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Report No: PAD00251

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON
PROPOSED CREDITS
IN THE AMOUNT OF

US\$29.1 MILLION TO GRENADA
US\$29.1 MILLION TO SAINT LUCIA
US\$29.3 MILLION TO SAINT VINCENT AND THE GRENADINES

AND A

PROPOSED GRANT
IN THE AMOUNT OF SDR 2.0 MILLION
(US\$2.50 MILLION EQUIVALENT)
TO THE
EASTERN CARIBBEAN PARTIAL CREDIT GUARANTEE CORPORATION

AND PROPOSED LOANS IN THE AMOUNT OF

US\$6.66 MILLION TO GRENADA
US\$6.66 MILLION TO SAINT LUCIA
US\$6.66 MILLION TO SAINT VINCENT AND THE GRENADINES
FROM THE CLEAN TECHNOLOGY FUND
FOR THE

CARIBBEAN RESILIENT RENEWABLE ENERGY INFRASTRUCTURE INVESTMENT FACILITY PROJECT

MARCH 27, 2025

Energy and Extractives Practice Area
Latin America and Caribbean Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective February 28, 2025)

Currency Unit = US Dollar (US\$)

SDR 0.76 = US\$1

US\$1.31 = SDR1

FISCAL YEARS

Eastern Caribbean Partial Credit Guarantee Corporation: April 1 – March 31

Grenada and Saint Vincent and the Grenadines: January 1 – December 31

Saint Lucia: April 1 – March 31

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ABBREVIATIONS AND ACRONYMS

AM	Accountability Mechanisms	IPF	Investment Project Financing
BESS	Battery Energy Storage System	IPP	Independent power producers
CC	Control Centers	IRP	Integrated Resource Plan
CCEFCF	Canada's Clean Energy and Forest Carbon Facility).	IVA	Independent Verification Agent
CER	Contingent Emergency Response	LMP	Labor Management Procedures
CERC	Contingent Emergency Response Component	LUCELEC	Saint Lucia Electricity Services Limited
CIF	Climate Investment Fund	M&E	Monitoring and Evaluation
CRREIFF	Caribbean Resilient RE Infrastructure Investment Facility	MCRERE	Ministry of Climate Resilience, the Environment, and Renewable Energy
E&S	Environmental and Social	MDTF	Multi-Donor Trust Fund
ECCB	Eastern Caribbean Central Bank	MFD	Maximizing Finance for Development
ECCU	Eastern Caribbean Currency Union	MW	Megawatt
ECPCGC	Eastern Caribbean Partial Credit Guarantee Corporation	NDC	National Determined Contribution
EE	Energy Efficiency	NEAP	National Energy Action Plan
EHS	Environmental, Health, and Safety	NEP	National Energy Policy
ESA	Electricity Supply Act	NETS	National Energy Transition Strategy
ESCP	Environmental and Social Commitment Plan	NURC	National Utilities Regulatory Commission
ESMAP	Energy Sector Management Assistance Program	OECS	Organization of Eastern Caribbean States
ESMS	Environmental and Social Management System	PBC	Performance-based Conditions
FI	Financial Intermediary	PCE	Private Capital Enabling
FM	Financial Management	PCM	Private Capital Mobilization
GDP	Gross Domestic Product	PDO	Project Development Objective
GHG	Greenhouse Gas Emissions	PIU	Project Implementation Unit
GIIP	Good International Industry Practice	POM	Project Operations Manual
GoG	Government of Grenada	PSC	Project Steering Committee
GoSL	Government of Saint Lucia	PURC	Public Utilities Regulatory Commission
GoSVG	Government of Saint Vincent and the Grenadines	PV	Photovoltaic
GRENLEC	Grenada Electricity Services Ltd.	RCU	Regional Coordination Unit
GRID	Green, Resilient and Inclusive Development	RE	Renewable Energy
GRS	Grievance Redress Service	RF	Results Framework
GWh	Gigawatt Hour	RFP	Request for Proposal
IDA	International Development Association	RSC	Regional Steering Committee
		SEP	Stakeholder Engagement Plan
		SIDS	Small Island Developing States
		SoP	Series of Projects
		SVG	Saint Vincent and the Grenadines
		T&D	Transmission and Distribution
		TA	Technical Assistance
		VINLEC	Saint Vincent Electricity Services Company
		XCD	East Caribbean Dollar



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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies) Grenada, St. Lucia, St. Vincent and the Grenadines	Operation Name Caribbean Resilient Renewable Energy Infrastructure Investment Facility		
Operation ID P180831	Financing Instrument Investment Project Financing (IPF)	Environmental and Social Risk Classification Substantial	

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input checked="" type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input checked="" type="checkbox"/> Small State(s)
<input checked="" type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternative Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date 17-Apr-2025	Expected Closing Date 31-Dec-2032
Bank/IFC Collaboration Yes	Joint Level Complementary or Interdependent project requiring active coordination

Proposed Development Objective(s)

To increase the share of utility-scale renewable energy generation and private sector participation in renewable energy development in the participating Caribbean countries.

Components



Component Name	Cost (US\$)
1: Regional Coordination Unit (RCU), Institutional Strengthening, and Implementation Support	7,480,000.00
2: Risk Mitigation Mechanism	30,000,000.00
3: RE Integration, Infrastructure Modernization, Institutional Strengthening, Implementation Support	77,690,000.00
4: Contingent Emergency Response Component (CERC)	0.00

Organizations

Borrower:	Eastern Caribbean Partial Credit Guarantee Corporation, Government of Grenada, Government of Saint Lucia, Government of Saint Vincent and the Grenadines		
Contact	Title	Telephone No.	Email
Carmen Gomez-Trigg	Chief Executive Officer	869-466-8251	cgomeztrigg@ecpcgc.org
Mike Sylvester	Permanent Secretary	473-440-2928	Ps@mof.gov.gd
Francis Fontenelle	Permanent Secretary	758-468-5503	ps.finance@govt.lc
Recardo Frederick	Director of Economic Planning	1-784-457-1746	rfrederick@svgcpd.com
Implementing Agency:	Eastern Caribbean Partial Credit Guarantee Corporation, Saint Lucia: Ministry of Infrastructure, Ports, Energy, and Labour, Grenada: Ministry of Climate Resilience, the Environment and Renewable Energy, Saint Vincent and the Grenadines: Ministry of Urban Development, Energy, Seaport, Grenadines Affairs and Local Government		
Contact	Title	Telephone No.	Email
Carmen Gomez-Trigg	Chief Executive Officer	869-466-8251	cgomeztrigg@ecpcgc.org
Lenita Joseph	Permanent Secretary	1-758-468-4303	ljoseph@govt.lc
Peron Johnson	Permanent Secretary	440-0366	Ps@cre.gov.gd
Lance Peters	Deputy Director, Energy unit	1-784-451-2338	lancepeters@gov.vc

PROJECT FINANCING DATA (US\$, Millions)**Maximizing Finance for Development**

Is this an MFD-Enabling Project (MFD-EP)?	Yes
Is this project Private Capital Enabling (PCE)?	No

SUMMARY



Total Operation Cost	235.17
Total Financing	235.17
of which IBRD/IDA	90.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	90.00
of which IDA Recommitted	16.40
IDA Credit	87.50
IDA Grant	2.50

Non-World Bank Group Financing

Commercial Financing	120.00
Unguaranteed Commercial Financing	120.00
Trust Funds	25.17
Gender Trust Funds	0.20
Canada Clean Energy and Forest Climate Facility Trust Fund	1.99
Energy Sector Management Assistance Program	3.00
Clean Technology Fund	6.66
Clean Technology Fund	6.66
Clean Technology Fund	6.66

IDA Resources (US\$, Millions)

Country/Region Window	Regional Institution	Credit	Grant	SML	Guarantee	Total
St. Lucia		29.10	0.00	0.00	0.00	29.10
Regional		16.20	0.00	0.00	0.00	16.20



National Performance-Based Allocations (PBA)		12.90	0.00	0.00	0.00	12.90
Caribbean		0.00	2.50	0.00	0.00	2.50
Regional		0.00	2.50	0.00	0.00	2.50
St. Vincent and the Grenadines		29.30	0.00	0.00	0.00	29.30
National Performance-Based Allocations (PBA)		15.30	0.00	0.00	0.00	15.30
Regional		14.00	0.00	0.00	0.00	14.00
Grenada		29.10	0.00	0.00	0.00	29.10
National Performance-Based Allocations (PBA)		12.90	0.00	0.00	0.00	12.90
Regional		16.20	0.00	0.00	0.00	16.20
Total		87.50	2.50	0.00	0.00	90.00

Expected Disbursements (US\$, Millions)

WB Fiscal Year	2025	2026	2027	2028	2029	2030	2031	2032	2033
Annual	0.00	2.50	33.48	12.40	20.00	22.50	11.74	9.05	3.50
Cumulative	0.00	2.50	35.98	48.38	68.38	90.88	102.62	111.67	115.17

PRACTICE AREA(S)**Practice Area (Lead)**

Energy & Extractives

Contributing Practice Areas



CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial
8. Stakeholders	● Moderate
9. Overall	● Substantial

POLICY COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal



E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description

Institutional Arrangements (Regional Steering Committee): Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation | Section I.A.1 of Schedule 2 to the Financing Agreement The Recipient, by no later than ninety (90) days from the Effective Date, shall establish, and thereafter maintain adequate representation and participation in the Regional Steering Committee.

Institutional Arrangements (Regional Coordination Unit): Eastern Caribbean Partial Credit Guarantee Corporation | Section I.A.2 of Schedule 2 to the ECPCGC Financing Agreement and ESMAP Grant Agreement The Recipient, by no later than ninety (90) days after the Effective Date, shall establish and thereafter maintain throughout the Project implementation a Regional Coordination Unit composition, powers, functions, staffing, facilities and other resources acceptable to the Association.

Institutional Arrangements (Project Steering Committee and National Project Implementation Unit): Grenada, Saint Lucia, Saint Vincent and the Grenadines | Section I.A.2 of Schedule 2 to the Financing Agreements - The Recipient (for Grenada, the Recipient and GRENLEC (the Project Implementing Entity)), by no later than ninety (90) days after the Effective Date, shall establish and thereafter maintain throughout the Project implementation: (i) a Project Steering Committee; and (ii) National Project Implementation Unit led by a project manager and a deputy project manager with respect to Grenada, with qualifications, experience, and terms of reference satisfactory to the Association; both with composition, powers, functions, staffing, facilities and other resources acceptable to the Association.



Institutional Arrangements (Service Level Agreement): Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation | Section I.A.3 of Schedule 2 to the Financing Agreements and Grant Agreements - The Recipient, by no later than one hundred twenty (120) days after the Effective Date, shall enter into a Service Level Agreement under terms and conditions acceptable to the Association for the implementation of Part 1 of the Project.

Project Manuals - Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation Project Operations Manual - Section I.B.1 of Schedule 2 to the Financing Agreements and Grant Agreements: The Recipient and for Grenada, both the Recipient and the Project Implementing Entity, shall prepare and adopt the Project Operations Manual (“POM”) in accordance with the legal agreement and thereafter, shall ensure that the Recipient’s respective parts of the Project are carried out in accordance with the arrangements and procedures set out in the POM.

Resilient Renewable Energy Infrastructure Investment Facility (RREIIF) Manual – Section I.B.2 of Schedule 2 to the Financing Agreements and Grant Agreements: Eastern Caribbean Partial Credit Guarantee Corporation shall, prepare and adopt a RREIIF Manual in form and substance acceptable to the Association in accordance with the legal agreements and ensure that Part 2 of the Project is implemented in accordance with the RREIIF Manual. The Recipients shall not amend, abrogate or waive any provisions of the POM or the RREIIF Manual unless the Association has agreed otherwise in writing.

Subsidiary Financing Agreement: Grenada, Saint Lucia, Saint Vincent and the Grenadines | Section I.C of Schedule 2 to the Financing Agreements: The Recipient shall make the proceeds of the Credit and CTF Loan available to Eastern Caribbean Partial Credit Guarantee Corporation under terms and conditions acceptable to the Association, including specifically those set forth in the Financing Agreement.

Resilient Renewable Energy Infrastructure Investment Facility: Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation | Section I.C (Eastern Caribbean Partial Credit Guarantee Corporation) and I.D (Grenada, Saint Lucia, Saint Vincent and the Grenadines) of Schedule 2 to the Financing Agreements Eastern Caribbean Partial Credit Guarantee Corporation shall make the proceeds of the Financing available to the Participating Financial Institutions and cause the PFIs to make the Partial Credit Guarantees available to the Independent Power Producers in accordance with the eligibility criteria and procedures set out in the Financing Agreement as further detailed in the RREIIF Manual.

Subsidiary Agreement: Grenada | Section I.E of Schedule 2 to the Financing Agreement - The Recipient shall make part of the proceeds of the Financing available to the Project Implementing Entity under a subsidiary agreement between the Recipient and the Project Implementing Entity, under terms and conditions approved by the Association and in accordance with the legal agreement.

Targeted Scholarship Grants and Apprenticeship Grants: Grenada, Saint Lucia, Saint Vincent and the Grenadines - Section I.E (Saint Lucia, Saint Vincent and the Grenadines) / I.F (Grenada) of Schedule 2 to the Financing Agreements The Recipient shall provide Targeted Scholarship and Apprenticeship Grants to Eligible Beneficiaries and enter into Targeted Scholarship and Apprenticeship Grant Agreement with each Eligible Beneficiary in accordance with the legal agreements and other eligibility criteria and requirements as further set out in the Project Operations Manual.

Annual Work Plan: Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation | Section I.D (Eastern Caribbean Partial Credit Guarantee Corporation) / I.F (Saint Lucia, Saint Vincent and the Grenadines) / Section I.G (Grenada) of Schedule 2 to the Financing Agreements By not later than November 30 annually, the Recipient (and for Grenada, both the Recipient and the Project Implementing Entity) shall prepare and furnish to the Association an annual work plan during the implementation of the Project containing relevant Project activities and expenditures proposed to be included in the Project in the following fiscal year, including



a specification of the sources of financing; and thereafter shall ensure that the Project is implemented with due diligence and efficiency in accordance with such work plan as shall have been approved by the Association.

Environmental and Social Standards: Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation | Section I.E (Eastern Caribbean Partial Credit Guarantee Corporation) / I.G (Saint Lucia, Saint Vincent and the Grenadines) / Section I.H (Grenada) of Schedule 2 to the Financing Agreements The Recipient (and for Grenada, both the Recipient and the Project Implementing Entity) shall (i) ensure that the Project is carried out in accordance with the Environmental and Social Standards and the ESCP, and (ii) not amend, abrogate, repeal, suspend or waive any of their provisions unless the Association agrees otherwise, and report on their status of implementation as part of the project reports.

Contingent Emergency Response: Grenada, Saint Lucia, Saint Vincent and the Grenadines - Section I.H (Saint Lucia, Saint Vincent and the Grenadines) and Section I.I (Grenada) of Schedule 2 to the Financing Agreements: The Recipient shall (i) adopt a CERC Manual for implementation of Part 4 of the Project and prepare and adopt an Emergency Action Plan; both in form and substance satisfactory acceptable to the Association and ensure that the activities under the said part are carried out in accordance with such manual and plan and all relevant safeguard instruments; and (ii) not amend, suspend, waive or abrogate, repeal or waive any provisions of the manual unless the Association agrees otherwise in writing.

