



# PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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## PART I: PROJECT INFORMATION

Project Title:	Sustainable Energy for the Eastern Caribbean (SEEC) Program		
Country(ies):	Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines	GEF Project ID: <sup>1</sup>	5312
GEF Agency(ies):	IADB IADB IADB	GEF Agency Project ID:	RG-1004
Other Executing Partner(s):	Caribbean Development Bank (CDB), Organization of the Eastern Caribbean States (OECS) Secretariat, and Organization of American States (OAS)	Submission Date:	2013-04-09
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48
Name of parent program (if applicable):	n/a	Project Agency Fee (\$):	286,302
<ul style="list-style-type: none"> <li>For SFM/REDD+ <input type="checkbox"/></li> <li>For SGP <input type="checkbox"/></li> <li>For PPP <input type="checkbox"/></li> </ul>			

## A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK<sup>2</sup>:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCM-2 (select)	GEFTF	1,225,000	4,650,000
CCM-3 (select)	GEFTF	1,645,189	7,795,000
Project Management Cost	GEFTF	143,509	655,000
Total Project Cost		3,013,698	13,100,000

## B. INDICATIVE PROJECT DESCRIPTION SUMMARY

**Project Objective:** Reduce the dependency on fossil fuels by promoting the implementation of Energy Efficiency (EE) measures and Renewable Energy (RE) pilot demonstration projects and solutions, including through promotion of Smart Grid solutions, as a way to reduce energy consumption and costs. Overall, the SEEC Program aims to help increase the competitiveness of participant countries of the OECS. As a consequence, the SEEC Program will also lead to the reduction of greenhouse gas emissions.

Project Component	Grant Type <sup>3</sup>	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
I. Institutional strengthening and capacity building of local and regional actors	TA	Increased regional collaboration and integration of policy makers, regulators, and utilities compared to current practices. Additional capacities of project developers, authorities, and technology and service providers regarding EE and RE. Improved	Six public officials trained on sustainable energy policy, at least two project developers, and/or one goods and services provider from each country trained on sustainable energy technologies. One baseline assessment per country on technical,	GEFTF	200,000	600,000

<sup>1</sup> Project ID number will be assigned by GEFSEC.

<sup>2</sup> Refer to the reference attached on the [Focal Area Results Framework and LDCE/SCCF Framework](#) when completing Table A.

<sup>3</sup> TA includes capacity building, and research and development.

		understanding of best practices of land use for the development of RE.	professional, and institutional capacity availability and needs for sustainable energy.			
II. Technical assistance for supporting RE and EE projects	TA	Legal, regulatory, and institutional frameworks improved for promoting RE and EE. New financing options available for RE and EE. Technical and economic information for implementing key RE and EE projects made available.	One study for each country with recommendations on legal, regulatory, and institutional frameworks for RE and EE. One study for each country on existing financing options, and mechanisms to improve them and/or develop new ones (this will include workshops for the banking sector and credit agencies). One Program of Activities for a regional Nationally Appropriate Mitigation Action (NAMA) that covers all three countries. One study on smart grid options and instruments for each country.	GEFTF	250,000	700,000
III. Investments and Financial Mechanisms for EE pilot projects	Inv	As a result of the project, participating countries and private businesses and households have increased access to financial mechanisms for implementation of EE measures Reduced energy intensity of selected public and private facilities. Savings of at least 5,000MWh per year, resulting in about 4,000tCO2 per year (half of the project's total of 8,000tCO2 per year) avoided through EE projects implemented.	At least one new financial mechanism (such as concessional loans, loan guarantees, or rebates) established for EE projects in private and public sectors in each country. EE lights in buildings, street lights, and/or EE power monitor or similar equipment installations in participating countries.	GEFTF	1,000,000	4,000,000

IV. Investment and Financial Mechanisms for RE pilot projects	Inv	Increased access to finance for RE for private businesses and households. Solar PV technology as a more reliable, sustainable option for electricity generation with decreased capital costs for project implementers compared to current levels. Solar water heaters as a mainstream technology for public and private use, and capacity for manufacturing, installation, and maintenance established. At least 5,000MWh per year displaced through renewable electricity generation and water heating, resulting in about 4,000tCO <sub>2</sub> per year (half of the project's total of 8,000tCO <sub>2</sub> per year) avoided through RE projects implemented. Countries equipped with hardware needed for successful assessment and implementation of RE.	At least one new financial mechanism established to provide financing for RE projects and hardware (such as concessional loans). At least 1.5MW of new grid-connected RE projects installed in the three countries combined (particularly including PV capacity) for public and private sector installations using bidirectional metering/net billing. At least 1.5MW thermal of new solar water heating capacity installed in the three countries combined. Monitoring of electric and thermal energy generated by solar and other types of RE systems implemented in each country. At least one event to disseminate the results and lessons learned from the program among the participating countries.	GEFTF	1,420,189	7,145,000
Subtotal					2,870,189	12,445,000
Project Management Cost (PMC) <sup>4</sup>				GEFTF	143,509	655,000
Total Project Cost					3,013,698	13,100,000

