

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

REGIONAL

**SUSTAINABLE ENERGY FACILITY (SEF) FOR THE EASTERN CARIBBEAN
EXPANDED (SEF-EXPANDED)**

(RG-L1112; RG-G1013)

PROJECT PROFILE

This document was prepared by the project team consisting of: Christiaan Gischler (INE/ENE), Project Team Leader; Jaiwattie Anganu (CMF/CJA), Alternate Team Leader; Jesus Tejeda, Camila Gonzalez, Javier Garcia and Stephanie Suber (INE/ENE); Gloria Visconti and Filippo Berardi (CSD/CCS); Betina Hennig (LEG/SGO); Zachary Hurwitz (VPS/ESG); Paloma Marcos (SCL/GDI); Giacomo Palmisano (INE/INE); Daniel Hincapie (ORP/PTR); Rochelle Franklin (CCB/CBA); Vinicio Rodriguez, Russell Franklyn, and Maria Camila Padilla (FMP/CBA).

Under the Access to Information Policy, this document is subject to Public Disclosure.

PROJECT PROFILE

REGIONAL

I. BASIC DATA

| | | | |
|------------------------------------|--|--------------|-----------------|
| Project Name: | Sustainable Energy Facility (SEF) for the Eastern Caribbean Expanded - (SEF-Expanded) | | |
| Project Numbers: | RG-L1112; RG-G1013 | | |
| Project Team: | Christiaan Gischler (INE/ENE), Project Team Leader; Jaiwattie Anganu (CMF/CJA), Alternate Team Leader; Jesus Tejeda, Camila Gonzalez, Javier Garcia and Stephanie Suber (INE/ENE); Gloria Visconti and Filippo Berardi (CSD/CCS); Betina Hennig (LEG/SGO); Zachary Hurwitz (VPS/ESG); Paloma Marcos (SCL/GDI); Giacomo Palmisano (INE/INE); Daniel Hincapie (ORP/PTR); Rochelle Franklin (CCB/CBA); Vinicio Rodriguez, Russell Franklyn, and Maria Camila Padilla (FMP/CBA). | | |
| Borrower/Beneficiary: | Caribbean Development Bank (CDB) | | |
| Executing Agency: | Caribbean Development Bank (CDB) | | |
| Financial Plan¹: | IDB (Green Climate Fund) ² | | |
| | Investment Grant (RG-G1013) | | US\$ 20,000,000 |
| | Loan (RG-L1112) | | US\$ 60,000,000 |
| | Total: | | US\$ 80,000,000 |
| Safeguards: | Policies triggered: OP-102; OP-703 (B.1, B.2, B.4, B.5, B.6, B.7, B.9; B.10, B.11, B.13, B.17); OP-704; OP-710, OP-761, OP-765 | | |
| | Classification: | Not required | |

II. GENERAL JUSTIFICATION AND OBJECTIVES

A. Justification

- 2.1 The proposed operation, the Sustainable Energy Facility for the Eastern Caribbean Expanded (SEF-Expanded) is a complement to the Sustainable Energy Facility for the Eastern Caribbean approved by the Inter-American Development Bank (Bank, or IDB) in October 2015 (SEF-2015), and together they comprise the SEF Program. The objective of the SEF Program is to radically change the energy matrix of the six Eastern Caribbean Countries (ECC)³, namely

¹ The Project Team is exploring the possibility of co-financing this loan with grant funding from other donors.