Mid-term review: Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Eastern Caribbean Partial Credit Guarantee Corporation | Section II of Schedule 2 to the Financing Agreements The Recipient (and for Grenada, both the Recipient and the Project Implementing Entity) shall, not later than 30 months after the Effective Date, prepare and furnish to the Association a mid-term report in form and substance satisfactory to the Association.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	ECPCGC FA Article 4.01. (a)	The Grant Agreement between the Association, acting as administrator of the Energy Sector Management Assistance Program Multi Donor Trust Fund, and the Recipient has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	IBRD/IDA
Effectiveness	ECPCGC FA Article 4.01. (b)	The Project Operations Manual has been adopted by the Recipient in form	IBRD/IDA



		and substance satisfactory to the Association.	
Effectiveness	ECPCGC GA Article 4.01. (a)	The execution and delivery of this Agreement on behalf of the Recipient have been duly authorized or ratified by all necessary governmental action.	Trust Funds
Effectiveness	ECPCGC GA Article 4.01. (b)	The Financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of this Agreement) have been fulfilled.	Trust Funds
Effectiveness	Grenada IDA FA Article 5.01. (a)	The CTF Loan Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	IBRD/IDA
Effectiveness	Grenada IDA FA Article 5.01. (b)	The Project Operations Manual has been adopted by MCRERE in form and substance satisfactory to the Association.	IBRD/IDA
Effectiveness	Grenada CTF LA Article 4.01.	The Financing Agreement has been executed and delivered and all conditions precedent to its effectiveness have been fulfilled.	Trust Funds
Disbursement	Grenada IDA FA Schedule 2. Section III. B. 1. (b) (ii)	The RREIIF has been duly established by ECPCGC in appropriate legal form and domicile and the relevant	IBRD/IDA



		licenses, permits and approvals required for the operation of the RREIIF have been obtained.	
Effectiveness	Saint Lucia IDA FA Article 5.01. (a)	The CTF Loan Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	IBRD/IDA
Effectiveness	Saint Lucia IDA FA Article 5.01. (b)	The CCEFCF Financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	IBRD/IDA
Effectiveness	Saint Lucia IDA FA Article 5.01. (c)	The Project Operations Manual has been adopted by MIPTPDUR in form and substance satisfactory to the Association.	IBRD/IDA
Effectiveness	Saint Lucia CCEFCF FA Article 4.01.	The Financing Agreement have been executed and delivered and all conditions precedent to their effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	Trust Funds
Effectiveness	Saint Lucia CCEFCF GA Article 4.01.	The Financing Agreement have been executed and	Trust Funds



		delivered and all conditions precedent to their effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	
Effectiveness	Saint Lucia CTF LA Article 4.01.	The Financing Agreement has been executed and delivered and all conditions precedent to its effectiveness have been fulfilled.	Trust Funds
Disbursement	Saint Lucia IDA FA Schedule 2. Section III. B. 1. (b) (ii)	The RREIIF has been duly established by ECPCGC in appropriate legal form and domicile and the relevant licenses, permits and approvals required for the operation of the RREIIF have been obtained.	IBRD/IDA
Effectiveness	SVG IDA FA Article 5.01. (a)	The CTF Loan Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under them (other than the effectiveness of this Agreement) have been fulfilled.	IBRD/IDA
Effectiveness	SVG IDA FA Article 5.01. (b)	The Project Operations Manual has been adopted by MUDE in form and substance satisfactory to the Association.	IBRD/IDA
Effectiveness	SVG CTF LA Article 4.01.	The Financing Agreement has been executed and delivered and all conditions precedent to its	Trust Funds



		effectiveness have been fulfilled.	
Disbursement	SVG IDA FA Schedule 2. Section III. B. 1. (b) (ii)	The RREIIF has been duly established by ECPCGC in appropriate legal form and domicile and the relevant licenses, permits and approvals required for the operation of the RREIIF have been obtained.	IBRD/IDA



I. STRATEGIC CONTEXT

A. Project Strategic Context and Rationale for Regional Approach

1. **Countries in the Caribbean face shared challenges in building sustainable and resilient energy sectors necessary for economic growth and stability.** Many of these countries depend on imported fossil fuels for over 90 percent of power generation. This dependence on imported fossil fuels presents a major fiscal vulnerability. Between 2016 and 2021, the estimated annual average expenditure on fossil fuel imports in the Eastern Caribbean Currency Union (ECCU) subregion totaled EC\$1.2 billion (US\$444 million), representing, on average 15.4 percent of all imports and 17.1 percent of the trade balance. Persistent high cost of energy supply, averaging 6.0 percent of regional Gross Domestic Product (GDP) (2006 to 2020) compared to about 2.5 percent in more developed countries, has led to electricity tariffs that are among the highest in the world. The average electricity tariff in the region is US\$0.25/kWh¹, more than double the average tariff in the United States (US\$0.109).² Three Caribbean countries are on the list of the top ten countries with the highest electricity prices according to World Population Review (March 2024). Bermuda (US\$0.458/kWh), Cayman Islands (US\$0.433/kWh), and Barbados (US\$0.373/kWh). In the Eastern Caribbean, several countries have electricity prices over US\$0.36/kWh, including Dominica, Grenada, Saint Lucia, and Saint Vincent and the Grenadines. Furthermore, Caribbean countries are vulnerable to devastating weather events and face the threat of prohibitive costs to repair damaged infrastructure, including damages to fossil fuel supply infrastructure. In some cases, not only have damage costs absorbed large portions of GDP but have also required borrowing for infrastructure reconstruction, expanding national debt. Dominica lost the equivalent of 253 percent of its GDP due to damages from Hurricane Maria in 2017.³

2. **Renewable Energy (RE) development to reduce the use of fossil fuel imports in the Caribbean Region has lagged due to multiple factors at the country level that have constrained the development of bankable projects.** These barriers include unclear policies and regulations, the small scale of projects, underprepared grids, climate and natural disaster risks, and weak implementation capacity. Experience from the Caribbean shows that the private developers who would drive the energy transition generally require a project size of at least 15 megawatts (MW) for significant cost savings. However, most individual RE projects in the subregion are likely to be smaller. For perspective on size, the entire power system of Dominica has a capacity of 27 MW. Progress has been slow in moving towards a target of 48 percent of electricity production from RE by 2027⁴. The actual share of RE in electricity production, based on data available for 2019, is 11 percent⁵.

3. **The Caribbean Resilient Renewable Energy Infrastructure Investment Facility (RREIIF) Project will take a regional approach to accelerate resilient RE development through economies of scale, risk mitigation, investments in resilient grid infrastructure, and capacity building.** For cost savings, RREIIF will pool the selection of RE-project developers in multiple countries, based on an aggregated pipeline of projects. In addition, RREIIF will create a risk mitigation mechanism, provide capacity building, support modernization, and upgrade and strengthen existing electricity infrastructure. RREIIF's implementation will take place through a Series of Projects (SoP) approach, allowing countries to join, and existing participants to expand their pipeline when sector conditions indicate readiness and receive support tailored to country conditions. Financial Intermediaries (FI) is the selected financing modality for the Project.

B. Sectoral and Institutional Context

Regional Sectoral and Institutional Context

4. **Caribbean countries, particularly those in the ECCU, the focus of RREIIF's first SoP, have abundant RE resources and ambitious plans for development.** Most countries can tap into a considerable amount of RE, with the region receiving

¹ "Talking Energy, Finding Solutions" World Bank, October 25, 2022

² "A Roadmap for the Caribbean's Energy Transition" Atlantic Council, September 26, 2023

³ "After the Rain: The Lasting Effects of Storms in the Caribbean" United Nations Development Programme (UNDP)

⁴ David Goldwyn, Eugene Tiah, and Wazim Mowla, "A Roadmap for the Caribbean's Energy Transition," Atlantic Council, September 26, 2023.

⁵ Ibid.



about 200 days of sun annually. Offshore wind in the region has an estimated potential power capacity of 70 MW, so does geothermal energy at 6,290 MW.⁶ The current installed electricity generating capacity from RE in the Eastern Caribbean is 38 MW. Energy policies of ECCU countries propose to install 227 MW of RE capacity by 2030. Achieving this target will require an estimated investment of EC\$2.2 billion (US\$807 million) in RE generation with the private sector taking the lead. By reducing the reliance on imported fossil fuels and diversifying energy sources, the development of RE will help to mitigate climate risks on the fuel supply chain, which can have dramatic consequences in disasters.

5. **While Caribbean banks have sufficient capital and liquidity to finance RE development projects, the key barriers to materializing this financing must be addressed.** Private developers are interested in an average of 10-15 MW projects and above. The lack of local supply chains and the need to account for vulnerability to hurricanes and other potentially destructive weather events in their designs and materials to reduce the risk of damage can increase costs and affect the attractiveness of these projects to developers. Several steps in the project preparation process could delay reaching the financing stage – pre-feasibility and feasibility studies, environmental assessments, completion of design drawings, etc. Furthermore, limited administrative capacity for handling the regulatory aspects of RE development could result in delays, possibly discouraging a private developer from proceeding.⁷ The RREIIF will help overcome barriers of small project size, project preparation, risk-mitigation instruments, and implementation capacity as countries advance key policy and regulatory reforms.

6. **Key regulatory frameworks are either in place or under development to facilitate private RE investment in the ECCU region, with some pilot programs already under implementation.** In 2016-17, Grenada began its power sector transition by enacting the Electricity Supply Act (ESA) which established the legal framework, and the Public Utilities Regulatory Commission (PURC) Act, which created the national regulator PURC. The PURC, which became operational in July 2019, is tasked with developing the regulatory framework to implement the ESA. A modern tariff-setting methodology and regulations for competitive procurement of RE generation capacity have been prepared by the PURC in accordance with the principles of the ESA. In Saint Lucia, the Electricity Act was amended in 2016 to open opportunities for independent power producers (IPP) to engage in RE generation and to establish a regulatory body, the National Utilities Regulatory Commission (NURC). Several secondary regulations, including a competitive procurement framework and a tariff-setting methodology, aimed at steering implementation, are being drafted with support from development partners. Saint Vincent and the Grenadines is in the process of updating its National Energy Policy and Electricity Supply Act. The regulatory and policy update process has taken longer as it requires stakeholder engagement and strong planning and coordination with vertically integrated utilities in each of the countries.

Country Sectoral and Institutional Context

7. **The three countries to participate in the first phase of the SoP are Grenada, Saint Lucia, and Saint Vincent and the Grenadines (SVG), with equal shares of IDA financing.** The RREIIF can be expanded with more countries joining and with participating countries adding more investments to their respective project pipeline. The RREIIF is also structured to attract and pool concessional financing from sources such as Multilateral Development Banks and the Green Climate Fund and sustain itself beyond the typical World Bank project cycle.

8. Table 1 summarizes key indicators for the country, including land area, population, GDP, fossil fuel dependence in electricity generation, and RE targets.

⁶ Mowla, Wazim, “Accelerating the energy transition in the Eastern Caribbean,” Issue Brief, Atlantic Council, June 28, 2024.

⁷ David Goldwyn, Eugene Tiah, and Wazim Mowla, “A Roadmap for the Caribbean’s energy transition, September 26, 2023.



Table 1: Profile of the Three Countries Participating in the First Phase of the SoP (REIIF Project)

Country Characteristics	Grenada	Saint Lucia	SVG
Land Area (square km.)	344	626	389
Population	112,784	182,000	110,947
GDP (US\$ billion)	1.320	2.500	1.065
Share of Fossil fuel Based Generating Capacity (%)	93	95	82
Share of RE in Power Generation (%)			
--Target by 2030	100	50	60
--Actual Share	6	5	18

Note: The shares of fossil fuels and RE in power generation are based on data from CCREEE energy report cards: for Grenada, 2020, Saint Lucia and SVG, 2022.

9. **Each of the three countries has a population of less than 200,000 and a combined GDP of under US\$3 billion.** Their economies rely heavily on tourism. In 2022, travel and tourism contributed to GDP as follows (in US\$ billion): Grenada, 0.62; Saint Lucia, 1.27; and SVG, 0.27. Employment in travel and tourism as a share of total employment in 2021 was: Grenada, 33 percent, Saint Lucia, 69 percent, and SVG, 37.2 percent. Their economies are vulnerable to climate impacts, natural disasters, and fuel price volatility. Power generation relies heavily on imported fossil fuels: over 90 percent in Grenada and Saint Lucia and 82 percent in SVG, slightly lower due to hydropower.

10. **Grenada, Saint Lucia, and Saint Vincent and the Grenadines face significant risks from hurricanes, flooding, landslides, and volcanic activity,** which are expected to worsen with climate change. These hazards threaten infrastructure, agriculture, and communities, particularly in low-income and coastal areas. While there is some adaptive capacity through local and regional initiatives, the inherent risk to development projects remains high. To address these vulnerabilities, the proposed project activities will focus on strengthening resilience, through its resilient infrastructure investment components and its risk mitigation and regulatory framework interventions.

11. **The ownership structure of the national power companies in these countries varies considerably.** In SVG, the government is the sole shareholder of the national power company, Saint Vincent Electricity Services Limited (VINLEC). Grenada’s national power company, Grenada Electricity Services, Ltd. (GRENLEC), has three shareholders, with the government owning the most shares (Government of Grenada, 71.4 percent, National Insurance Scheme, 11.6 percent, and the public, 17 percent).⁸ In contrast, Saint Lucia Electricity Services Limited (LUCELEC), the national power company, has six shareholders, with the government being a minority.⁹

12. **The energy and regulatory profile of each of the three participating countries is based on each country’s commitments to RE development in national energy policy as well as progress in preparing the legal and regulatory framework for the private sector to take the lead in this development, making them candidates for the first phase of the SoP.**

- **Grenada's National Energy Policy (NEP) for 2023-2035 aims to achieve 100 percent RE-generated electricity by 2030 and this target is under review.** Currently, Grenada has an installed firm electricity generating capacity of approximately 52.10 MW, with 1.8 percent penetration of RE sources. This includes 1.04 MWp of utility-based RE capacity and 4.9 MWp of customer-based RE. The Electricity Supply Act (ESA) and the PURC Act that created the PURC were passed by the Parliament in 2016 to support the mobilization of the private sector for RE development. The PURC has developed a modern tariff-setting methodology to reflect the true cost of electricity generation and regulations for competitive procurement of RE generation capacity. Recent amendments to the regulatory framework are designed to facilitate the participation of IPPs and attract private-sector investments in RE projects.

⁸ Source: GENLEC’s 2021 Annual Report.

⁹ Emera Caribbean, Inc., 20 percent; First Citizen’s Bank, Ltd., 20 percent; National Insurance Corporation, 20 percent; Castries Constituency Council, 15.5 percent; Government of Saint Lucia, 10.05 percent; and individual shareholders, 14.45 percent.