**C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)**

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
Bilateral Aid Agency (ies)	Inter-American Development Bank (IDB)	Cash	2,000,000
Bilateral Aid Agency (ies)	Inter-American Development Bank (IDB)	Soft Loan	5,600,000
Bilateral Aid Agency (ies)	UK Department for International Development (DFID) (grants) for the OECS	Cash	3,500,000
Bilateral Aid Agency (ies)	German Technical International Cooperation (GIZ)	Cash	1,000,000
Others	Participating country utilities	In-kind	1,000,000
<b>Total Cofinancing</b>			<b>13,100,000</b>

<sup>4</sup> To be calculated as percent of subtotal.

**D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>**

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b) <sup>2</sup>	Total (\$) c=a+b
IADB	GEFTF	Climate Change	Antigua and Barbuda	1,095,890	104,110	1,200,000
IADB	GEFTF	Climate Change	Grenada	913,242	86,758	1,000,000
IADB	GEFTF	Climate Change	St. Vincent and the Grenadines	1,004,566	95,434	1,100,000
<b>Total Grant Resources</b>				<b>3,013,698</b>	<b>286,302</b>	<b>3,300,000</b>

<sup>1</sup> In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

<sup>2</sup> Indicate fees related to this project.

**E. PROJECT PREPARATION GRANT (PPG)<sup>5</sup>**

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$)<sup>6</sup></u>
• No PPG required.	-- 0--	--0--
• (upto) \$50k for projects up to & including \$1 million		
• (upto)\$100k for projects up to & including \$3 million		
• (upto)\$150k for projects up to & including \$6 million		
• (upto)\$200k for projects up to & including \$10 million		
• (upto)\$300k for projects above \$10 million		

**PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF PROJECT ONLY**

Trust Fund	GEF Agency	Focal Area	Country Name/Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
<b>Total PPG Amount</b>				<b>0</b>	<b>0</b>	<b>0</b>

MFA: Multi-focal area projects; MTF: Multi-Trust Fund projects.

**PART II: PROJECT JUSTIFICATION<sup>7</sup>**

**A. PROJECT OVERVIEW**

A.1. Project Description. Briefly describe the project, including ; 1) the global environmental problems, root causes and barriers that need to be addressed; 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario, with a brief description of expected outcomes and components of the project, 4) incremental cost reasoning and expected contributions from the baseline , the GEFTF, LDCF/SCCF and co-financing; 5) global environmental benefits (GEFTF, NPIF) and adaptation benefits (LDCF/SCCF); 6) innovativeness, sustainability and potential for scaling up

<sup>5</sup> On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

<sup>6</sup> PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

<sup>7</sup> Part II should not be longer than 5 pages.

## 1) THE GLOBAL ENVIRONMENTAL PROBLEMS, ROOT CAUSES AND BARRIERS THAT NEED TO BE ADDRESSED

The electricity and transport sectors account for the majority of greenhouse gas (GHG) emissions in participant countries. In 2010, energy consumption resulted in emissions of 720,000 metric tons of CO<sub>2</sub> (tCO<sub>2</sub>) in Antigua and Barbuda, 430,000tCO<sub>2</sub> in Grenada, and 330,000tCO<sub>2</sub> in St. Vincent and the Grenadines.

In the electricity sector, high dependency on imported fossil fuels to generate electricity creates local pollution that negatively impacts the fragile environment of Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines. Electricity generation with fossil fuels also causes CO<sub>2</sub> emissions, which contribute to climate change. Antigua and Barbuda and Grenada generate almost all their electricity by burning fossil fuels (with the exception of a small number of customer-owned RE systems that sell their electricity to the utility in Grenada); St. Vincent and the Grenadines generates 82 percent of its electricity from fossil fuels, and the remainder from hydroelectric plants. Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines rely on imported fossil fuels to generate electricity, because they do not have sufficient domestic energy resources to meet demand; also, there are no oil or natural gas resources in these countries.

Participant countries, as is commonly the case of small island states, are disproportionately exposed to the effects of climate change—their contribution to global emissions is relatively minimal, while risks from extreme weather events and costs of adaptation are very high.

All three countries are endowed with RE resources (in addition to existing hydro in St. Vincent and the Grenadines) that could reduce the amount of electricity generated using fossil fuels, and also lower CO<sub>2</sub> emissions. Solar energy is sufficiently abundant in the region to make solar photovoltaic (PV) and solar water heating technologies economical compared to fossil fuel-based electricity. Further study is required to determine if other RE sources, such as wind or waste, are also sufficient to generate electricity at a competitive cost in participant countries.

There are also opportunities to implement EE measures as a way to reduce energy demand as well as CO<sub>2</sub> emissions. Businesses and households could replace lighting fixtures, appliances, and other equipment with more efficient technologies to reduce their electricity consumption. Governments could also retrofit their buildings with more efficient lighting and equipment, and replace traditional street lights with high-efficiency streetlights.