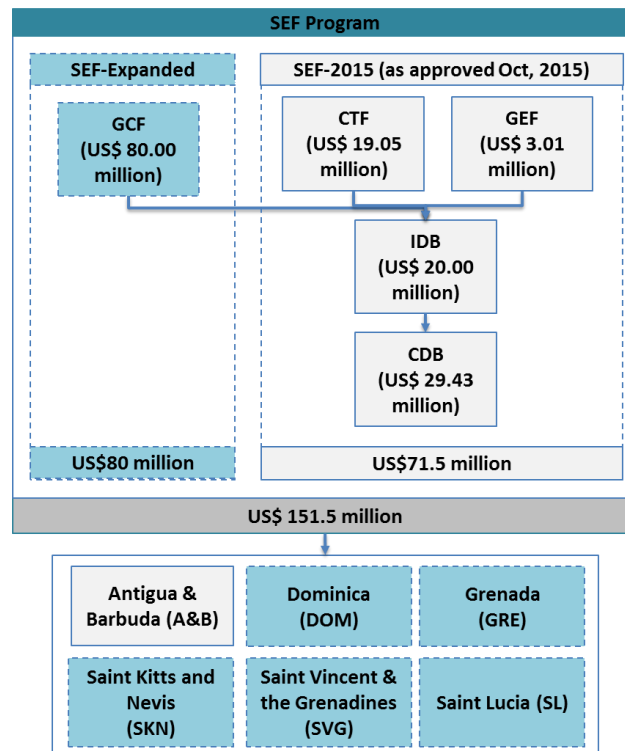
² The Green Climate Fund (GCF) Board, at its meeting on October 14, 2016 approved a [proposal to support the development of GE in five ECC](#) (US\$60 Million Loan, US\$16 million on Contingent Recovery Grants and US\$4 Million Grants) the availability of which is subject to the approval by the IDB Board of Executive Directors (which took place on July 26, 2017) and signature of a framework agreement (2.13) between the IDB and the GCF.

³ These six countries are members of the CDB, but not of the IDB. The Agreement Establishing the Inter-American Development Bank provides that the Bank may “finance the development of any of the members of the CDB by providing loans and technical assistance to that institution.” (Article III, section 1). While the proposal for the Signature of the Accreditation Master Agreement between the Green Climate Fund and the Inter-American Development Bank (GN-2895) includes references to the use of GCF resources in IDB’s “borrowing member countries” (¶6.10), management does not interpret such language to be

Antigua and Barbuda (A&B), Dominica (DOM), Grenada (GRE), Saint Kitts and Nevis (SKN), Saint Lucia (SL), and Saint Vincent and the Grenadines (SVG) by reducing their dependency on fossil fuels for power generation and the cost of electricity. To this end, the SEF Program includes an array of financing mechanisms to support the development of Energy Efficiency (EE) and Renewable Energy (RE).

- 2.2 The SEF Program places emphasis on developing Geothermal Energy (GE), a RE source for which five ECC have potential (all except A&B) and which has the largest potential for displacing fossil fuels in the region. The SEF-Expanded, complements the SEF-2015 by increasing the funds available for GE development in the five ECC which have GE potential⁴ with resources from the Green Climate Fund (GCF) for which the IDB applied and obtained approval on October 2016. Figure 1 below shows how SEF-Expanded resources will be added to the total pool of resources already available under the SEF-2015 enabling the SEF Program to: (i) provide a larger share of the investment needs for GE development in the region; and (ii) provide more risk mitigation instruments for GE projects unlocking private investment.

Figure 1: SEF Program (SEF-2015 & SEF-Expanded)



- 2.3 Like the SEF-2015, the SEF-Expanded will be structured as a Global Credit Loan (GCL) to the CDB by which IDB provides loans and grants financed by other donors' resources, and a loan financed with IDB Ordinary Capital (OC) resources

restrictive. The GCF Board of Executive Directors has already approved this operation, including the element of on-lending to CDB member countries which are not IDB borrowing member countries.

⁴ As A&B does not have GE potential, it is eligible to receive SEF-2015 resources but not eligible to receive SEF-Expanded resources meant to support GE development exclusively.

in the case of SEF-2015, for these to be provided by CDB as loans and/or grants to sub-projects in the ECC. CDB's own resources complement, as local counterpart, the SEF Program structure. As approved in 2015, the SEF-2015 comprised a total of US\$71.5 million including: (i) loans from IDB OC (US\$20 million); (ii) contingent recovery grants from the Clean Technology Fund (CTF) (US\$19.05 million); (iii) grants from the Global Environment Facility (GEF) (US\$3.01 million); and (iv) loans and grants from the CDB (US\$29.43 million).

- 2.4 **SEF-2015 Progress.** Progress as of August 31, 2017 is presented in Table 1 below. A total of US\$32.47 million in loans and grants have been approved by CDB including: (i) US\$9.5 million CTF contingent recovery grants for GE exploration in SVG; (ii) GEF-funded capacity building grants to SVG and GRE in amounts of US\$0.161 million and US\$0.571 million, respectively; (iii) US\$16.58 million in CDB loans and grants to finance streetlight retrofitting in A&B and SKN and EE investments in SVG; and additional CDB counterpart resources funded by grants from other donors in the amount of US\$5.6 million for slim-hole drilling in SVG⁵.