- **Saint Lucia.** The National Energy Policy (NEP) for 2023 outlines the government's vision for a modern energy sector focused on cost optimization and energy security. The priority goal of the NEP is to achieve 50 percent RE penetration in the electricity mix by 2030. The total installed power capacity in Saint Lucia is 92.67 MW, of which five percent consists of RE capacity. This installed capacity consists of 88 MW of diesel-powered capacity, 3 MW of utility-based RE capacity, and 1.5 MW from distributed power generation.¹⁰ CCREEE's Saint Lucia Energy Report Card (ERC) for 2022 indicated that the energy intensity stood at 0.1603kWh. Access to electricity in Saint Lucia is 100 percent as of 2023¹¹. The Electricity Supply Act (ESA) serves as the legal foundation for the generation, transmission, distribution, and sale of electricity. The act was amended in 2016 to (i) create opportunities for independent power producers to engage in RE generation; and (ii) establish a regulatory body, the NURC.
- **Saint Vincent and the Grenadines.** The National Energy Policy (NEP) of 2009 emphasizes developing RE for energy security, reducing dependence on imported fossil fuels by developing geothermal and other RE, as well as enhancing energy resilience. The Electricity Supply Act (ESA) of 1973 established the legal framework for electricity generation, transmission, and distribution in SVG. It also granted VINLEC a universal license until 2033. SVG's total installed power capacity is 54.26 MW of which RE accounts for 18 percent. This installed capacity consists of 44.88 MW of diesel-powered capacity, 7 MW of utility-based RE capacity, and 2.38 MW of residential and commercial RE.¹² The Government of SVG is in the process of updating the ESA to support expansion of RE development and enhance the energy sector's resilience against climate change and natural disasters.

13. **RREIIF's activities will address regional market, administrative, and technical barriers to the expansion of resilient, utility-scale RE by private developers.** National energy policies call for the private sector to take the lead in RE development. The small size of individual RE projects in Eastern Caribbean countries prevent economies of scale, and the lack of clarity in national regulatory frameworks governing private power generation are disincentives for private RE developers. Also, lending terms to private RE developers by commercial banks may not be favorable due to risk perception regarding the ability of the borrower to repay a loan and potential damage to RE infrastructure due to regional vulnerability to devastating weather events.

14. **To address market barriers, RREIIF will provide an ecosystem of solutions to scale up RE in the form of:** (i) the establishment of a Regional Coordination Unit (RCU) to aggregate small RE projects across participating countries in order to benefit from economies of scale; (ii) a requirement for participating countries to have clear regulatory frameworks for private power generation; and (iii) the creation of a risk-mitigation mechanism to incentivize favorable lending terms by commercial banks. To enhance administrative capacity, RREIIF will provide technical assistance (TA) and training at the regional and country levels for project preparation and negotiation. On the technical side, RREIIF will provide financing for the modernization and upgrading of power grids for RE integration, including battery energy storage systems (BESS).

15. **The Project will support the long-term outcome of increased energy security at lower costs, resilient energy infrastructure, and enhanced economic competitiveness.** The aggregation of RE projects at the regional level, resulting in lower project costs and a clear regulatory framework for IPPs will likely attract private RE developers to enter the power market in each of the participating countries. The first phase of SOP will result in an increased share of utility-scale RE in the power system, resulting from market, administrative and technical outputs of project activities in the three participating countries. The design of the SoP calls for this outcome to be replicated, over time, in follow-on projects involving additional Caribbean countries. The replicable PDO outcome will result from outputs in the areas of market development, administrative capacity, and technical improvements to national power systems.

16. **The project is aligned with the World Bank's Maximizing Finance for Development (MFD) approach by removing binding constraints to enable countries to finance sustainable RE infrastructure.** The RREIIF aligns with the MFD principles by deploying blended finance mechanisms that combine concessional funds, public resources, and private

¹⁰ Source: CCREEE, St. Lucia Energy Report Card (ERC) for 2022.

¹¹ IEA, IRENA, UNSO, World Bank, WHO, 2023. Tracking SDG7: The Energy Progress report.

¹² Source: CCREEE, Saint Vincent and the Grenadines Energy Report Card (ERC) for 2021.



capital to deliver cost-effective and scalable RE solutions. Components 1 and 3 are MFD-e verified. Component 1 will establish a RCU that will provide support and capacity building to RE projects and enable greater private RE investment. In Component 3, financing for the modernization of electricity grid infrastructure will enable increased private RE generation. In Component 2, the RREIF will mobilize US\$120 million of private capital (PCM) in commercial credit for RE projects through the provision of partial credit guarantees (PCG). The PCG offered by RREIF under Component 2 will provide a guarantee cover of 50 to 75 percent of the loans from participating banks. With financial progress, the capital-to-guarantee ratio could reach 1:3 or 1:5, aligned with other public guarantee facilities in emerging markets.

17. **Women are underrepresented in the energy sector workforce, particularly in technical roles.** Despite higher education levels, women in Saint Lucia, Grenada, and SVG have lower labor force participation rates than men, particularly in male-dominated fields such as energy. While employment data in the energy sector by gender are scarce in these countries and in the Latin America and Caribbean (LAC) region, globally, women comprise only 22 percent of the oil and gas workforce and 32 percent of the RE sector. Women in all three countries face significant barriers to entry in the energy sector, particularly in technical roles. Societal and cultural norms often discourage women from pursuing Science, Technology, Engineering, and Mathematics (STEM) fields. Additionally, gender bias and limited access to quality STEM education and training hinder their progress. Regional data reveals a significant underrepresentation of women in STEM fields, particularly in the energy sector. This limited pool of female talent intensifies competition for technical roles, making it difficult for women to secure positions, even at entry levels. Additionally, women often face workplace challenges such as hostile work environments and a lack of role models and mentors. To overcome these barriers, the project, under Component 3, will implement targeted initiatives to increase women’s employment in the RE sector, particularly in technical roles.

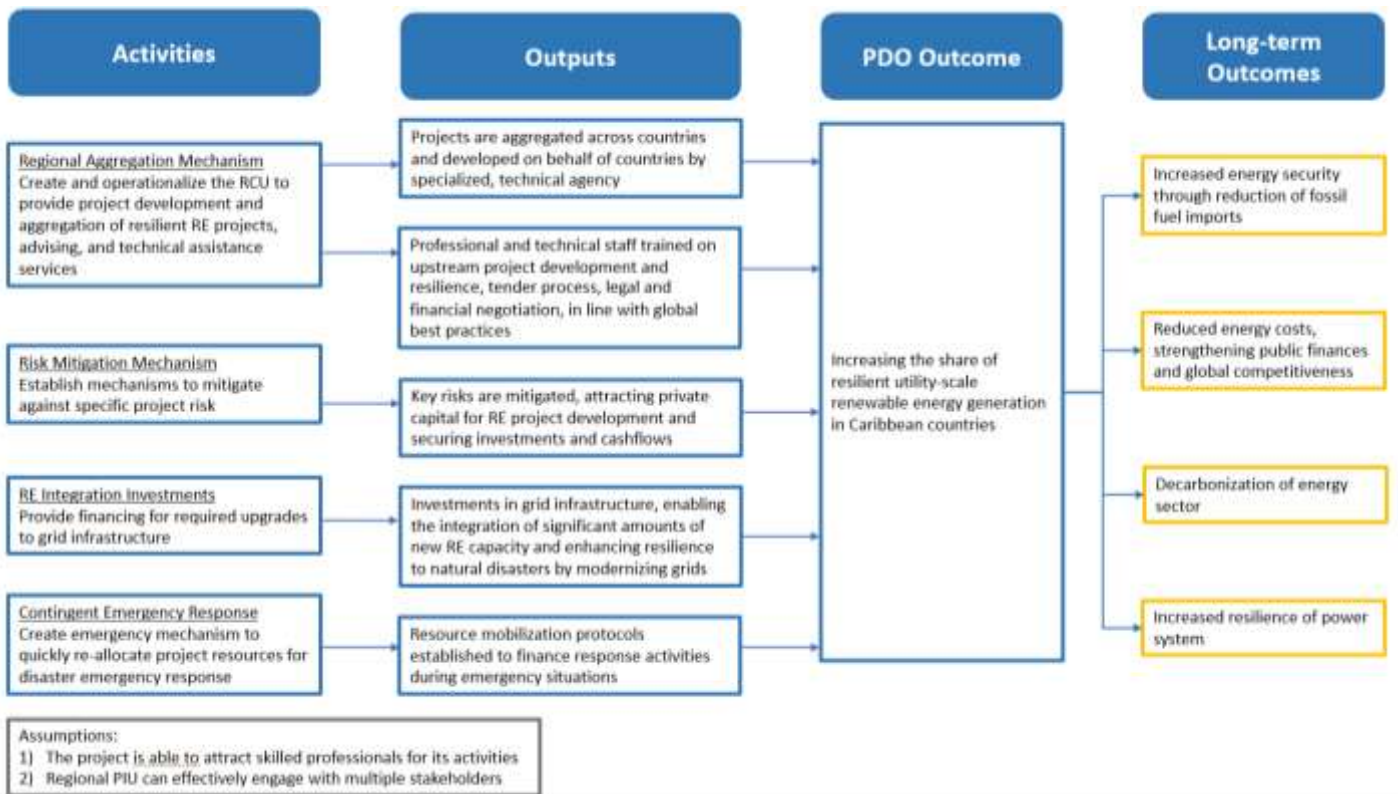
II. PROJECT DESCRIPTION

A. Project Development Objective

18. The Project Development Objective is *to increase the share of utility-scale RE generation and private-sector participation in RE development in the participating Caribbean countries.*



B. Theory of Change and PDO Indicators



19. Progress towards achieving the PDO will be measured against the following indicators:

- (a) RE capacity enabled with indirect support (in MW).
- (b) Annual energy generation by utility-scale RE systems (in GWh).
- (c) Private capital mobilized (in US\$ million).
- (d) GHG emissions reduced or avoided (in mt/year)

C. Project Beneficiaries

20. The Project’s direct beneficiaries include electricity consumers, citizens, and national utilities of participating countries who will gain access to affordable, reliable, and clean energy. Governments will benefit from reduced fossil fuel import costs, alleviating fiscal pressure, and improving energy security and resilience. The regional implementing entity, Eastern Caribbean Partial Credit Guarantee Corporation (ECPCGC) will benefit from institutional strengthening provided through Component 1. The private sector and labor force engaged in the supply, construction, and operation of RE infrastructure will gain employment opportunities and benefit from technology transfer and long-term risk mitigation under the RREIIF. Participating banks will benefit from guarantees provided under Component 2, enabling them to provide credit to the sector. These Banks will also benefit from capacity building under Component 1.

21. Youth and women will benefit from targeted capacity-building activities, enhancing their employability in technical jobs across the energy sector. These jobs could be within utilities, private companies, or the public sector, contributing to economic development and a more inclusive workforce in the region.



D. Project Components

22. **Component 1: RCU, Institutional Strengthening, and Implementation Support (Estimated US\$7.48 million, of which IDA: US\$2.50 million; CTF: US\$1.98 million and ESMAP: US\$3 million).** This component will establish the regional coordination entity responsible for (i) coordinating the aggregation of RE projects to achieve economies of scale and reduce the cost of individual projects and (ii) providing technical support to national entities of the three participating countries, as well as to the ECPCGC.

23. **Subcomponent 1.1: The RCU and the Institutional Strengthening Mechanism (IDA: US\$2.50 million).** The RCU will be responsible for the aggregation of RE projects across the participating countries along with national regulators. The RCU will identify and prepare bankable RE projects in coordination with national Project Implementation Units (PIUs) and be responsible for coordinating their development, from inception to completion, regularly reporting on progress. The RCU will conduct feasibility studies, prepare tender documentation for IPP selection in coordination with national regulators, and guide projects through to commercial operation. Climate resilient considerations will be embedded in the appraisal of these projects, which have been estimated to represent an additional cost of 30 to 100 percent based on the region's experience and history. The RREIIF will fund the RCU's operating costs during the Project implementation. However, over time, a fee structure will be developed to cover the RCU's operating costs to ensure sustainability.

24. **Subcomponent 1.2: TA (US\$4.98 million, of which ESMAP: US\$3 million; CTF: US\$1.98 million).** This subcomponent will provide technical support to the regional and national stakeholders of the three participating countries in the following areas:

- **Capacity building.** This will consist of workshops, seminars, and on-the-job training for national PIUs, other national partners and relevant stakeholders to enhance skills in project management, regulatory compliance, and technical aspects of RE development.
- **Standardization of documentation.** The RCU will develop and standardize key documents needed for the aggregation and tendering processes. These will include power-purchase agreements (PPAs), requests for proposals (RFPs), contract templates, implementation agreements, and interconnection agreements.
- **Advisory services.** These services will address specific technical, legal, and financial issues that may arise during project development and implementation, ensuring that all projects meet the required standards and are aligned with the overall goals of the regional aggregation mechanism. Among these services will be assistance in the issuance of guidance notes and model documents for public-private partnerships (PPPs) in RE infrastructure and the development of a sustainable finance framework for participating countries and the ECCB to create the necessary systems and processes for access to regional and international capital markets.
- **TA to ECPCGC.** This will support the enhancement and transformation of the ECPCGC to offer risk-mitigation products for RE investments, covering institutional structure, operational aspects, and the legal, governance, and regulatory framework.
 - *Support for hiring specialized staff.* This staff will include experts in RE financing, risk assessment, etc., to operate the new RE risk mitigation window in ECPCGC, under Component 2, and coordinate with the RCU, including legal and operational relationships with the ECPCGC.
 - *Coordination with and capacity building for participating banks.* The Project will support ECPCGC's outreach to these banks regarding the risk mitigation measures available through the RREIIF. It will also offer capacity building to participating banks for RE loan application review, credit underwriting, due diligence checklist, etc. to promote risk mitigation measures that support the development of a sustainable RE financing ecosystem in the region.



- *Assistance in the development of an insurance product.* This will finance the development of an insurance product that will cover damage to infrastructure for RE generation (e.g., RE infrastructure, wind farms, etc.) financed by banks participating in the RREIIF. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) will collaborate with the ECPCGC in the design of this product for the next step as additional financing or in the next phase of SoP. This insurance product would cover the probability of a loss resulting from a destructive event, such as a hurricane, rather than indemnifying an actual loss. It would be an agreement to make payment on an event covered, meeting or exceeding a predefined threshold, measured by a parameter, an objective value, such as wind speed, water depth, or category level of a hurricane.
- TA activities will also support the ECCB in the design and establishment of an umbrella fund for mobilizing climate finance to support the region's resilient and clean energy transition. The creation of this fund will involve pooling concessional resources from multiple financing entities and accessing capital markets, alongside the current RREIIF facility.
- Finally, the assistance will support (i) attainment of consensus from ECCU governments on the structure of the facility, (ii) amendment of the legal framework for the ECPCGC to include the RREIIF, (iii) revision of the operations manuals, safeguards policies, etc., to reflect the RREIIF requirements, (iv) creation of a new financing window for RE guarantees, (v) decision-making on the range of financing that will be made available, and (vi) development of risk-management framework for ECPCGC for the RE window.
- Climate considerations will be reflected in all this TA, including through clear requirements to include measures to mitigate climate risks as part of the RE tender processes.