In spite of these opportunities, there are several barriers blocking the implementation of RE projects and the adoption of EE measures in these countries. The key barriers blocking RE and EE projects are the following: (i) Limited resources and capacity to implement policy; (ii) Distortions in economic regulation: policy, legal, and regulatory frameworks are mostly still designed for conventional generation options (although recent efforts in participating countries are making good progress towards sustainable energy); (iii) Lack of grid connection rules; (iv) Limited data on RE resource availability; (v) Limited access to capital; (vi) Limited and uncompetitive supply of equipment; (vii) Lack of technical skills; and (viii) Agency problems: ‘agency problems’ arise when the person making an investment decision to buy equipment is not the same person making an operating decision to use equipment on a daily basis; agency problems in public buildings, office buildings, or rented buildings prevent even viable EE projects from being implemented.

In consultation with Governments, utility companies, and community level organizations, the SEEC Program will contribute to overcoming several of the barriers mentioned above: i) the SEEC Program will overcome the Government’s limited resources and capacity by funding technical assistance activities, ii) the SEEC Program will overcome high up-front costs for RE and EE investments for public buildings by exploring innovative financing mechanisms, and iii) the SEEC Program will overcome weak capacity for implementing sustainable energy projects by supporting sustainable energy training for several public officials. It will also help Governments identify and overcome economic distortions by funding an assessment of relevant policies, laws, and regulations; and drafting proposals for more effective policy, legal, and regulatory frameworks for sustainable energy. Further, the SEEC Program will contribute to lowering some information and awareness barriers by assessing the technical and economic viability of

RE projects, funding energy audits for businesses, and providing EE audit trainings for institutions and interested individuals. In addition, the SEEC Program will, to some extent, address limited access to capital by providing funds for purchasing and installing RE and EE technologies. Finally, the SEEC Program will help decrease the problem of limited and uncompetitive supply of equipment by procuring EE equipment to be used in all three countries in a bulk order, thus reducing the cost of EE equipment.

While the SEEC Program aims to contribute to regional integration, the resources of the GEF allocation for each of the countries will be used solely for the implementation of the SEEC Program in the three participating countries. Co-financing from other agencies will be used to expand components of the SEEC Program to other countries in the Caribbean region.

## 2) THE BASELINE SCENARIO AND ANY ASSOCIATED BASELINE PROJECTS

### Baseline situation

Antigua and Barbuda has a small number of off-grid solar PV systems, and the remainder of electricity supply comes from diesel generation by the Antigua Public Utilities Authority (APUA) and the Antigua Power Company Limited (APCL). As of 2012, RE generation in Antigua and Barbuda consisted of only a few off-grid solar PV systems.

In Grenada, there are approximately 54 solar photovoltaic systems (totaling 315kW of capacity). The total annual generation from these systems is about 550MWh per year. Grenada Electricity Services Ltd. (GRENLEC), the electricity utility of Grenada, purchases most of this electricity through its net metering scheme for RE systems. The rest of GRENLEC's electricity supply comes from diesel generation. There is also one 80 kW wind system that supplies a hotel in Grenada.

In St. Vincent and the Grenadines, electricity comes primarily from fossil fuels, as well as some small scale hydroelectric generation. St. Vincent Electricity Services Ltd. (VINLEC) has approximately 5.7MW of installed hydroelectric capacity (from three small hydro plants in St. Vincent). In 2012, hydroelectric generation accounted for approximately 18 percent of total generation; the remaining 82 percent came from diesel plants.

On the policy side, Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines have (or are working to develop) national energy policies and plans:

- In Antigua and Barbuda, the Draft National Energy Policy of 2010 outlines the Government's objectives and proposed legal, regulatory, and institutional reforms, including a focus on increasing energy conservation and RE development. The Government also wants to develop a Sustainable Energy Action Plan to set out a path for implementing the reforms proposed in its Draft National Energy Policy.
- Grenada already has a National Energy Policy, which calls for the implementation of institutional, legal, regulatory, and fiscal measures to increase the use of RE and EE technologies, and to enhance energy conservation.
- St. Vincent and the Grenadines has a National Energy Policy and an Action Plan for a more economical, reliable, and less polluting energy sector.

The SEEC's cofinanciers have several projects underway in the energy sectors of the target countries which are accounted for in the baseline. The IDB and GIZ both have projects underway in the target countries' energy sectors. DFID's investment in the SEEC Program will represent its first activity in the energy sectors of the target countries.

The IDB is engaged in three separate projects that promote RE and EE in the Caribbean, and the SEEC Program will provide additional resources to complement this work in the three participating countries:

- The Caribbean Hotel Energy Efficiency Action Program (CHENACT): this project, currently in its second phase, promotes EE in the three target countries by funding energy audits for hotels.
- The Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS): this project defines strategic and targeted approaches for CARICOM countries to increase the uptake of RE and EE technology, including setting short, medium, and long-term goals against a defined baseline.
- The Energy Efficiency and Renewable Energy Project for CARILEC: this project provides

technical support to utility companies in the target countries to integrate RE and improve EE in their own operations.