Table 1: SEF-2015 Allocated vs. committed resources as of August, 2017 (US\$ millions)

| Country | SEF-2015: Allocation versus Commitments | | | | | | | | | |
|-------------------|---|----------|--------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| | IDB | | CTF | | GEF | | CDB | | Total | |
| | Alloc.* | Com.** | Alloc.* | Com.** | Alloc.* | Com.** | Alloc.* | Com.** | Alloc.* | Com.** |
| A&B | - | - | - | - | 1.02 | - | 10.20 | 6.99 | 11.22 | 6.99 |
| DOM | - | - | - | - | - | - | 13.20 | - | 13.20 | - |
| GRE | 3.46 | - | 6.35 | - | 0.84 | 0.57 | 0.20 | - | 10.85 | 0.57 |
| SKN | 9.20 | - | 6.35 | - | - | - | 0.20 | 5.80 | 15.75 | 5.80 |
| SL | - | - | - | - | - | - | 5.20 | - | 5.20 | - |
| SVG | 7.34 | - | 6.35 | 9.50 | 0.93 | 0.16 | 0.20 | 9.44 | 14.82 | 19.10 |
| All ECC | 20.00 | - | 19.05 | 9.50 | 2.80 | 0.73 | 29.20 | 22.23 | 71.05 | 32.47 |
| Project Mgmt/Eval | - | - | - | - | 0.21 | - | 0.24 | - | 0.45 | - |
| CDB | - | - | - | - | - | - | - | - | - | - |
| Total SEF | 20.00 | - | 19.05 | 9.50 | 3.01 | 0.73 | 29.44 | 22.23 | 71.50 | 32.47 |
| %Com./Av. | 0% | | 50% | | 24% | | 76% | | 45% | |

* Alloc. - Total resources allocated under the SEF (as approved October, 2015)

** Com. - Total resources committed by the CDB (updated as of August, 2017)

- 2.5 **Problem.** As explained in the [SEF-2015 Loan Proposal](#), DOM, GRE, SKN, SL and SVG are Small Island Developing States located in the Eastern Caribbean region with potential to develop GE. With small and isolated power grids, they lack the scale necessary to utilize cheaper and cleaner fossil fuel options, such as natural gas, and have not yet fully developed other RE endowments. Consequently, they depend on costly imported liquid fossil fuels for electricity generation resulting in high electricity costs for final users.
- 2.6 Customers of the electric utility companies in this region often see high electricity tariffs and volatility in their monthly bills. In 2013, the average electricity tariff was

⁵ Availability of CDB counterpart resources can change with respect to the amount originally determined at SEF approval (US\$29.43) as CDB approves funding operations with its own resources and mobilizes resources from other donors in support of SEF objectives.

very high, at US\$0.38 per kWh⁶. Despite the decrease in world oil prices since mid-2014, electricity prices in this region remain relatively high compared with those in USA and many other territories. In 2016, the average electricity tariff in the five ECC was US\$0.30 per kWh. By Comparison, in Florida, the average tariff was US\$0.11 per kWh.

- 2.7 Oil dependence has become a heavy burden on the ECC economies. High electricity prices hinder economic growth, are disproportionately burdensome to the poor, and cause excessively high energy bills for the public sector, which drain public resources that could be used to provide more social services. As presented in Table 2, oil imports as a percentage of Gross Domestic Product (GDP) exceed 7%. Limited borrowing capacity, as implied by the Debt-to-GDP ratios averaging 83.9%, limits governments' ability to invest in RE thus perpetuating dependency on imported fossil fuels and its tightening effect on fiscal space.