25. **Component 2: Risk Mitigation Mechanism:** Equity Capital in the RREIIF Risk Mitigation Fund for Partial Credit Guarantees (**Estimated Cost: IDA: US\$30 million**). The RREIIF will provide risk mitigation solutions for participating banks in the region through a new RE window with partial credit guarantee (PCG) implemented by the ECPCGC. This component will also address physical risks by supporting RE projects that have resilient design.

- The risk mitigation mechanisms will catalyze commercial finance and likely incentivize commercial banks to offer favorable loan terms for RE projects, enhancing the attractiveness of private RE development. Administrative capacity at the regional and country levels to prepare and negotiate RE projects will increase the number of projects reaching the financing stage.
- The RREIIF will focus on mitigating risks specific to the RE sector. Based on the market assessment conducted during the preparation of RREIIF, off-taker risk was the key risk identified largely based on market risk perception as RE development is a new area of investments being opened for competition with recent policy reforms in the participating countries. Other typical risks include underlying risks of IPPs and developers and limited availability of various forms of working capital and long-term funds for utility scale RE investments.
- Given that only three countries will be participating in first phase of the RREIIF, the risk mitigation solutions will only be offered in those three participating countries initially. The risk mitigation tools will be offered on a first-come-first-served basis and will have loan size limits to ensure equity in access to the RREIIF. The risk tools will enable participating banks to unlock access to debt financing for the RE sector, extend long-tenor financing, and do so efficiently at lower market rates than would otherwise be possible.
- IDA financing from the three countries will be used in one core risk mitigation solution - partial credit guarantees (PCGs) (Figure 1), as well as an integrated TA program for ECPCGC (TA activities included in Component 1). The IDA funding will be transformed into initial government equity capital in the RREIIF. Ideally, all ECCU countries would contribute equal amounts of capital to the Facility over time, but in the first phase of the RREIIF only Grenada, Saint Lucia, and SVG are seeking IDA financing. This equity base serves as the capital against which ECPCGC can then extend PCGs to participating banks. The current capitalization of the fund will be sufficient for the priority projects in each country's proposed project pipeline. As more capital base is added the fund can



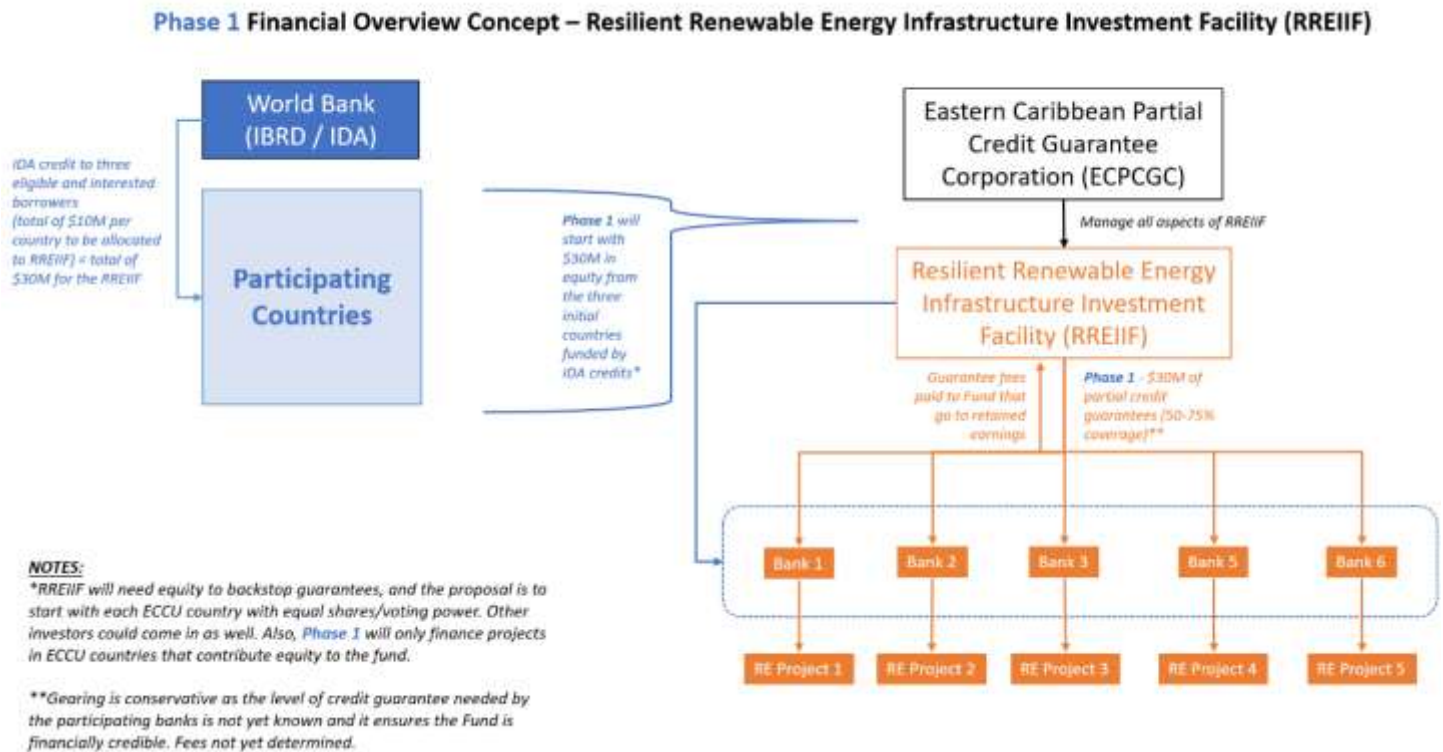
expand the pipeline in participating countries and serve other countries. The ratio of leverage of this capital for the extension of guarantees has been designed using a financial model, and the ratio can vary between three to five times for guarantee funds as in emerging markets.

- The PCG product will provide a guarantee to the participating banks for the debt service repayments of developers - selected through the RE tender process under Component 1 for IPP utility scale RE with at least 2MW cumulative capacity - over the life of covered loans (e.g., for the duration of the RE project cycle). It will define aspects that would impact the ability of the borrowers to pay the bank loans, such as non-payment by off-taker/host government to protect outstanding principal due to lenders. The guarantee will also cover delayed payments or defaults by borrowers due to relevant risks.
- The guarantee cover offered through the PCG to participating banks under Component 2, would range between 50-75 percent of the underlying loan amounts offered by the participating banks. This will translate into significant leverage impacts of the RREIIF in terms of overall lending volumes to the RE sector. In a conservative scenario, if the equity-to-guarantees ratio is 1:3, that will enable the US\$30 million in capital (current available capital in RREIIF) to provide US\$90 million in total guarantees, and if banks provide 75 percent cover, this translates to US\$120 million in total credit generated. The annual PCG premium is calculated through financial modeling for different guarantee coverage options. With more aggressive gearing, this leverage will increase. It is understood from engagements with potential participating banks that with the PCG, they will be able to offer longer-term financing at lower costs addressing some of the core barriers to financing RE investments in the region. The RREIIF will have minimum selection criteria for participating banks to be eligible for the risk mitigation offerings and will also require certain prerequisite security from end-borrowers, including a business track record, audited financial statements, a minimum equity investment, collateral pledged, a specific debt service ratio, environmental and social (E&S) safeguards standards (including climate resilience), etc.¹³ The criteria for RE sub-projects, participating banks, and independent power producers will be set out in detail in the RREIIF manual to be adopted by ECPCGC prior to the issuance of the partial credit guarantees.
- The risk mitigation instruments through RREIIF were chosen in a context that RREIIF will aggregate projects across countries and provide guarantees. As more countries will join the RREIIF subsequently, they will benefit from the risk mitigation product by making capital contributions to the risk mitigation fund and existing participating countries can expand their project pipeline. In contrast, the IDA guarantee will need to be ring-fenced for the participating countries and pre-identified pipeline of the project. Having a risk mitigation fund also provides financial benefits of earning investment income that can be programmed to take on the loss before utilizing the IDA credits, if needed.
- To enable smooth implementation of this component, an integrated TA under Component 1 has been developed for strengthening the ECPCGC.

¹³ ECPCGC basic borrower requirements are outlined here as reference for the MSME guarantee facility: <https://ecpcgc.org/product-sheet/>. Also, the ECPCGC Operations Manual provides detailed guidance on the full program and requirements: <https://ecpcgc.org/operations-manual/>



Figure 1: Overview of Risk Mitigation Fund - Partial Credit Guarantee



26. **Component 3: RE Integration and Infrastructure Modernization, Institutional Strengthening, and National Implementation Support (Estimated Cost: US\$77.69 million of which of which IDA: US\$59.69 million; CTF: US\$18 million).** This component focuses on modernizing electricity grids and investments in BESS to support the integration of RE sources and enhance the reliability and power system resilience to climate risks, especially hurricanes. It will finance the optimization and strengthening of transmission and distribution (T&D) networks in participating countries, preparing the grid to accommodate increased RE generation, including BESS. The investment will cover works to expand the capacity of existing sub-transmission lines, upgrade current substations, or establish new primary substations. All infrastructure design and construction will incorporate climate-resilient measures to enhance the grid's durability against climate and natural disaster risks, which have been estimated to represent an additional cost of 30 to 100 percent based on experience from other countries in the region and determined during feasibility studies. The participating countries in the project will have modernized power grids capable of integrating privately developed RE and be more resilient to damage from severe weather events. The subcomponent addresses physical climate risks by embedding resilience into all technical specifications for grid upgrades, ensuring infrastructure like substations and T&D lines can withstand extreme weather, including Category 5 hurricanes. The successful outcome of the project will encourage additional countries to participate in the process, leading to more projects in the series, advancing toward the long-term outcome.

27. **Subcomponent 3.1 – Grenada: Supply and installation of T&D lines, upgrade of substations, and modernization of grid control centers (US\$21.3 million, of which IDA: US\$15.3 million; CTF: US\$6 million).** This will finance (i) reinforcements of T&D networks to accommodate increased capacity and resilience, (ii) construction of new substations to optimize voltage levels, and (iii) installation of remote redundant computer servers for the existing Supervisory Control and Data Acquisition (SCADA) system. RREIIF will finance (i) the construction of dual 33 kV sub-transmission lines from Queens Park to Pearls, with extensions to Plains and Levera (ii) the construction of two new 33/11 kV substations of 15 MVA to 20 MVA transformers with (n-1) security at Pearls and Plains, and (iii) the installation of a remote redundant computer server for the existing SCADA system. This subcomponent will also fund the owner's engineer for GRENLEC.



28. **Subcomponent 3.2 – Saint Lucia: Supply and installation of T&D lines, upgrade of substations, and modernization of grid control centers (US\$23.74 million, of which IDA: US\$15.75 million; CTF: US\$6.00 million; CCEFCF: US\$1.99 million).** This will finance procurement and installation of (i) T&D network reinforcements to accommodate more generation capacity especially part of the 60-year-old 66 kV lines, (ii) upgrading of substations by increasing their capacity and or optimizing voltage levels, and (iii) modernization of existing T&D control centers and/or the construction of new ones. RREIIF will finance (i) the construction of a new transmission line from Cul de Sac to Castries; (ii) the construction of a new substation of 2x50 MVA in the north of the island, and (iii) the replacement of the old 66 kV OHL transmission infrastructure. This subcomponent will also fund the owner's engineer.

29. **Subcomponent 3.3 - Saint Vincent and the Grenadines: Supply, installation of T&D lines, upgrade of substations and modernization of grid control centers in (US\$21.3 million of which IDA: US\$15.3 million; CTF: US\$6 million).** This will finance procurement and installation of (i) T&D network reinforcements to accommodate more generation capacity, (ii) upgrading substations by increasing their capacity and or optimizing voltage levels, and (iii) modernization of existing distribution and transmission control centers and/or the construction of new ones. RREIIF will finance specifically in this phase (i) tools for operation and planning including, modelling tools to build a more resilient transmission network, such as the installation of an outage management system to more efficiently restore infrastructure after natural disasters, Artificial intelligence-based daily projection and dispatch tool; assistance in building complete model for different islands, (iii) elaboration of standards to improve resilience and training in T&D construction, and (iv) supply and installation of 6 MWh BESS and T&D for the BESS integration in the utility grid as well as SCADA system to monitor RE dispatch. On the T&D investments, 33 kV transmission line and substations at Peter's Hope and the decommissioned ET Johnson old airport will be financed. This subcomponent will also fund the owner's engineer.

30. **Subcomponent 3.4: Institutional strengthening and Implementation Support to National PIUs (US\$11.35 million of which Subcomponent of which Subcomponent 3.4 (a) IDA: US\$3.8 million for Grenada; Subcomponent 3.4 (b) US\$3.55 million (IDA: US\$3.35 million and CCEFCF: US\$0.2 million) for Saint Lucia, and Subcomponent 3.4 (c) IDA: US\$4 million for Saint Vincent and the Grenadines:** Each country's PIU will be responsible for managing its subcomponent. The subcomponent will focus on supporting the national PIUs in the implementation of the Project, including advisory services, the preparation of any E&S instruments that might be required, targeted capacity building to increase the skills, employability, and participation in the RE sector, scholarships and apprenticeship support in partner institutions and financing for PIU staff and operations. The scholarship and apprenticeship program aims to address gender disparities through a multifaceted country-specific approach aiming to create sustainable pathways for the participation of women and men in the energy sector. This sub-component includes (i) the provision of targeted scholarships to partnership schools/accredited institutions for financing tuition fees and associated costs for women and men pursuing electrical, civil, and mechanical engineering degrees and other related technical programs; (ii) the creation of apprenticeship/internship opportunities to empower citizens with practical skills and industry experience; (iii) the implementation of professional development initiatives (e.g. job fairs, training), mentorship programs and career advising; (iv) early outreach campaign; and (v) the creation of the RE Entrepreneurship Program for citizens offering specialized workshops to equip them with business fundamentals, technical knowledge, and networking opportunities. Each country's PIU will have designated funds based on support activities that need to be carried out. The Grenada Subcomponent 3.4(a) will include US\$1 million for scholarships taking a gender-sensitive approach while promoting greater opportunity for females. For Saint Lucia Sub-component 3.4(b) will include US\$0.2 million directly from the CCEFCF allocation for Gender Equality for SIDs (GE-SIDS) aimed at increasing female employment in technical energy jobs and bolstering its' STEM capacity to support the transition to a decarbonized energy sector and US\$0.35million from IDA for scholarship and apprenticeship allocation for both men and women. For Saint Vincent and the Grenadines Sub-component 3.4(c) will include a US\$1 million scholarship and apprenticeship allocation for both men and women with a preference for women.

31. **Component 4: Contingent Emergency Response Component (CERC) (US\$0).** This component will be available, if needed, to redeploy Project resources alongside those of other projects in a specific country's portfolio to respond to an



emergency. The resources will be available to finance emergency response activities and address crisis and emergency needs. The activities will be Paris Aligned. An Immediate Response Mechanism Coordinating Agency and expenditure management procedures will be defined in an Immediate Response Mechanism Operational Manual, to be prepared separately and approved by the World Bank, in line with guidance provided under OP 10.00, paragraph 12. If CERC is triggered, the Project will be restructured to allocate the required financing, revise the PDO and indicators, and detail implementation arrangements as needed.