The IDB has also approved the Caribbean Development Bank Global Loan Program, which is a loan from the IDB to the CDB for the OECS for US\$ 20 million. Of this loan, US\$ 5.6 million will be provided as a credit line for energy projects in IDA-Eligible OECS countries. The selection of energy projects will be determined at a later date as the specifics of the credit line get detailed.

The SEEC Program will also complement other projects in the Caribbean being promoted by other institutions. In particular, the GIZ and the Energy Ministers of the CARICOM Region's Caribbean Renewable Energy Development Programme (CREDP), which ends in 2013, provides support for drafting and implementing national energy policies, provides technical assistance for renewable energy projects, contributes funding for CHENACT, and develops renewable energy curriculum for local technical schools. Grenada and St Vincent and the Grenadines are both participating in the CREDP Program. The GIZ will also start a related project on strengthening local and regional actors in the field of RE and EE. This technical assistance project (also known as REETA) will provide funding to meet sustainable energy goals identified under C-SERMS, building on the efforts of the IDB and the CREDP. The REETA will support the establishment of a Caribbean Energy Agency within Caricom and provide capacity building in local universities and technical colleges for sustainable energy instruction. This new GIZ project will not fund investments and therefore there is great interest to partner with the IDB in order to strengthen both programs with the possibility of including demonstration projects.

The IDB is aware of the UNDP GEF project that was just approved for St Vincent and the Grenadines (ID 5297), which complements the SEEC Program. The UNDP project has three related components in title but with a complementary focus coming from the SEEC Program, as follows: 1) "Clean Energy Policy Framework": The SEEC Program will focus on: a) developing a PoA as a basis for a regional NAMA on sustainable energy; and b) developing financial mechanisms to implement projects. On this latter point, the SEEC Program will address barriers to financial services and mechanisms available to finance SE installations. This will include workshops for the banking sector and credit agencies; 2) "Clean Energy Capacity Development": The SEEC Program will focus on: (i). Baseline analysis including: a) an assessment of technical and professional capacity for sustainable energy; b) the quantity and type of sustainable energy projects that the countries would expect to implement in the coming decade; c) estimation of the number of professionals and technicians needed to sustain a diversified energy growth; d) a list of firms and institutions working on SE; e) a list of competencies that firms are lacking from professionals and technicians; and f) assessment of future needs of human resources and technical services arising out of evolving technologies. (ii) Capacity building and institutional strengthening, including: a) assessment on the institutional strengthening needs of participating institutions and provision of capacity training for professionals, students and teachers). Including; b) analysis of specific curriculum changes and investment needs that may be required in order to get these institutions ready for the demand for SE; c) training of technical and university teachers in SE; d) training of students; and e) facilitation of national and regional field visits. iii) Academic and professional partnership (enabling environment to allow students to carryout part of their studies in national, regional, or international firms/laboratories, through internship assignments). 3) "Clean Energy Renewable Energy-Based Electricity Generation Demonstrations": the SEEC Program will provide concessional loans, rebates, or guarantee mechanisms for purchasing and installing EE & RE appliances and equipment; actual pilot project implementation (ie. SE measures in development of new airport in Kingstown, St Vincent).

### 3) THE PROPOSED ALTERNATIVE SCENARIO, WITH A BRIEF DESCRIPTION OF EXPECTED OUTCOMES AND COMPONENTS OF THE PROJECT

The SEEC Program will consist of four main components. The first two components will provide institutional strengthening and technical assistance (TA) on legal, regulatory, and institutional frameworks, as well as studies on existing financing options for RE and EE; and set the basis for a regional NAMA. The other two components will focus on investment and financial mechanisms for implementing EE and RE projects, respectively.

The SEEC Program will prioritize the specific projects described in detail below for two reasons: (i) proposed projects were specifically requested by participant countries during the preparation of this PIF, as actions that are consistent with their national energy policies and that allow implementing their energy action plans; and (ii) proposed projects can benefit from the IDB's recent experience and lessons learned from similar projects in other Caribbean countries, such as Barbados and the Bahamas.

- Component I: Institutional strengthening and capacity building of local and regional actors (funded mainly by other bilateral and multilateral agencies)

This component will provide training and capacity building to achieve an adequate institutional setting for the development of RE and EE projects in the region. In order to strengthen the capability of the relevant actors and executing bodies, the SEEC Program will provide training to institutions such as the OECS Secretariat as well as community level organizations. The component includes training and dissemination on best practices for land use arrangements for installation of RE technologies. Activities will be coordinated with GIZ, the main donor for this component, and its SISSEC program.

