usage a solution may be given to re-enforce the roof.

j) Please specify the software to be used for the finite elements analysis (FEA) on the proposal.