E. Role of Partners

32. The table below lists the partners involved in this operation and their respective roles in addition to ECPCGC.

Table 2: List of Partners

<i>Name of Partner</i>	<i>Nature of Involvement/Description</i>
<i>ECCB</i>	Regional champion, convener and technical partner in the design of RREIIF to help mobilize commercial finance for RE. Continued engagement as financial sector supervisor and technical partner.
<i>CCRIF</i>	First insurance provider in the region that is multi-country and providing parametric insurance coverage. Explore collaboration to develop parametric risk insurance products for the power sector.
<i>CCREEE</i>	Regional partner that works with member countries to provide the enabling policy and regulatory framework on RE and Energy Efficiency (EE), and TA to countries on RE project and template PPA development. Supports IRRP development across the region including the current IRRP development for Saint Lucia.
<i>OECS</i>	Technical collaboration for energy sector support.
<i>CARILEC</i>	Association of electric services, dealers, manufacturers and other stakeholders operating in the electricity sector in the Caribbean region.
<i>USAID</i>	Partner in the region providing TA support to member countries on enabling policy and regulatory framework on RE.
<i>GEAPP</i>	Provides catalytic finance with a wide range of blended finance and flexible capital solutions to address market barriers, unlock projects and mobilize funds to attract additional capital including private sector financing. Currently providing grant financing to the project.
<i>ESMAP</i>	Energy Sector Management Assistance Program is a Trust fund administered by WB that provides TA and concessional finance for the project.
<i>CCEFCF</i>	Trust fund administered by WB that provides highly concessional finance for the project.
<i>CTF</i>	Provides large-scale concessional finance resources to invest in clean technology projects in developing countries. Potential financier of grant and concessional resources to support the project.
<i>CDB</i>	Likely parallel or co-financier of RREIIF.
<i>FCDO</i>	UK Ministerial department providing development support to the Eastern Caribbean. Potential source of grant financing.
<i>RMI</i>	TA for IRRP development, feasibility studies and support for RE project pipeline development under the CARICOM Development Fund in partnership with the United States.

F. Lessons Learned and Reflected in the Project Design

33. The Project reflects lessons learned from multiple Bank-financed national and regional projects for scaling up RE in LAC and in other regions, as presented in Table 3.



Table 3: List of Relevant Projects

Organization/Countries	Project Name	Project No.	Approval Date
Regional Projects OECS (Multiple Countries)			
OECS/Grenada, Saint Lucia, SVG	Solar PV Demonstration and Scale Up Project	P153404	May 2016
OECS/Dominica, Grenada, Saint Lucia, SVG	Caribbean Digital Transformation Project	P171528	June 2020
OECS	OECS MSME Guarantee Facility Project	P157715	July 2018
Single-Country Projects on clean energy			
Argentina	FODER – Argentina RE Fund Guarantee	P159901	February 2017
Colombia	CTF Clean Energy Development Project	P161713	July 2018
Maldives	Accelerating RE Integration and Sustainable Energy	P172788	December 2020
Rwanda	RE Fund	P160699	June 2017
North Macedonia	North Macedonia Public Sector Energy Efficiency Project	P149990	January 2020
Vietnam	Vietnam Scaling Up Energy Efficiency Project	P164938	June 2019
India	Partial Risk Sharing Facility in Energy Efficiency	P132620	February 2015
Indonesia	Indonesia Infrastructure Finance Facility	P092218	June 2009
Croatia	Croatia Energy Efficiency Project	P079978	October 2003

34. **Integration of resilience aspects in project design:** It is essential to integrate climate and disaster risk screening in the planning and preparation phase of energy infrastructure projects.¹⁴ Once relevant risks have been identified, resilience measures need to be incorporated through all stages of the project, including design and operations, and establish a risk mitigation framework that builds robustness against disasters, offers resourcefulness during such events, and allows rapid recovery.¹⁵

35. **Need to facilitate grid investments to accommodate RE:** Variable RE (VRE) poses challenges for the operations of a power grid especially for the small power systems in the Caribbean. Adding VRE greatly increases uncertainty and variability in the grid. These effects can be mitigated with a variety of approaches and technologies, including grid upgrades, the addition of flexible generation capacity, or the addition of BESS. The required solutions are highly dependent on the local context.¹⁶ During the power system planning process, it is helpful to integrate climate model data to better understand the variability of RE technologies in the long term.¹⁷

36. **Focus on project pipeline development at an early stage of project design and implementation.** Pipeline development is critical to successful project rollout. The RREIF has incorporated these lessons by focusing on pipeline development initiatives right from the project preparation stage. A market-sounding exercise was carried out with participating banks, RE developers, and electric utilities to incorporate their views in RREIF’s design and assess their interest in using risk mitigation measures for facilitating the pipeline RE projects.

37. **Capitalize on existing regional institutions and build their capacity further.** National agencies and line ministries have limited capacity and are usually constrained by human resources. Institutions at the regional level, such as the ECCB, ECPCGC, OECS Energy Unit, and the CARICOM Energy Unit have better capacity and are often externally funded. Regional entities also have a unique and strong convening role based on their mandate. For instance, the ECCB is the convener of the region’s Monetary Council with the Ministers of Finance. With a range of regional entities already established and operational, new regional projects should leverage existing institutions and strengthen their capacity. Setting up new entities should be considered only when there are specific gaps to be filled.

38. **Choice of Financial Intermediary (FI).** RREIF has identified the ECPCGC [FI set up under OECS MSME Guarantee

¹⁴ Gessesse, Eskedar Bahru. 2021. Climate and Disaster Risk Screening: Making Energy Projects More Resilient. Live Wire, 2021/117. World Bank, Washington, DC.

¹⁵ Oguah, Samuel; Khosla, Sunil. 2017. Disaster Preparedness Offers Big Payoffs for Utilities. Live Wire, 2017/84. World Bank, Washington, DC.

¹⁶ Nikolakakis, Chattopadhyay, 2015. Integrating Variable RE into Power System Operations. Live Wire, 2015/38. World Bank, Washington, DC.

¹⁷ Chattopadhyay, Debabrata; Jordan, Rhonda L. 2015. Integrating Climate Model Data into Power System Planning. Live Wire, 2015/43. World Bank, Washington, DC.



Facility (P157715)] and the need for its augmentation with dedicated project implementation staff with requisite technical, financial, and managerial skills to implement. Setting up the ECPCGC under P155715 took approximately two years. Leveraging the existing entity will help avoid the delays related to setting up a new regional entity with a similar mandate - to provide risk mitigation products for a new market segment (RE). In this case, the project/loan sizes are larger compared to those supported under P155715 for MSMEs but the total number of RE projects will be much fewer. There are several advantages to using ECPCGC as an FI for the RREIIF including streamlined approval of the amendment of the agreement, ability to leverage existing relationships with banks, experience of existing staff in offering credit guarantees, and familiarity with World Bank-financed projects, ECCB and ECCU countries. However, the ECPCGC will require significant capacity strengthening as the regional implementing entity.

39. **Need for capacity building of the implementing entity, participating banks, and other key stakeholders in the energy sector ecosystem.** RREIIF will provide dedicated TA to support ECPCGC and national PIUs during implementation. It will leverage the World Bank's existing national and regional TA programs to strengthen the investment climate for utility-scale RE by building the capacity of the primary stakeholders, including lenders, electricity utility officials, and RE developers.

40. **Maximizing access to finance.** Energy efficiency risk-sharing facilities in the Asia, Europe and Central Asia regions needed to identify eligible participating banks as the beneficiary of risk mitigation instruments. RREIIF has taken this lesson into account by developing suitable eligibility criteria for the empanelment of participating banks, which allows for wider participation of financial institutions while also giving due importance to the financing track record of the institutions. The Project Operations Manual (POM) would include detailed eligibility criteria for participating banks and underwriting standards to ensure that loans are made to creditworthy RE developers.

41. **Coordination Requirements between the regional and national levels.** Based on experience in prior World Bank regional projects in the Caribbean, it is important to ensure clarity of role as well as responsibilities of the RCU and national implementing counterpart (line ministry). The project will include specific agreements, such as subsidiary agreements, to ensure smooth implementation of components and activities led by regional versus national entities. Regional activities, such as aggregated RE tendering, can provide benefits of economies of scale but can take longer to implement, requiring buy-in from all participating countries. While procurement activities can be aggregated at the regional level, other aspects of a regional project, such as regulatory issues, are unique to each country and require individual consideration.

42. **Leverage of WBG collaborations.** Joint WBG response is an important factor in mobilizing private capital including collaboration with Multilateral Investment Guarantee entity (MIGA) on relevant risk mitigation and with International Finance Corporation (IFC) on private-sector participation. Coordinated WBG solutions have proven to be among the important drivers for addressing key barriers to private capital mobilization and developing innovative transaction structures.

43. **Provision of sustained targeted multi-year TA and capacity building to ensure country ownership and implementation support.** Ensuring country ownership for RE projects is essential for their success. This includes engaging with governments and other stakeholders, with close collaboration between utilities and energy regulators, at the early stages of project design to ensure that projects align with national development priorities. Additionally, engaging with stakeholders, including local communities, is important in building support for RE financing projects, and involves meaningful consultations and provision of transparent communication on project impacts and benefits. Moreover, providing TA to countries and project developers can help ensure that projects are well-designed, technically sound, and financially viable. TA can also help build local capacity and expertise, which is essential for the sustainable development of the energy sector.



III. PROJECT IMPLEMENTATION

A. Institutional and Implementation Arrangements

44. **Regional Entity: The project will be anchored within the Eastern Caribbean Partial Credit Guarantee Corporation (ECPCGC)** as the Regional Entity that will set up a Regional Steering Committee (RSC) with a designated chairman.

45. **Regional Steering Committee (RSC):** The RSC will include senior representatives of the government of each participating country, the ECCB and other non-governmental stakeholders, as agreed. The RSC will oversee project implementation, provide strategic guidance and facilitate decision-making on critical matters. The RSC will approve annual work plans, and facilitate collaboration, meeting at least annually to assess implementation progress.

46. **The Regional RE Coordinating Unit (RCU):** The RCU, housed within the ECPCGC and operating under the strategic guidance of the RSC, will oversee the overall project implementation. The RCU will execute Components 1 and 2 while supporting national project Implementation Units (PIUs) in executing Components 3 and 4. The RCU will assist national PIUs in identifying high-priority, utility-scale RE projects and in their preparation through feasibility studies and other support to ensure readiness for international competitive bidding processes. The RCU will hold fiduciary responsibility for implementing Components 1 and 2. It will serve as a transaction advisor to participating countries, ensuring quality assurance, coordination, and reporting to the RSC and the World Bank. The RCU's responsibilities include project development, aggregation, and managing tender processes for RE developers and BESS investments under Component 1. Throughout all stages of project implementation, the RCU will provide TA and capacity building to all stakeholders involved in the procurement process, including line ministries, regulatory authorities, and utilities. The RCU team will comprise a project manager, RE specialists with project financing and IPP tender expertise, a transmission and distribution specialist with BESS knowledge, a procurement specialist, a financial management specialist, a legal specialist, an environmental specialist, a social development specialist, and support staff. Additionally, the RCU will function as the secretariat for the RSC.

47. **National Project Implementation Units (PIUs).** The RREIIF will use existing PIUs in the energy sector or create new ones as needed to leverage the World Bank project implementation experience. National PIUs will handle fiduciary duties for Components 3 and 4, except for Grenada. Owner's engineers, funded by Subcomponent 3.4, will support the implementation of Component 3, assist in supervising investments, and validate technical specifications before procurement.

48. **National PIU in Grenada.** The PIU for the World Bank-financed Caribbean Efficient and Green Energy Buildings Project (CEGEB, P179519) will be enhanced under the Grenada Ministry of Climate Resilience, the Environment and RE (MCRERE) to execute Project activities in Grenada. GRENLEC will implement the T&D activities under Sub-component 3.1 while the MCRERE will execute Sub-component 3.4(i). The PIU will include a shared project manager for both CEGEB and RREIIF, a deputy manager for RREIIF, and specialists in environmental, social aspects, and procurement. A Grenada Project Steering Committee (PSC) will be established, including representatives from the Ministry of Finance (MOF), other relevant ministries, and the PURC, to coordinate and oversee the project activities in Grenada.

49. **National PIU in Saint Lucia.** The PIU under the Saint Lucia Ministry of Infrastructure, Port, Transport, Physical Development and Urban Renewal (MIPTPDUR) will be enhanced with additional not shared professional experts for the implementation of the project activities. A Project Manager, an expert in T&D, and shared experts across energy sector projects -- including an environmental specialist, a social specialist, a community liaison officer, a financial management assistant, and a procurement assistant -- will be hired as needed. The RREIIF will be implemented by the MIPTPDUR in close cooperation with LUCELEC. A PSC under the supervision of the Ministry in charge of the energy sector will be established, including representatives from the MOF, NURC, and others. The PSC will coordinate and oversee the project activities at the national level.



50. **National PIU in SVG.** A dedicated national PIU will be established in the Energy unit in the Ministry of Urban Development and Energy. This will include a project manager along with an environmental specialist, a social specialist, a community liaison officer, a procurement specialist, an administrative and procurement assistant, an RE expert and a financial management Specialist. As planned for Saint Lucia, and Grenada, an SVG-PSC will be created to include representatives from the MOF, other relevant ministries, PURC, etc., to coordinate and oversee the project activities.