- Component II: Technical Assistance for supporting RE and EE projects (funded mainly by other bilateral and multilateral agencies)

The component will help participant countries develop the right setting for implementing viable RE and EE projects by creating an effective legal, regulatory, and institutional framework; exploring appropriate financing mechanisms to overcome existing bottlenecks in the credit market; and developing a Program of Activities (PoA) as a basis for a regional Nationally Appropriate Mitigation Action (NAMA) focused on sustainable energy.

This component will support the following six areas of TA: (i) Assess and improve the legal, regulatory, and institutional frameworks relevant to RE and EE; (ii) Analyze and develop financing options for RE and EE projects; (iii) Carry out studies on smart grid options and instruments to encourage EE and RE; (iv) Develop Nationally Appropriate Mitigation Actions (NAMAs); (v) Assess the technical and economic viability of RE technologies, and design pilot RE projects; (vi) Assess energy consumption in public and private buildings, and design pilot EE projects. Related to item (ii) above, the SEEC Program will address barriers to access financial services and explore mechanisms available to finance SE installations. This will include workshops for the banking sector and credit agencies.

- Component III: Investment and financial mechanisms for EE pilot projects (funded by GEF and other bilateral and multilateral agencies)

This component will provide concessional loans, rebates, or guarantee mechanisms for purchasing and installing EE appliances and equipment—contributing, to some extent, to better information and awareness, access to finance, and availability of competitively priced equipment.

The relevant studies, audits, analytic work, and training carried out under this component will be co-financed by the GIZ through its SISSEC Project, which supports specific projects in the field of EE and supports technology transfer. Co-financing from project beneficiaries (in cash, or in kind) will be required.

This component will provide financial mechanisms for the following two EE investment areas (each country will select and prioritize its specific activities within these areas): (i) Finance the purchase and installation of EE appliances and equipment; and (ii) Support the installation of power monitors and other EE monitoring equipment as part of piloting Smart Grids.

- Component IV: Investment and financial mechanisms for RE pilot projects (funded by GEF and other bilateral and multilateral agencies)

This component will provide funds for purchasing, installing, and monitoring the performance of RE pilot projects in Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines. The component will focus on solar PV projects because there is a great solar potential in the target countries. Also, the price of PV panels is forecasted to continue dropping, which will steadily make this technology more financially attractive. Other solar technologies (solar water heating, solar cooling, and solar air conditioning) will also be supported, as well as the hardware needed for solar and other RE technologies. Co-financing from project beneficiaries (in cash, or in kind) will be required. Concessional loans and grants may be



organized under structures similar to Barbados's 'Smart Fund' (for private sector eligibility) and 'Public Sector Sustainable Energy Program' (for public sector eligibility). The PSSEP, in addition to supporting EE projects, also provides funding for small solar systems (PV, as well as solar water heaters, based on the success of this technology's manufacturing and operation in Barbados).

This component will support the following two RE investment areas (each country will select and prioritize its specific activities within these areas): (i) Development of solar PV systems in public buildings, and (ii) Development of other RE pilot projects. The GEF and other donors will contribute to developing specific RE pilot projects.

#### 4) INCREMENTAL COST REASONING AND EXPECTED CONTRIBUTIONS FROM THE BASELINE, THE GEFTF, LDCF/SCCF AND CO-FINANCING

Under a business as usual scenario, penetration of RE and EE technologies would remain limited. Governments have few financial resources to fund the incremental costs of RE and EE technologies, which have higher capital costs than conventional technologies—although lower operating costs; therefore Governments would not implement them. Most businesses and households would also be prevented from purchasing sustainable energy equipment by cost, as well as limited access to financing and lack of information. Utilities would continue using fossil fuels to generate the majority of electricity needed to meet energy demand, as there are no economic incentives in regulation for them to switch to more economical generating options.

The GEF trust fund resources and other co-financing is expected to increase EE investments, reducing electricity consumption by about 5,000 MWh per year. This will result in direct CO<sub>2</sub> emissions reductions of at least 4,000tCO<sub>2</sub> per year compared to the baseline (business as usual) scenario. This estimate is based on similar interventions designed for the Public Sector Sustainable Energy Program in Barbados, one subcomponent of which has a level of funding similar to the SEEC's EE intervention. Therefore, EE investments will result in a direct emissions reduction of 40,000tCO<sub>2</sub> over the lifetime of EE technology, which averages ten years.

The SEEC Program is expected to increase RE investment by 3MW. The investment will comprise of 1.5MW of solar PV (assuming installed capital cost of US\$3,500/kW, and a capacity factor of 21 percent) and 1.5MW of solar water heating systems (assuming installed capital cost of US\$1,500/kWthermal, and a capacity factor of 17 percent). Solar PV and SWH will displace about 5,000MWh of electricity generation combined per year. This will result in direct emissions reductions of 4,000 tCO<sub>2</sub> per year avoided relative to the baseline scenario. Therefore, RE investments will result in a direct emissions reduction of 80,000tCO<sub>2</sub> over an assumed twenty year lifetime of the PV and SWH technology.