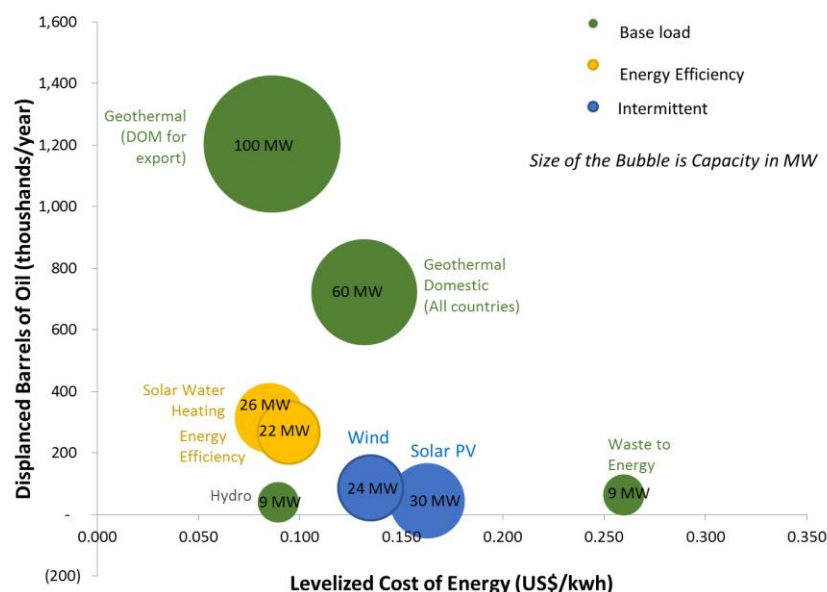
Table 2: Key Information on the Energy Sector in the five ECC

| Country/ island | Average Tariff (US\$/kWh) | | Oil Imports as a % of GDP | Fossil Fuel Imports (US\$ Million) | Debt to GDP ratio (2016) |
|--------------------|------------------------------|-------------|---------------------------------|--|-----------------------------|
| | 2013 | 2016 | | | |
| DOM | 0.41 | 0.34 | 7% (2012) | 41.5 (2012) | 87.7% |
| GRE | 0.40 | 0.26 | 10% (2012) | 101.1 (2012) | 89.2% |
| SL | 0.37 | 0.24 | 9% (2011) | 116 (2011) | 81.1% |
| St. Kitts | 0.35 | 0.27 | 9% (2010) | 22.6 (2010) | 67.2% |
| Nevis | 0.37 | NA | | | |
| SVG | 0.36 | 0.30 (2015) | 11% (2011) | 91 (2011) | 85.0% |

- 2.8 The ECC have available RE and EE resources that could offset liquid fossil fuel generation, reduce Greenhouse Gas (GHG) emissions, and create financial savings. Figure 2 shows that among the different technologies that can be developed to seize this potential, GE, a baseload technology with more than 90% capacity factor, is the largest available resource (over 160MW), has the lowest Levelized Cost of Energy (around US\$0.10/kWh), and the largest potential displacement of oil barrels (more than 2 million barrels).

⁶ Castalia (2014). "Caribbean Regional Energy Integration Assessment: Scenarios and Opportunities." Report to IDB.

Figure 2: Key RE and EE Alternatives for the ECC



2.9 GE development faces special challenges that require participation of both the governments and the private sector through Public-Private Partnership (PPP) arrangements. Table 3 shows the estimated investment requirements to develop GE in the five ECC exceed US\$600 million reinforcing the need for private sector involvement in the development of this energy source.