B. Results Monitoring, Evaluation, and Verification Arrangements

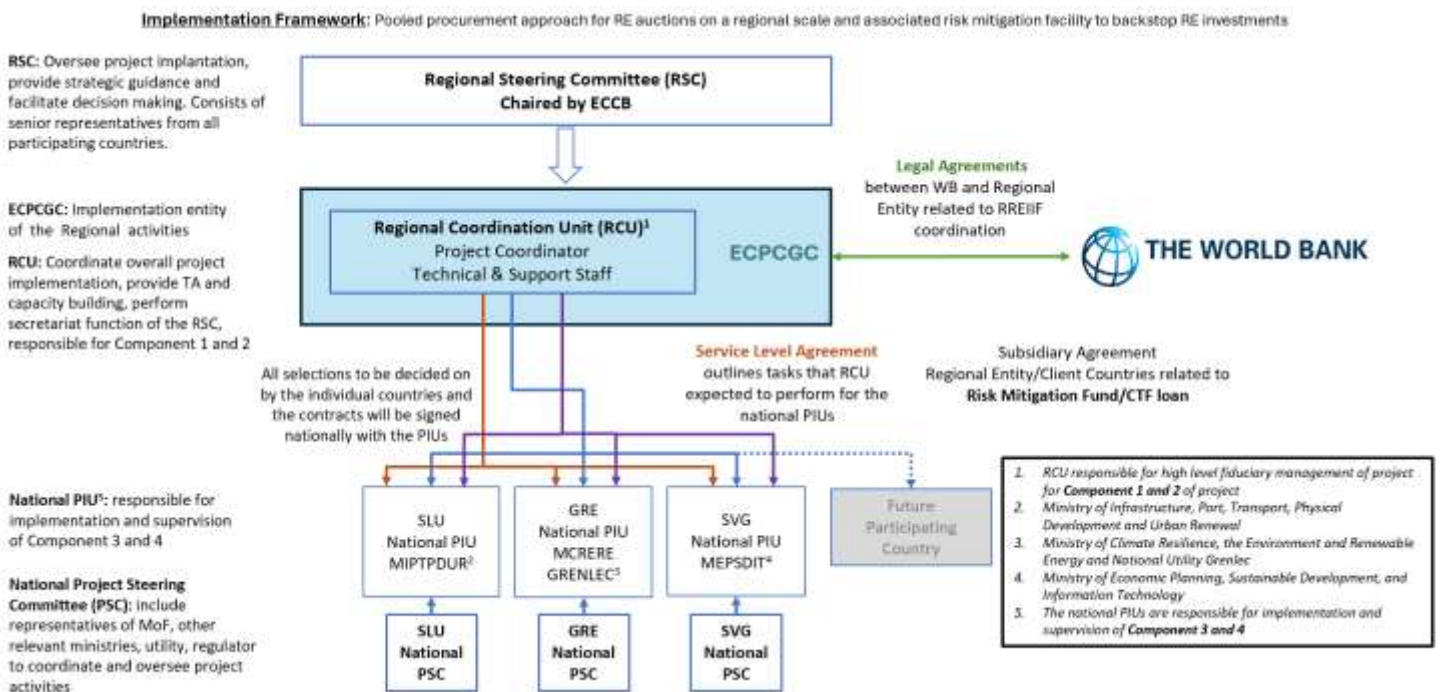
51. The ECPCGC, as regional implementing entity and the RCU, as central implementing unit for RREIFF, and national PIUs, will be responsible for monitoring and evaluation (M&E), reporting periodically on implementation progress. The National PIUs will also participate in the reporting, particularly for Component 3 activities.

52. The M&E framework will track progress during implementation, measure intermediate outcomes, and evaluate project impacts. The Results Framework and M&E Plan outline the key performance indicators, data collection methods, data collection timeline, and responsible agencies. The Project Coordinator at the RCU will be responsible for (i) collecting quarterly progress reports from the national PIUs; (ii) verifying that the reports meet the requirements for the content and data sources; and (iii) submitting the quarterly progress reports to the World Bank no later than 45 days after the end of each quarter. The quarterly reports prepared by the national PIUs will monitor (i) the physical progress of works; (ii) progress towards the achievement of the milestones and targets of the Results Framework indicators; and (iii) any issues affecting the project implementation and respective mitigation actions.

53. The National PIUs will prepare annual reports during project implementation and submit to the World Bank no later than 45 days after the end of the period. Furthermore, the World Bank will supervise the project to evaluate achievement of the PDO. If necessary, corrective actions will be agreed upon with the Governments of participating countries and the Regional Entity including during the mid-term review.

54. The schematic of the implementation arrangement is presented in Figure 2 below.

Figure 2: Implementation Arrangements





C. Disbursement Arrangements

55. The funds flow and disbursement arrangements will follow the Bank disbursement guidelines and procedures to be stipulated in the project Disbursement and Financial Information Letter (DFIL). Specifically, Saint Lucia and SVG implementing agencies will open a segregated US Designated Account (DA) at a financial institution acceptable to WB to receive project funds and pay the US currency expenditures. ECPCGC will open one DA denominated in US dollars (DA-A) for the resources for the risk facility under Component 2 and another DA denominated in US dollars (DA-B) for Component 1, which includes TA resources. Similarly, in Grenada, the Accountant General will open two US dollars DAs. Funds will periodically be transferred from the DA to segregated local currency operating account for each Implementing Entity (IE) to pay local currency expenditures. The IE will be allowed to use any of the four disbursement methods: Advance, Reimbursement, Special Commitments, and Direct Payment. The first advance request will be supported by an approved six-month cash forecast informed by the annual work plan. The IEs will use quarterly Interim Unaudited Financial Reports (IFRs) to document utilized advances and request additional advances based on six-months cash forecast. The IEs will use the WB Client Connection and will submit to the Bank the ‘authorized signatory letter’ (ASL) to designate the officials that will be responsible for signing the withdrawal applications in the Bank client connections system. The ceiling for each of the DAs are included in the DFIL.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

56. **Technical Analysis:** The technical design of the project presents no construction or operational challenges as RE infrastructure, BESS, transmission lines, and substations/control centers are common. Project costs are based on estimates derived from recent prefeasibility studies of transmission lines and substations and BESS done by member countries. The cost estimates are deemed to be in line with current market prices. Considering the possibility of relative cost increases during the detailed feasibility study, the contingency amount has been estimated at 10 percent of the total Project cost. As part of the Project’s implementation arrangements, an owner’s engineer will be contracted for the countries under Component 3. The owner’s engineers will be a reputable company with the experience required and will help to ensure that construction is carried out in accordance with designs and international quality standards. All works would be preceded by the completion of feasibility studies for T&D, substations, and BESS. The infrastructure will be resilient and designed to withstand category 5 hurricanes. Capacity building will be provided to utilities to ensure the sustainability of the infrastructure built beyond the project's life.

57. **Paris Alignment:** The proposed operation aligns with the goals of the Paris Agreement on both mitigation and adaptation. The Project supports the objectives outlined in the updated Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and National Energy Policies of Saint Lucia, SVG, and Grenada. The project is aligned with Country Climate and Development Report (CCDR) of the region.

58. **On mitigation, according to the latest NDCs submitted to the United Nations Framework Convention on Climate Change, Saint Lucia aims for a 14.7 percent reduction in GHG emissions in the energy and transport sector by 2030 and 22 percent by 2035 relative to 2010 levels.** Saint Vincent and the Grenadines targets emissions reductions through energy and transport sector interventions, emphasizing RE and efficiency. Grenada has committed to reducing GHG emissions by 40 percent below 2010 levels by 2030, conditional on external funding. The Project contributes directly to these goals through enabling RE generation investments and direct investments in RE integration, such as the new construction/upgrade of T&D infrastructure, substations, and BESS. By strengthening the electricity grid, the project enhances the capacity to integrate higher shares of RE into the energy mix, reducing dependence on fossil fuels and GHG emissions. Additionally, the establishment of the RCU facilitates the aggregation of RE projects across countries, lowering costs and promoting the development of bankable projects in line with national mitigation commitments.

59. **On adaptation, the Project aligns with priorities identified in the countries’ NAPs by ensuring that energy**



infrastructure is resilient to climate-related risks, such as hurricanes and flooding. The design and construction of all infrastructure through Components 1 and 3 incorporate climate-resilient measures, enhancing the durability of the grid against extreme weather events. Furthermore, the integration of BESS enhances the reliability of energy supply during emergencies, ensuring critical facilities can continue operations even during grid disruptions. Additionally, all competitively procured energy projects through the regional aggregation mechanism will be ensured to incorporate stringent resiliency measures relevant to the local context to withstand natural hazards.

60. **Assessment and Reduction of Mitigation Risks.** The proposed Project presents no risk of having a negative impact on the countries' low-emissions development pathways or creating GHG lock-ins. The RREIIF avoids lock-in of high-emission infrastructure by focusing exclusively on RE systems and associated enabling infrastructure. The T&D reinforcements and battery storage installations under Component 3 directly support the transition to low-carbon energy systems. Risk mitigation mechanisms, such as PCGs offered through the RREIIF fund under Component 2, incentivize FI to support RE investments, further aligning with the countries' decarbonization strategies. Activities pertaining to the generation of RE, electricity transmission and distribution are considered Universally Aligned with the Paris Agreement's Mitigation Goals and will lead to substantial GHG emissions reductions.

61. **Assessment and Reduction of Adaptation Risks.** The proposed Project adequately reduces the physical climate risks to the Project outcomes, and the Project's climate resilience and adaptation design considerations limit the exposure to a low level of residual risk. The Project addresses physical climate risks by embedding resilience into all technical specifications for grid upgrades, ensuring infrastructure like substations and T&D lines can withstand extreme weather, including Category 5 hurricanes. Under Component 1, tender documents for procured RE projects mandate designs that account for natural hazards specific to the local context. These requirements, coupled with stringent E&S safeguards for financed projects, minimize residual risks and align with adaptation priorities, ensuring the long-term resilience of energy systems.

62. **Economic Analysis:** An economic cost-benefit assessment of the project was conducted considering the potential increase in RE and BESS that the project would stimulate. Although none of the project components are directly linked to specific RE capacity additions, all project components help stimulate RE. The chosen strategy for the economic analysis is based on three reasons. First, for each country the Net Present Value (NPV) and Internal Rate of Return (IRR) are calculated for a pipeline of Solar PV and BESS projects expected to be commissioned before 2030. Solar PV and BESS make up most of the pipeline, hence other potential RE capacity additions are not considered. Second, a sensitivity analysis illustrates how the economic returns vary with the value of critical assumptions. Third, these economic returns are considered in proportion to the investment costs of this project that enable their realization. The economic analysis covers a time frame up to 2050 and a social discount rate of 9.4 percent for Grenada, 7.1 percent in Saint Lucia and 9.8 percent in SVG.¹⁸

63. Economic costs are Capital Expenditure (CAPEX) and Operational of the Solar PV and BESS systems as well as project investment costs. Key assumptions for the PV systems are an annual output of around 1780 kWh/kWp/year, CAPEX of US\$1500/kWp, OPEX of US\$ 20/kWp/year, and a 25-year lifespan. Key assumptions for the BESS are a CAPEX of US\$600/kWh declining at four percent over time), annual Operations & Maintenance (O&M) at three percent of CAPEX and two-hour storage capacity. Line and substation costs to connect these systems are also included, estimated at US\$300/kWp.

64. Economic benefits are the avoided costs of thermal generation that would have been used without the materialization of the pipeline of Solar PV and BESS projects and associated avoided CO2 emissions. The counterfactual fuel is assumed to be diesel, which powers the bulk of generation on the islands, including the marginal generators. Since there is no unmet demand, aside from possible power outages, the project does not bring economic benefits in the form

¹⁸ Per World Bank Guidance on Economic Analysis of Energy Project, this is set at twice the real per capita growth rate, calculated using IMF World Energy Outlook (October 2024) forecast for the period 2025-2029.



of increased consumption of electric power. Diesel generation is assumed to produce 0.68 kgCO₂e/kWh, the value of which is assessed using World Bank guidance on the low and high social value of carbon starting at US\$56 and US\$110 per ton of CO₂e in 2025.

65. The NPV and Economic IRR (EIRR) for the development of the pipeline of RE infrastructure and BESS, excluding the current IPF costs, are shown in Table 5. The EIRR exceeds the social discount rate in all cases except Saint Lucia and SVG when no value is assigned to avoided CO₂ emissions. Lower rates of return in these countries are a result of relatively more investments in BESS systems compared to the pipeline of RE infrastructure. When including economic costs, those of the current IPF costs, net economic benefits are negative. It should be noted, however, that such a comparison fully accounts for costs but does not account for the net benefits of RE investments that come into being because of the project after 2030.

Table 4: Economic viability of Solar PV and BESS pipeline commissioned 2025-2030

	Grenada		Saint Lucia	Saint Vincent and the Grenadines		
	NPV (US\$m)	EIRR	NPV (US\$m)	EIRR	NPV (US\$m)	EIRR
None	8.3	14.6%	(1.8)	4.8%	(0.3)	8.4%
Low	20.5	21.6%	6.5	10.9%	2.5	15.0%
High	32.8	28.7%	15.0	16.2%	5.3	21.0%

66. Table 5 calculates switching values for some of the critical assumptions (i.e., the value of the parameters at which the EIRR is equal to the Social Discount Rate) excluding the social value of carbon. A relatively small increase in long-run Caribbean crude oil costs or a modest reduction in PV CAPEX also makes the pipelines in Saint Lucia and Saint Vincent and the Grenadines with significant BESS investments economically viable.

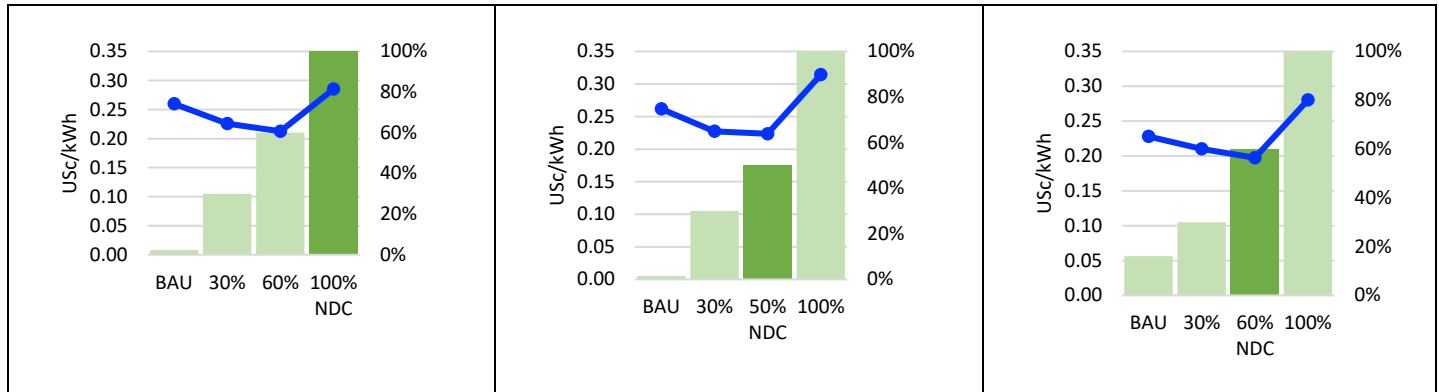
Table 5 Switching values

Assumption	Baseline	Units	Grenada	Saint Lucia	Saint Vincent and the Grenadines
Price of crude oil	80	US\$/BBL	56.4	88.8	86.2
PV Capex	1500	US\$/kWp	2043	1212	1335
BESS Capex 2024	600	US\$/kWh	>>	270	259
BESS Capex CAGR	-4%	%	n/a	-18%	-19%

67. In addition to the above pipeline cost-benefit analysis, an RE affordability model was created for the three countries. The model shares key assumptions of the cost-benefit assessment and calculates the total and average country electricity costs of reaching various levels of RE penetration using basic assumptions for CAPEX, capital replacement rates, O&M, and fuel costs for diesel, solar, hydro and geothermal investments. RE penetration rates of 30 percent to 100 percent are simulated, considering NDC targets and electricity demand growth rates. Note that even the 30 percent penetration rate is much higher than that which will be achieved with the pipeline of investments modeled in the economic analysis. The charts shown below are illustrative of the results, with the average cost of power generation declining with increasing RE penetration until RE penetration reaches levels more than 60 percent. This pattern results from the required BESS capacity investments and their high costs at elevated RE penetration levels. It is of note however, that in this model, the required ratio of BESS to PV capacity investments for low levels of RE penetration is not as high as that which is planned in the pipeline, which is why even with capacity investments far in excess of those in the pipeline, the higher ratio of PV to BESS capacity reduces the role of BESS costs on economic viability.