The combined direct emissions reductions of 40,000tCO<sub>2</sub> for EE investments and 80,000tCO<sub>2</sub> for RE investments will be 120,000tCO<sub>2</sub>.

The GEF Trust Fund resources and other co-financing are also expected to reduce indirect emissions by 360,000tCO<sub>2</sub>. Indirect emissions reductions can be calculated assuming a conservative replication factor of three. They can also be calculated assuming a total potential GHG emissions reduction of 590,828tCO<sub>2</sub> in the three target countries over ten years. This is based on a conservative GEF causality factor of 60 percent. Indirect emissions are calculated using a conservative replication factor of three and a conservative causality factor of sixty percent for two reasons: i) the uptake of RE is limited by the small size of the target countries, and ii) projects being implemented by GIZ and IDB will also impact the uptake of sustainable energy technology.

As a result, the combined direct and indirect emissions reductions will be 480,000tCO<sub>2</sub>.

At least US\$14 million of co-financing has been secured at PIF level; these resources can be used to fund the institutional strengthening, technical assistance, and financing mechanisms needed to increase RE and EE investments in the participating countries.

#### 5) GLOBAL ENVIRONMENTAL BENEFITS (GEFTF) AND ADAPTATION BENEFITS (LDCF/SCCF)

The SEEC Program will lower both GHG emissions and local pollution in participating countries by reducing the amount of electricity generated with fossil fuels. The SEEC Program will enable increased

investment in RE projects that will result in direct emissions reductions of about 80,000tCO<sub>2</sub>. The SEEC Program will also support increased EE investment, leading to direct emission reductions of about 40,000tCO<sub>2</sub>. This will result in a total direct reduction of 120,000tCO<sub>2</sub>. In addition, the project will generate indirect emissions reductions of 360,000tCO<sub>2</sub>. Expected emissions reductions were calculated by multiplying estimated annual generation of RE systems or savings from EE measures (measured in megawatt hours) by an estimated emission factor of 0.8tCO<sub>2</sub> per MWh for generating electricity with fossil fuels.

#### 6) INNOVATIVENESS, SUSTAINABILITY, AND POTENTIAL FOR SCALING-UP

The SEEC Program is innovative in terms of technologies targeted, financing mechanisms created, and initiatives supported. It will provide TA and investment resources to support RE and EE technologies that are not being implemented to their full potential in participant countries, including: solar PV and solar cooling and air conditioning, solar PV with batteries for schools that serve as hurricane shelters, efficient streetlight technologies (such as LED technologies), and power monitors that provide information on energy consumption in public and private buildings. The SEEC Program will support the creation of dedicated financing instruments that are currently not available in any of the three countries. Technical assistance will also be provided for innovative initiatives, such as a study on smart grid options for each country, and the preparation of a PoA for a regional NAMA.

The SEEC Program is sustainable because: (i) it is consistent with long-term policy priorities of participant countries, based on discussions between IDB and Government officials during PIF preparation; (ii) it supports technologies that achieve a long-term reduction of conventional electricity with relatively limited maintenance requirements; and (iii) it aims to set up policies, reforms, and financing instruments that are intended to continue operating beyond the completion of this GEF-funded initiative. By involving energy policy makers, power utilities, businesses, community level organizations, and households from the outset, the SEEC Program will enjoy greater buy-in from key stakeholders, further achieving sustainability.

The SEEC Program could later be scaled up within the three OECS countries. Within these countries, additional TA could be provided for drafting policy, legal, or regulatory documents for promoting sustainable energy; and additional financing could expand or extend the duration of the financing instruments set up by the SEEC Program.

Similar technical assistance and investment activities could also be replicated in other countries of the Caribbean. Almost all countries in the region rely primarily on imported oil for electricity generation, have high electricity costs and tariffs, share similar regulatory frameworks for electricity, and experience similar energy consumption patterns. The solar resource (as well as seawater resources expected to become viable in the future) is similarly available in all neighboring countries. Barriers to, and possible solutions for an increased deployment of sustainable energy technologies are likely to be similar throughout the region.

A.2. Stakeholders. Identify key stakeholders (including civil society organizations, indigenous people, gender groups, and others as relevant) and describe how they will be engaged in project preparation:

In the public sector, the officials in the ministries responsible for energy will be the key stakeholders involved in the SEEC Program. The key ministries are:

- Antigua and Barbuda: the Ministry of Works, Transportation and the Environment; the National Energy Desk; and the Ministry of Public Utilities.
- Grenada: the Permanent Secretary of Finance, the Ministry of Finance, and the Energy Department of the Ministry of Finance.
- St. Vincent and the Grenadines: the Ministry of Energy, the National Energy Committee, and the Energy Unit.