Table 3: Investments required for GE development by stage in the five ECC

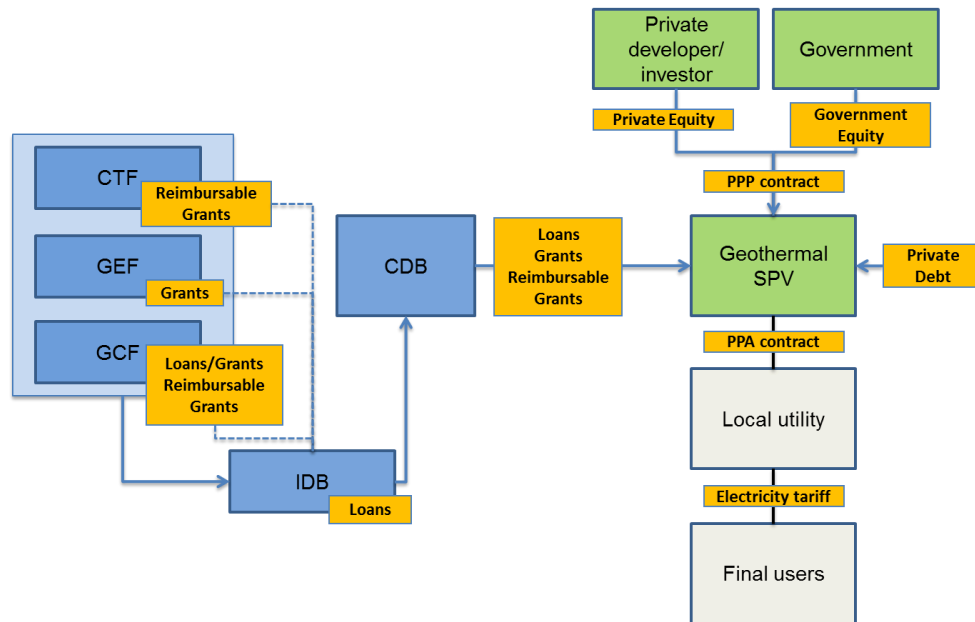
| Country/ Island | Stage | | | | | | | | | Cost Transmission & Distribution \$MM | Total Cost \$MM |
|-----------------|----------------|----------------------|-----------|----------------------|-----------|--------------------------------|-------------------|---------------------------|-----------------------|---------------------------------------|-----------------|
| | Pre-Investment | | | Exploration | | | Field development | | | | |
| | Studies | Slim hole/ wells (#) | Cost \$MM | Full scale wells (#) | Cost \$MM | Production /re-injection wells | Cost \$MM | Cost steam gathering \$MM | Cost Power Plant \$MM | | |
| DOM | done | done | \$0.0 | done | \$0.0 | done | \$7.0 | \$15.0 | \$30.0 | \$15.0 | \$67.0 |
| SVG | done | skip | \$0.0 | 2 | \$14.0 | 3 | \$21.0 | \$15.0 | \$30.0 | \$16.3 | \$96.3 |
| GRE | done | 2 | \$6.0 | 2 | \$14.0 | 3 | \$21.0 | \$15.0 | \$30.0 | \$16.3 | \$102.3 |
| SL | done | 2 | \$6.0 | 2 | \$14.0 | 6 | \$42.0 | \$25.0 | \$56.0 | \$16.3 | \$159.3 |
| Nevis | done | done | \$0.0 | 2 | \$14.0 | 3 | \$21.0 | \$15.0 | \$30.0 | \$12.1 | \$92.1 |
| St. Kitts | done | 2 | \$4.0 | 2 | \$14.0 | 3 | \$21.0 | \$15.0 | \$30.0 | \$16.3 | \$100.3 |
| Total | | 6 | \$16.0 | 10 | \$70.0 | 18 | \$133.0 | \$100.0 | \$206.0 | \$92.3 | \$617.3 |

2.10 **Proposed intervention.** The SEF-Expanded aims to help de-risk⁷ GE projects during early stages making it more likely that GE development attracts private investment and expertise, leverages other commercial debt resources, and allows for electricity tariffs to reflect an appropriate mix of concessional finance, commercial debt and equity. To this end, SEF-Expanded resources will be joined

⁷ Risk mitigation will be accomplished by providing contingently recoverable grants to fund exploratory drilling activities. Grants will become loans If exploration drilling is successful.

with the SEF resources approved in 2015, together comprising the SEF Program. Sub-projects may be financed by the CDB either from one source of funding or a combination of them, based on the context of each sub-project and according to the Operating Manual of the SEF which will be updated to reflect the SEF-Expanded resources. Figure 3 shows the mechanism by which the SEF Program will make resources available through the CDB to GE projects in the region.

Figure 3: SEF lending and on-lending structure



2.11 CDB as a borrower of IDB's resources. On January 27, 1977, the IDB Charter was amended to allow the IDB to provide financial resources to the CDB to support the development of its members⁸. On September 28, 1977, the IDB and the CDB entered an agreement setting forth the general standards applicable to operating relations between both institutions⁹. Since then, the IDB has financed six global loans¹⁰ to the CDB totaling US\$134 million where resources were on-lent by the CDB to projects in its member countries.

2.12 Strategic alignment. All operations financed by CDB through this operation will comply with strategic alignment metrics homologous to the IDB's. All operations will be mapped to the specific CDB country strategy with each of their ECC borrowers and to IDB's institutional priorities as outlined in the updated Institutional Strategy 2010-2020 (AB-3008). This operation contributes to the achievement of the GCF's objectives and result areas, and has a mitigation focus (reducing emissions from energy access and generation).

⁸ The resources and facilities of the IDB can be used to finance the development of any of the members of the CDB by providing loans and technical assistance to that institution.

⁹ All IDB operations with the CDB are in accordance with the three fundamental principles defined in the IDB's Operational Policies and Strategies Manual (OP-601) for lending to sub-regional financial institutions: (i) compatibility of strategies and policies; (ii) complementarity of actions; and (iii) additionally of resources, and follow the operating mechanisms set forth in the Manual, including risk analysis.