Chart 1: Average electricity cost with increasing RE penetration.



68. **Utility historic financial performance.** The financial performance of the utilities (LUCELEC, GRENLEC and VINLEC) is strong. In **Grenada, GRENLEC¹⁹** is a state-owned utility with a total number of electric utility customers reported to be 57,778 at the end of 2023. Throughout 2023, sales growth consistently outpaced each month and quarter of 2022, with kWh sales registering a 4.82 percent increase over the prior year. The commercial sector, constituting 55 percent of total consumption, experienced growth of 6.21 percent (7.80M kWh) over 2022. Financially, GRENLEC continued to rebound strongly from the COVID-19 pandemic, recording a 4.82 percent increase in kWh sales and achieving a net profit before tax of US\$28.94 million. The strong financial performance allowed GRENLEC to reinstate dividends, resulting in a substantial payout of US\$7.6 million for in 2023. In **Saint Lucia, LUCELEC²⁰** is an investor-owned, well-managed and profitable utility. Its total number of electric utility customers was reported to be 72,335 at the end of 2023. In 2023, the Company experienced an increase in sales of 3.6 percent compared to a 5.9 percent increase in 2022. The revenue in 2023 was EC\$387.0 million. The Utility achieved a profit before tax of EC\$57.8 million, which was lower than the previous year’s result of EC\$58.0 million by 0.3 percent. Its profit after tax of EC\$41.6 million increased by 5.1 percent compared to the previous year’s achievement of EC\$39.6 million. Earnings per share were EC\$1.81 (2022 – EC\$1.73), an increase of 4.6 percent compared to the prior year, and its return on equity was 10.3 percent (2022 – 10.2 percent). In **Saint Vincent and the Grenadines, VINLEC²¹** is a state-owned utility. The most recent available financial report (2018) showed that it was profitable. The company realized after-tax earnings of US\$5.955 million in 2018, a total operating revenue of US\$120.379 million represents a US\$11.477 million or 10.53 percent increase compared with 2017.

B. Fiduciary

Financial Management.

69. **The proposed FM arrangements in the project IEs were assessed as adequate subject to implementing agreed mitigating measures.** The project will apply the FM arrangements (planning and budgeting, accounting, internal controls, funds flow, financial reporting, and auditing) being applied in other WB-funded projects being implemented by ECPGC (the regional implementing entity), the PIU in Saint Lucia and the Project Accounting Unit (PAU) in the Accountant Generals Department (AGD), Grenada. The FM arrangements are considered satisfactory based on recent supervision of these projects. These institutions have experience in implementing WB funded projects. While a new PIU will be established in SVG Energy Unit, the PIU will follow the well-established Government FM systems. However, the staff of the new PIU will be trained in WB policies and requirements.

70. **The agencies will implement mitigating measures to strengthen FM arrangements and address the FM risk which was assessed as substantial.** The FM assessment identified the following key FM risks that are likely to impact the

¹⁹ <https://grenlec.com/wp-content/uploads/2024/07/GRENLEC-AR-2023.pdf>

²⁰ <https://www.lucelec.com/sites/default/files/annual-reports/LUCELEC-2023-AR-Interactive.pdf>

²¹ <https://www.vinlec.com/public/uploads/userfiles/VINLEC%202018%20Annual%20Report.pdf>



achievement of the PDO: (i) complex design of the project, which means complicated internal controls and likely uncertainty of eligible expenditure; (ii) involvement of multiple implementing agencies likely to impact coordination and accurate computation, approval and monitoring of the budget; (iii) lack of experience with WB requirements, especially by staff of SVG PIU, which may lead to difficulties in complying with WB fiduciary requirements; (iv) poor quality project reports if the projects are not integrated in IE accounting systems; and (v) delay in establishing the SVG PIU. The proposed mitigation measures include: (i) strengthening the PIU FM staff capacity by conducting FM training and regular implementation support; (ii) developing adequate internal controls, documenting them in the POM, and conducting training on POM for all project team members; (iii) designing and implementing effective coordination at project coordinator level, and clearly articulate responsibilities in the POM; and (iv) introducing codes in the IE accounting systems to record and prepare project reports. The WB will support the IE to address these measures during the project preparation.

71. The project will follow the following specific Financial Management Arrangements

- (i) **Staffing.** ECPCGC will designate a project accountant from its finance department to fulfill project FM responsibilities. A project accountant will be designated in SVG PIU. The Saint Lucia PIU and the PAU/AGD in Grenada will use existing accountants. However, Saint Lucia PIU will recruit a finance analyst to support the project. The WB will conduct regular FM training for project FM staff.
- (ii) **Planning and Budgeting:** Each IE will prepare an annual work plan (AWP) and annual budget, which will be included in the respective ministries' annual budget for approval by the Parliament. Activities to be implemented by ECPCGC will be included in the institution's budget. The IEs will monitor the budget implementation using existing procedures and systems. The project FM teams will report on budget performance in the interim unaudited financial reports.
- (iii) **Accounting:** The respective IEs will use their existing FM accounting systems to record and maintain all project transactions and will follow the cash basis of accounting. Saint Lucia and PAU in Grenada will create codes in the existing QuickBooks and Smart Stream accounting system. While PIU in SVG and ECPCGC will use their SIGFIS (Smart Stream) and Peachtree accounting software, respectively. The systems will allow capturing of the project transactions by categories, components, subcomponents, and activities, as needed.
- (iv) **Internal controls:** All the internal controls will be detailed in the POM with clear roles and responsibilities. The Project will maximize the use of Country Systems in Saint Lucia, Grenada and SVG to the extent possible, including following the national budget system, the use of the Government's FM System (Smart Stream), and Treasury processing of payments.
- (v) **Reporting:** Each IE will submit (a) quarterly IFRs within 45 days after the end of each quarter; and (b) an annual project audited financial statement and management letter within six months of the close of the implementing agency financial year. Project audits in Saint Lucia, Grenada and SVG will be conducted by Director of Audit/Auditor General, while ECPCGC will appoint private audit firm to conduct audit for the project.
- (vi) **Disbursement and Funds Flow:** The project funds flow and disbursement arrangements are documented in the disbursement section above (part III section c).

72. **Financial Intermediary (FI) assessment.** An FI assessment has been carried out on ECPCGC's suitability for the RREIFF risk mitigation component and project implementation. A FIF assessment has been prepared in line with the FIF Guidance and the World Bank *Principles for Public Credit Guarantee Schemes for SMEs* ("Principles"). The main conclusion indicated that:



- ECPCGC has foundations but will need strengthening to have the necessary capacity and knowledge to perform the apex role, including the capacity to assess the competence and creditworthiness of participating banks vis a vis the MSME sub-projects.
- The expanded mandate of ECPCGC for the establishment of RREIIF implies a major institutional transformation. There are several significant legal, institutional and operational requirements that need to be met for the successful establishment and operation of the RREIIF while also addressing existing areas of institutional weaknesses such as deficits in corporate governance, lack of risk management, and inadequate staffing.
- It is advised to consider critical success factors as disbursement conditions for Component 2 (Risk Mitigation Fund) to help reach readiness and achieve the objectives of the project. The disbursement condition retained for component 2 for this project is: to amend existing legal framework of ECPCGC to broaden the mandate for the RREIIF Component 2 in line with international best practices.

73. **Procurement. World Bank Procurement Regulations for IPF Borrowers.** The regional and national PIUs will conduct procurement activities in alignment with the World Bank’s Procurement Regulations for IPF Borrowers (February 2025). This includes adherence to the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants" dated July 1, 2016, along with other stipulations outlined in the Financing Agreement.

74. **The Project Procurement Strategy for Development (PPSD) and the Procurement Plan (PP).** The PPSD and the initial PP for the first 18 months have been prepared. These documents outlined the procurement arrangements, selection methods, and market approaches for each contract financed by the project. The PPSD will include market analysis to justify the selection methods for each contract, which will inform the development of the PP to be approved by the World Bank. The PP will be updated annually or as needed, in agreement with the World Bank, to reflect project implementation needs and changes in institutional capacity and the project's operational environment.

75. **Oversight and Monitoring Arrangements.** The Project will utilize the Systematic Tracking of Exchanges in Procurement (STEP) system to plan, record, and monitor procurement transactions, documents, and complaints. The PIUs are responsible for uploading all procurement and contract information into the STEP system. This system will be used to provide the World Bank with a consolidated list of all contracts for works, goods, non-consulting services, and consulting services awarded under the project. The PIUs will ensure that the STEP system remains updated with all relevant documentation generated throughout each procurement process until the final payment is made. The World Bank will carry out an annual post review, selecting a sample from the data in the STEP system.

76. **Procurement risk.** Overall, the procurement risk is rated as substantial due to uncertainties regarding the regional market's capacity to meet the project's needs and the appeal of the contracts to larger international companies. This risk will be thoroughly addressed in the PPSD to ensure that market approaches are tailored to the project's size, value, and associated risks. The risk rating will be periodically adjusted during project implementation based on the performance of the implementing agency.

C. Environmental, Social and Legal Operational Policies

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No



77. The Environmental and Social Risk rating for the Project is **Substantial**. Overall, the Project is expected to have positive environmental and social impacts. Limited client capacity, creation of a risk mitigation facility requiring E&S risk management through an Environmental and Social Management System (ESMS), challenges in coordinating regional and national activities by a newly set up RCU, and implementation of multiple sub-projects at the national levels contribute to the Substantial risk rating. The project will support RE development which will have positive environmental impacts by reducing the reliance on imported fossil fuels. Though the location and scale of all the investments under both components are not known, site-specific impacts such as those related to pollution, waste, fire and life safety, community as well as occupational health and safety are likely and would be short-term, localized and reversible that could be addressed through standard mitigation measures and good international industry practice delineated in the WB Group General Environmental, Health and Safety Guidelines. The Terms of Reference (TOR) for the TA activities under Component 1 will be reviewed to ensure environmental and social requirements are included to enhance the positive outcomes of the capacity building and technical support activities.

78. Overall, the project is expected to bring positive social impacts, as the promotion and use of RE development will decrease energy costs and generate temporary and permanent employment for local communities. However, the Project's key social risks relate to land acquisition and resettlement (under Components 3 and possibly 2), labor and working conditions, Occupational, Health and Safety (OHS) (e.g., safety hazards for workers such as risks of accidents due to working at heights, life and fire safety risks) and community health and safety. While the project is expected to generate employment opportunities, the non-use of local labor (most likely the use of labor coming from neighboring islands) during the construction of infrastructure could be a potential source of social tension at the local level.

79. Construction activities under Components 2 and 3, are expected to have standard, temporary and site-specific construction impacts. Given the size of the installation and maintenance service contracts expected under the project, contracted firms are expected to hire local labor, and thus the risks related to labor influx are expected to be limited. In terms of OHS risks, while Saint Lucia, Grenada and SVG have OHS legal frameworks, potential issues may arise during implementation due to weak enforcement.

80. The risks of sexual exploitation and abuse and sexual harassment have been assessed as low.

81. Though the location and scale of all the investments under Components 2 and 3 are not known yet, it is expected that most subprojects are expected to be implemented within the existing footprints of public investments or on public lands, minimizing the need for land acquisition impacts. A Resettlement Framework (RF) will be prepared as a precautionary measure in case land acquisition and/or involuntary physical/economic displacement is required in one or more subproject sites. Resettlement Plans, if needed, will be prepared and implemented prior to carrying out the relevant works. The subprojects under Component 2 in which the private sector will be involved, are not known yet either. For private sector investments, the private developer is expected to buy land, if needed, through a willing buyer-willing seller open market transaction.

82. Finally, insufficient engagement and coordination with different project stakeholders and poor-quality stakeholder consultations or the lack of involvement of local communities in decision-making may lead to public resentment. Saint Lucia and Grenada have conducted public consultations with stakeholders, while SVG will conduct consultations shortly. Draft Stakeholder Engagement Plans (SEPs) have been prepared and will be updated after the Project becomes effective.

83. **Nine Environmental and Social Standards are currently relevant (ESS1-6, ESS8-10).** To manage the environmental and social risks, country-specific SEPs have been prepared and disclosed by the clients. An Environmental and Social



Management Framework (ESMF) including the Labor Management Procedures (LMP) has been prepared and disclosed.²² A Resettlement Framework will be prepared for the Project within 90 days of Project Effectiveness. The apex FI -- ECPCGC, will also develop an ESMS within 240 days of Project Effectiveness. In addition, client specific Environmental and Social Commitment Plans (ESCPs) were disclosed by the World Bank and the clients. The WB disclosed the ESCP and SEP on February 20th, 2025.

84. **Citizen engagement.** As outlined in the SEP, the project will seek to establish and maintain strong relationships with a wide range of stakeholders, including electricity consumers, private firms, national utilities and regulatory authorities, NGOs and civil society, but also local government entities and local community leaders, as well as low income and vulnerable households, women and youth, and communities affected by land acquisition or economic displacement due to project activities. The citizen engagement activities will revolve around three pillars. The first will be public consultations, such as information sessions on project impacts and benefits, local community meetings and focus groups (e.g. regarding project-affected parties' preferences on how to mitigate site-specific impacts or the choice of specific RE infrastructure and its location). The second will be public awareness campaigns in each participating country (including gender-sensitive outreach programs in secondary schools, specialized workshops for potential beneficiaries, use of mass media and social media and development of print and visual materials to widely disseminate information about the project etc). The third will be the establishment of accessible grievance mechanisms at the country level and in ECPCGC. Additionally, the project could also engage citizens through community monitoring during the construction phase. The social specialists and community liaison officers will be jointly responsible for the implementation of these activities, and the results framework will track the following citizen engagement indicators: "percentage of grievances resolved within the prescribed timeline"; and "percentage of complainants satisfied with the overall grievance management process".

D. Grievance Redress Services:

85. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, because of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit. For information on how to submit complaints to the Bank's Accountability Mechanism, visit <https://accountability.worldbank.org>.

V. KEY RISKS

86. **The overall risk rating of RREIF is assessed as Substantial.** The key Substantial risks and mitigation measures are discussed below.