The three power utilities and the Caribbean Electric Utility Service Corporation (CARILEC) will also be key stakeholders in the Program. Antigua Public Utilities Authority (APUA), Grenada Electricity Services Ltd. (GRENLEC), and St. Vincent Electricity Services Ltd. (VINLEC) have already been consulted about the SEEC Program during PIF preparation, either directly or through CARILEC. The

utilities have indicated their willingness to be part of the SEEC Program and to provide in-kind support to assist in its implementation. They will particularly support the design of improved frameworks for customer-owned distributed renewable generation and reforms in utility regulation.

Community level organizations that promote sustainability and business organizations that represent large sectors of the energy market will be key stakeholders in civil society that will be engaged at both the project design phase and implementation phase of the SEEC Program. SusGen in St. Vincent and the Grenadines and the Environmental Awareness Group in Antigua and Barbuda are examples of organizations that promote sustainability in the targeted countries. The SEEC Program will engage these organizations for input on local environmental sustainability. In addition, the Grenada Hotel & Tourism Association is an example of a civil society organization that represents a key segment of energy consumers. The SEEC Program will engage these types of organizations for input from the perspective of energy sector customers.

In the private sector, financial institutions, businesses, and households will be the key stakeholders in the SEEC Program. Although they will not be involved in the SEEC Program's preparation, they will be engaged early on during its implementation to provide inputs for identifying gaps or barriers to implementing RE and EE projects, and designing appropriate solutions.

**A.3 Risk.** Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

Lack of political commitment for the development and implementation of EE and RE. Likelihood: Low. Mitigation Measures: The SEEC Program is designed to be consistent with, and respond to, the energy policies of participant countries, all of which have the priority of reducing energy costs and prices, dependency on fossil fuel imports, and GHG emissions.

Lack of human resources with the technical expertise to successfully implement EE and RE projects. Likelihood: Medium. Mitigation Measures: The SEEC Program will provide institutional strengthening and capacity building to local and regional actors to implement its different components. The SEEC Program will be designed to encourage the participation of local energy or engineering firms; favor the creation of strategic partnerships between local and international firms in the implementation and monitoring of sustainable energy projects; and create or strengthen public and private local know-how to successfully assess, design, implement, and maintain EE and RE projects.

Insufficient quantity or quality of primary RE resources to generate electricity. Likelihood: Low. Mitigation Measures: The project will target RE technologies using primary resources (such as solar energy) that are available in sufficient quantity and quality. Current experience, as well as previous studies funded by OAS and IDB, indicate that there are adequate solar resources in the region. The SEEC Program will carry out further technical and economic evaluations of the most viable options (particularly for solar technologies) prior to pilot project design and implementation.

**A.4. Coordination.** Outline the coordination with other relevant GEF financed and other initiatives:

There will be two levels of coordination for the SEEC Program: general coordination of the entire Program, and country-level coordination.

General coordination of the SEEC Program will be executed by the OECS Secretariat, the OAS and the CDB. The OECS Secretariat will appoint a Head Regional Project Manager for the OECS. The Head Regional Project Manager will ensure that the SEEC Program is coordinated with (and partnered to) the Caribbean Sustainable Energy Program (CSEP), which is managed by the OAS. The OECS Secretariat will also coordinate with similar projects in the region. Finally, the CDB will be responsible for delivering all funds from the IDB to the target countries, as is required by the IDB and CDB's cooperation agreements.

The relevant ongoing initiatives that the SEEC Program will coordinate with to maximize synergies and avoid overlaps are: (i) the Caribbean Sustainable Energy Program (CSEP), implemented by the OAS; (ii) Energy for Sustainable Development in Caribbean Buildings, financed by the UNEP; (iii)

Sustainable Energy Initiative for Small Island Developing States (SIDS DOCK), overseen by a Steering Committee composed of Ambassadors to the United Nations in New York and technical experts; (iv) the Eastern Caribbean Energy Regulatory Authority (ECERA) financed by The World Bank; and (v) the Caribbean Hotel Energy Efficiency Action Program (CHENACT) financed by the IDB, GIZ, the Center for Development of Enterprise, UNEP, and other donors.

The SEEC Program will closely coordinate with forthcoming projects from UNDP and UNEP during the project design phase and the project implementation phase of the SEEC Program. In Saint Vincent and the Grenadines, the SEEC Program will coordinate with UNDP's proposed project 'Promoting Access to Clean Energy Services' on institutional strengthening for clean energy and on promoting economically viable RE options. The SEEC program will also closely coordinate with UNEP's Energy for Sustainable Development in Caribbean Buildings, which is in its initial stages, in Antigua and Barbuda; and Grenada. The SEEC Program will coordinate installing pilot projects in buildings that receive energy audits under UNEP's program. The SEEC Program will also seek to use EE equipment certified as appropriate by UNEP and installers that have received training under UNEP's program. The SEEC Program will coordinate efforts to develop financial mechanisms for EE. Finally, the SEEC Program ensures that institutional strengthening and technical assistance draws on the EE standards developed under the UNEP project. The SEEC Program will complement UNDP and UNEP's projects.

The SEEC Program will leverage funds from DFID and other grant sources from the IDB. In addition, the SEEC Program will be coordinated with several sustainable energy projects funded by the IDB, ensuring transfer and replication of policies and results. In particular, the example of the Sustainable Energy Framework for Barbados (SEFB) is seen as one of the most important milestones to promote RE and EE ever achieved in the region. It demonstrates that implementing sustainable energy investments can be a “win-win” strategy, whereby GHGs, as well as electricity costs and prices, are reduced. Thanks to Barbados's experience, Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines are very interested in replicating the SEFB model in their countries, adapted to their necessities.

Given the large number of participating entities, a steering committee will be established to guarantee the coordination of the SEEC Program with other regional projects to avoid redundancy. The steering committee will include representatives from each of the participating countries, and one representative from each of the project partners.

At the country level, the OECS secretariat will also appoint local project managers in each participating country to oversee local implementation of the Program's components.

## **B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

B.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.:

The SEEC Program is consistent with recent efforts of Antigua and Barbuda, Grenada, and St. Vincent and the Grenadines to develop policies for promoting sustainable energy. As noted above, all three countries are part of the CSEP, funded by the OAS, which has helped them develop and adopt sustainable energy policies, as well as action plans to implement those policies. Antigua and Barbuda has a draft National Energy Policy (NEP) that includes RE policies (for solar, wind, and biomass) and EE policies (revised building codes). Grenada's NEP includes RE policies (for geothermal, wind, and solar), EE policies (for buildings), and policies to improve the country's legal and regulatory framework. St. Vincent and the Grenadines' NEP includes policies on RE (for solar, wind, and hydro), and on EE (for domestic and commercial sectors).

In addition, all three countries have also submitted at least one National Communications to the UNFCCC with recommendations for the fundamental pillars for mitigation; all three countries include RE and EE measures.

B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities:

The proposed SEEC Program is presented under the Climate Change Mitigation focal area and is consistent with its Results Framework, with the goal of supporting developing countries toward a low-carbon development path. The SEEC Program is in line with Focal Area Objective CCM3 "Renewable Energy" given that it intends to promote grid-tied generation through technical studies for technologies such as geothermal, and the implementation of RE pilot demonstration projects for technologies such as solar PV. Similarly, the SEEC Program is in line with Focal Area Objective CCM2 given that it intends to promote the adoption of EE equipment, and will pilot Smart Grid-compatible technologies. RE and EE are two key ways to reduce emissions of GHGs, because they directly displace (in the case of RE) or reduce (in the case of EE) fossil fuel-based power generation.

B.3 The GEF Agency's comparative advantage for implementing this project:

The IDB is a major lending institution in Latin America and the Caribbean. The IDB has a strong staff presence in the OECS region through its Country Office in Barbados that oversees the Eastern Caribbean region. The IDB has also signed a memorandum of understanding to work in the OECS with the Caribbean Development Bank (CDB) supporting the CDB with technical assistance and loans on a variety of projects, including climate change projects. The IDB has provided investment (public and private) and technical assistance supporting climate change mitigation programs (particularly in EE and RE) in the Caribbean for several years, Specifically in Barbados, the Bahamas, Haiti, the Dominican Republic, Jamaica, Guyana, and Suriname. In total, the IDB has provided US\$450 million in loans for projects in the energy sectors of the Caribbean.

The IDB has also implemented two policy based loans (US\$115 million) in Barbados, which have supported the Government of this country to reform their energy policy by developing a Sustainable Energy Framework for Barbados (SEFB). These IDB loans supported the creation of the Smart Fund, a financial vehicle to promote RE and EE investments (US\$10 million). In addition, the IDB loans are supporting the country to reduce its fossil fuel dependency over the long term, thanks to renewable generation representing up to 29 percent of consumption, and EE savings of about 22 percent compared to business as usual by 2029.


All of these successful experiences can be drawn upon for the SEEC Program, which also seeks to contribute to developing policy, legal, and regulatory frameworks that are supportive for sustainable energy development, design financial vehicles to promote RE and EE investments, and fund RE and EE pilot projects for businesses, households, and the public sector. Furthermore, the IDB's experience implementing GEF-funded projects provides the IDB with the required experience in the region to successfully implement the SEEC Program.

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Timothy Antoine	Permanent Secretary and Operational Focal Point	MINISTRY OF FINANCE, PLANNING, ECONOMY, ENERGY AND COOPERATIVES OF GRENADA	02/16/2012
Yasa Belmar	GEF Operational Focal Point	MINISTRY OF HEALTH, WELLNESS AND ENVIRONMENT	04/05/2013
Diann Black-Layne	Chief Environment Officer	MINISTRY OF AGRICULTURE, LANDS, MARINE AFFAIRS, PHYSICAL PLANNING AND THE ENVIRONMENT OF ANTIGUA AND BARBUDA	07/16/2012

**B. GEF AGENCY(IES) CERTIFICATION**

<b>This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.</b>					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Michael Collins		04/09/2013	Christiaan Gischler	202-623-3411	christiaan@IDB.org