87. **Sector strategies and policies risks are Substantial.** Energy sector regulatory frameworks and policies to enable private-sector investment and development of RE projects differ across countries in the Caribbean Region. One of the goals of the project is to aggregate RE projects across countries. Significant policy and regulatory coordination will be required to prepare projects for aggregation for procurement design and subsequent tender to private sector firms. The ability of countries in the Caribbean Region to achieve this level of coordination has not yet been tested. Mitigation

²² The SEPs, ESMFs, and ESCPs were publicly disclosed in all three project countries on their respective official websites. Grenada disclosed their SEP on January 25, 2025, Saint Lucia on February 17, 2025, and Saint Vincent and the Grenadines on January 31, 2025. Grenada disclosed their ESMF on January 25, 2025, Saint Lucia on February 17, 2025, and Saint Vincent and the Grenadines on January 31, 2025. Grenada disclosed their ESCP on January 29, 2025, Saint Lucia on February 17, 2025, and Saint Vincent and the Grenadines on January 31, 2025. The ECCB disclosed the ESCP for ECPCGC on February 18, 2025.



measures include support to streamline the regulations and policies across all participant countries

88. **Institutional capacity for implementation and sustainability risk is rated as Substantial.** Given the small size of the ECCU countries, the capacity of government counterparts is limited. At the ministerial level, there are few staff dedicated to the energy sector and their experience with the development of RE projects and financing is limited. Counterparts in the utility sector have good technical expertise but are often not familiar with utility-scale RE systems, requiring the necessary training and capacity building. To mitigate this risk, a PIU will be created at the regional level in the ECPCGC to manage project activities in close collaboration with the ECCB as an established and convening regional institution. Further, through the first component, a regional technical unit will be created with the objective of providing wide-ranging support to stakeholders in the participating countries in areas such as project development, management of individual projects, and assistance to policymakers in understanding and negotiating privately developed projects.

89. **Fiduciary risk is assessed as Substantial.** The risk rating, based on a preliminary assessment, is attributed to (a) uncertainties regarding the regional market's capacity to meet the project's needs and the appeal of the contracts to larger international companies, (b) likely procurement delays, either during the procurement processes or contract execution, that could result from the lack of coordination between contractors and other stakeholders at the regional and national levels, (c) non-compliance with FM requirements due to inadequate FM capacity and lack of knowledge of WB requirements as some of the agencies will be implementing a WB-funded project for the first time, (d) weak budget preparation and monitoring due to coordination challenge, and (e) uncertainty of eligible expenditure. Procurement risks will be mitigated by (i) developing a comprehensive PPSD to ensure that market approaches are tailored to the project's size, value, and associated risks, (ii) adopting optimum procurement approaches and methods, and implementing different measures to increase its visibility. These measures can range from the verification of availability and interest of potential competitors and early notification of procurement opportunities to requests for information, in addition to the general procurement notices that will be published. FM and risks associated with weak internal controls will be mitigated by (i) strengthening the PIU FM staff capacity by conducting FM training and regular implementation support; (ii) developing adequate internal controls and documenting them in the POM, and conducting training on POM for all project team members; (iii) designing and implementing effective coordination at project coordinator level, and clearly articulating responsibilities in the POM; and (iv) introducing codes in the IE accounting systems to record and prepare project reports..

90. **Environmental and social risks are rated as Substantial.** Limited client capacity for E&S risk management, challenges in coordinating regional and national E&S compliance-related activities by a newly set-up RCU; and implementation of multiple sub-projects at the national levels contribute to the Substantial risk rating. The risks will be mitigated with the development and deployment of SEP, ESMF, LMP, and ESCPs by each participating country.



ANNEX 1. RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Closing Period
The Project Development Objective is to increase the share of utility-scale renewable energy generation and private sector participation in renewable energy development in the participating Caribbean	
Annual energy generation by utility-scale renewable energy systems (Gigawatt-hour (GWh))	
Apr/2025	Dec/2032
0	129.40
GHG emissions reduced or avoided (mt CO2 eq) (Metric tons/year)	
Apr/2025	Dec/2032
0	101,868
Private capital mobilized (Million USD) (Amount(USD))	
Apr/2025	Dec/2032
0	120
Renewable energy capacity enabled with indirect support (Megawatt) ^{CR1}	
Apr/2025	Dec/2032
0	59.10

Intermediate Indicators by Components

Baseline	Closing Period
1: Regional Coordination Unit (RCU), Institutional Strengthening, and Implementation Support	
Aggregate utility-scale renewable energy projects (Number)	
Apr/2025	Dec/2032
0	2
Stakeholders trained in aggregated procurement (Number)	
Apr/2025	Dec/2032
0	50



Study for umbrella fund to mobilize climate finance for the green energy transition to pool concessional resources from multiple sources and to access capital markets delivered (Yes/No)	
Apr/2025	Dec/2027
NO	YES
2: Risk Mitigation Mechanism	
Private capital mobilized (Amount(USD))	
Apr/2025	Dec/2032
0	120
Renewable energy capacity enabled with indirect support (Megawatt)	
Apr/2025	Dec/2032
0	59.10
➤of which Grenada (Megawatt)	
Apr/2025	Dec/2032
0	19.10
➤of which Saint Lucia (Megawatt)	
Apr/2025	Dec/2032
4.63	30
➤of which Saint Vincent and the Grenadines (Megawatt)	
Apr/2025	Dec/2032
0	10
GHG emissions reduced or avoided (Metric tons/year)	
Apr/2025	Dec/2032
0	101,868
➤of which Saint Lucia (Metric tons/year)	
Apr/2025	Dec/2032
0	54,334
➤of which Grenada (Metric tons/year)	
Apr/2025	Dec/2032
0	28,527
➤of which Saint Vincent and the Grenadines (Metric tons/year)	
Apr/2025	Dec/2032
0	19,007
3: RE Integration, Infrastructure Modernization, Institutional Strengthening, Implementation Support	
Resilient transmission and distribution infrastructure upgraded and or created (Kilometers)	



Apr/2025	Dec/2032
0	80
Capacity of Battery Energy Storage (BESS) enabled and or funded (Megawatt) (Megawatt)	
Apr/2025	Dec/2032
0	20
Jobs created and preserved. (Number)	
Apr/2025	Dec/2032
0	40
➤ of which female (Number)	
Apr/2025	Dec/2032
0	20
Creation of back-up control center for grid monitoring (Number)	
Apr/2025	Dec/2032
0	2
Scholarships awarded for female and male students to pursue electrical, civil, or mechanical engineering degrees (Number)	
Apr/2025	Dec/2032
0	66
➤ of which female and male beneficiaries in Grenada (Number)	
Apr/2025	Dec/2032
0	22
➤ of which female and male in Saint Vincent and the Grenadines (Number)	
Apr/2025	Dec/2032
0	22
➤ of which female and male beneficiaries in Saint Lucia (Number)	
Apr/2025	Dec/2032
0	22
Saint Lucia: Scholarships awarded for male and female students to pursue electrical, civil, or mechanical engineering degrees under Gender Grant (Number)	
Apr/2025	Dec/2032
0	10
Apprenticeships/internships support for female students in STEM (Number)	
Apr/2025	Dec/2032
0	66
➤ of which female in Grenada (Number)	
Apr/2025	Dec/2032



0	22
➤ of which female in Saint Lucia (Number)	
Apr/2025	Dec/2032
0	22
➤ of which female in Saint Vincent and the Grenadines (Number)	
Apr/2025	Dec/2032
0	22
Renewable energy capacity enabled with indirect support (Megawatt) ^{CRI}	
Apr/2025	Dec/2032
0	59.10
Saint Lucia: Apprenticeships/internships support for female students in STEM under Gender Grant (Number)	
Apr/2025	Dec/2032
0	10
Outreach/advocacy workshops/events to promote beneficiary participation in technical jobs (Number)	
Apr/2025	Dec/2032
0	30
➤ of which female (Number)	
Apr/2025	Dec/2032
0	15
Beneficiaries successfully employed in technical positions within the first two years of completing scholarship and apprenticeship programs (Number)	
Dec/2024	Dec/2032
0	30
➤ of which female (Number)	
Apr/2025	Dec/2032
0	15
Grievances resolved within the prescribed timeline (Percentage) (Percentage)	
Apr/2025	Dec/2032
0	80
Complainants satisfied with the overall grievance management process (Percentage) (Percentage)	
Apr/2025	Dec/2032
0	80
4: Contingent Emergency Response Component (CERC)	



MONITORING & EVALUATION PLAN: PDO INDICATORS BY PDO OUTCOMES

The Project Development Objective is to increase the share of utility-scale RE generation and private sector participation in RE development in the participating Caribbean	
Annual energy generation by utility-scale renewable energy systems (Gigawatt-hour) (GWh)	
Description	Utility-scale electricity production from PV systems installed under the project and per country.
Frequency	Monthly
Data source	Utility operational report and private operators' operational report
Methodology for Data Collection	Data is collected through the offtake installed AMI meters for both private operator and the off taker.
Responsibility for Data Collection	PIU in coordination with Utilities and private operator
GHG emissions reduced or avoided (mt CO2 eq) (Metric tons/year)	
Description	GHG emissions reduced or avoided under the project annually
Frequency	Annually
Data source	National PIUs
Methodology for Data Collection	Reports of National PIUs
Responsibility for Data Collection	PIUs
Private capital mobilized (Million USD)	
Description	This indicator measures total private sector finance (debt and equity) mobilized from sponsors in the utility scale RE-projects to be supported s part of the REIIF.
Frequency	Annually
Data source	RCU
Methodology for Data Collection	RCU- generated project data and progress reports
Responsibility for Data Collection	RCU
Renewable energy capacity enabled with indirect support (Megawatt) ^{CR1}	
Description	Installed PV systems under the project and per country.
Frequency	Annually
Data source	Utility operational report and private operators' operational report
Methodology for Data Collection	Data will be collected via utilities and PIUs
Responsibility for Data Collection	The regional PIU to collect and aggregate data per country, and report indicator

MONITORING & EVALUATION PLAN: INTERMEDIATE RESULTS INDICATORS BY COMPONENT

COMPONENT 1: REGIONAL RENEWABLE ENERGY COORDINATION UNIT (RCU) AND INSTITUTIONAL STRENGTHENING.	
Aggregate utility-scale renewable energy projects (Number)	
Description	Number of calls for proposals for private operators to compete for utility scale aggregated projects
Frequency	Annually
Data source	RCU
Methodology for Data Collection	RCU report
Responsibility for Data Collection	RCU
Stakeholders trained in aggregated procurement (Number)	
Description	This indicator measures the Number of people trained by the regional entity on aggregated procurement.
Frequency	Quarterly
Data source	RCU
Methodology for Data Collection	RCU report
Responsibility for Data Collection	RCU
Study for umbrella fund to mobilize climate finance for the green energy transition to pool concessional resources from multiple sources and to access capital markets delivered (Yes/No)	
Description	This indicator is related to a study under ECCB to design and establish an umbrella fund for mobilizing climate finance to support the region's resilient and clean energy transition.
Frequency	Each six months
Data source	ECPCGC
Methodology for Data Collection	RCU's report
Responsibility for Data Collection	RCU



COMPONENT 2: RISK MITIGATION FUND	
Private capital mobilized (Million USD)	
Description	This indicator measures total private sector finance (debt and equity) mobilized from sponsors in the utility scale RE-projects to be supported s part of the REIIF.
Frequency	Annually
Data source	RCU
Methodology for Data Collection	RCU generated project data and progress reports
Responsibility for Data Collection	RCU/ECCB
Renewable energy capacity enabled with indirect support (Megawatt) ^{CR1}	
Description	This indicator meaures the capacity of PV systems installed under the project and per country.
Frequency	Annually
Data source	Utility operational report and private operators' operational report
Methodology for Data Collection	Via utilities and PIUs
Responsibility for Data Collection	Regional PIU to collect and aggregate data per country and report indicator.
GHG emissions reduced or avoided (Metric tons/year)	
COMPONENT 3: RENEWABLE ENERGY INTEGRATION AND INFRASTRUCTURE MODERNIZATION	
Resilient transmission and distribution infrastructure upgraded and/or created (Kilometers)	
Description	Number of km of T&D constructed and or upgraded which incorporate resilient aspects to climate hazard such as category 5 hurricanes.
Frequency	Annually
Data source	National PIU
Methodology for Data Collection	Utilities' report
Responsibility for Data Collection	PIUs in coordination with PIUs
Capacity of Battery Energy Storage (BESS) enabled and/or funded (Megawatt)	
Description	Installed BESS systems capacity under the project and per country
Frequency	Annually
Data source	National PIU
Methodology for Data Collection	Utilities' report
Responsibility for Data Collection	PIUs in coordination with PIUs
Jobs created and preserved (Number)	
Description	Job creation is measured for: i) Direct job creation resulting from RREIIF supported projects (construction and operation phases) as well as induced employment, which is the employment created through forward linkages.
Frequency	Semi-annually
Data source	EPC contractors and private operators operational reports
Methodology for Data Collection	Collect of job created
Responsibility for Data Collection	PIUs/promoters
Creation of back-up control center for grid monitoring (Number)	
Description	Number of back-up control centers created to supplement the existing SCADA system.
Frequency	Annually
Data source	National PIUs
Methodology for Data Collection	Utility's report
Responsibility for Data Collection	PIUs
Scholarships awarded for female and male students to pursue electrical, civil, or mechanical engineering degrees (Number)	
Description	Number of scholarships awarded to students female or male in the STEM fields
Frequency	Annually
Data source	National PIU
Methodology for Data Collection	PIU's report
Responsibility for Data Collection	National PIUs
Saint Lucia: Scholarships awarded for male and female students to pursue electrical, civil, or mechanical engineering degrees under Gender Grant (Number)	
Description	Number of scholarships awarded to students female or male in the STEM fields for Saint Lucia
Frequency	Annually
Data source	Saint Lucia PIU
Methodology for Data Collection	PIU's report



Responsibility for Data Collection	PIU of St Lucia
-Apprenticeships/internships support for female students in STEM (Number)	
Description	Number of apprenticeships/internships supported under the project for each country
Frequency	Semi-annually
Data source	National PIUs
Methodology for Data Collection	PIU's report
Responsibility for Data Collection	PIUs
Saint Lucia: Apprenticeships/internships support for female students in STEM under Gender Grant (Number)	
Description	Number of apprenticeships/internships supported under the Gender Grant for Saint Lucia
Frequency	Semi-annually
Data source	Saint Lucia PIU
Methodology for Data Collection	PIU's report
Responsibility for Data Collection	Saint Lucia PIU
Outreach/advocacy workshops/events to promote beneficiary participation in technical jobs (Number)	
Description	Number of workshops/events to promote beneficiary participation in technical jobs
Frequency	Semi-annually
Data source	National PIUs
Methodology for Data Collection	PIUs report
Responsibility for Data Collection	PIUs
Beneficiaries successfully employed in technical positions within the first two years of completing scholarship and apprenticeship programs (Number)	
Description	Number of beneficiaries successfully employed in technical positions within the first two years of completing scholarship and apprenticeship programs.
Frequency	Every two years
Data source	National PIUs
Methodology for Data Collection	PIUs report
Responsibility for Data Collection	PIUs
Grievances resolved within the prescribed timeline (Percentage)	
Description	Number of grievances which are resolved within the timeframe outlined in the project's SEP (maximum of 60 working days from receipt of the complaint).
Frequency	Semi-annually
Data source	National PIUs
Methodology for Data Collection	Grievance management registration and monitoring sheet
Responsibility for Data Collection	PIU Social Specialists
Complainants satisfied with the overall grievance management process (Percentage)	
Description	Percentage of complainants who indicate that they are "satisfied" or "very satisfied" with the overall grievance management process.
Frequency	Semi-annually
Data source	National PIU
Methodology for Data Collection	Complainants' satisfaction with the overall grievance management process will be captured in the grievance release form by the Social Specialists of the respective PIUs.
Responsibility for Data Collection	PIU Social Specialists