¹⁰ The SEF (3561/OC-RG), currently in execution, is the last of these operations to have been approved.

B. Objectives and expected results

- 2.13 The SEF-Expanded will be a GCL chargeable to GCF resources administered by the IDB according to the GCF Accreditation Master Agreement, approved by the IDB Board of Executive Directors on July 26, 2017.
- 2.14 The objective of the SEF-Expanded is to reduce the financial, technical and institutional barriers which GE encounters in DOM, GRE, SKN, SL and SVG, and to provide institutional strengthening and capacity building to the governments of these ECC and to the CDB for GE development. The SEF-Expanded includes the following components:
- 2.15 **Component 1 - GeoSmart Initiative (US\$76 million):** will support GE projects as they advance through successive stages of development all the way to plant construction by offering funding under:
- 2.16 **Sub-component 1.1 - Exploration Drilling (financed by Investment grant resources from GCF (RG-G1013) (US\$16 million):** will support pre-investment activities through the provision of contingent recovery grants and grants for drilling of early exploration wells (i.e. slim holes, full size wells).
- 2.17 **Sub-component 1.2 – Field and plant development (financed by Investment loan resources from GCF (RG-L1112) (US\$60 million):** will support field and plant development through the provision of concessional loans for the drilling of production and reinjection wells, engineering and construction of steam gathering systems and power plants, as well as for the construction of power substations and transmission lines.
- 2.18 **Component 2: Regulatory framework, institutional strengthening, capacity building and technical assistance (US\$4 million):** will provide non-reimbursable technical assistance to the CDB, and to the five ECC, including their ministries responsible for energy and electric utilities under the following sub-components financed by **Non-reimbursable technical assistance resources from GCF (RG-G1013):**
- 2.19 **Sub-component 2.1 - Regulatory framework (US\$1.5 million):** will provide support to the 5 ECC countries in developing an effective legal, policy and regulatory framework for the implementation of GE projects.
- 2.20 **Sub-component 2.2 - Institutional strengthening and capacity building (US\$1 million):** will provide support to the CDB to strengthen its capacity to implement the program (3.1), and to the 5ECC to strengthen their technical, institutional, environmental and regulatory capacity to enable GE development.
- 2.21 **Sub-Component 2.3 Preparation of pre-feasibility studies (US\$1.5 million):** will provide support for the preparation of: (i) surface studies (geology, geophysics and geochemistry-3Gs); (ii) Environmental and Social Impact Assessments (ESIA); and (iii) studies on the feasibility of power interconnections between neighboring islands.

- 2.22 **Expected results.** The Results Matrix developed for the SEF-2015 has been updated to include the SEF-Expanded. The consolidated Program results are: (i) a reduction of GHG emissions of 313,421 tCO₂/year; (ii) development of 60MW of GE generation capacity in projects that received funding from the program; (iii) Reduction of the average electricity generation cost and, if generation cost reductions are passed on to customers, an average decrease in tariffs from US\$0.35/kWh in 2015 (at a fuel price of US\$70 per barrel) to US\$0.28/kWh; and (iv) Reduction of 722,000 barrels/year of imported oil.
- 2.23 An [Indicative Project Pipeline](#) was prepared for the SEF-2015 and updated in June 2017 to reflect the addition of the SEF-Expanded resources to the Program (see [Revised Indicative Pipeline](#)). As seen on Table 4 below, which summarizes the projected commitments by source, the disbursement profile of the SEF Program is such that exploration risk mitigation and technical assistance resources are disbursed earlier during program execution, while loan resources are mostly backloaded.

Table 4: SEF Program: Projected Resource Commitments by Source

| Operation | Source | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | End of Project | |
|--------------------|--------|-------------|-------------|--------------|--------------|--------------|--------------|-------------|-------------|----------------|-------|
| SEF-2015 | CTF | - | - | 9.50 | - | 5.25 | 4.30 | - | - | 19.05 | 71.50 |
| | GEF | 0.03 | 0.10 | 1.06 | 1.33 | 0.33 | 0.16 | - | - | 3.01 | |
| | IDB | - | - | - | 1.84 | 4.67 | 4.30 | 2.30 | 6.90 | 20.01 | |
| | CDB | 0.02 | 2.78 | 9.71 | 10.71 | 6.15 | 0.02 | 0.02 | 0.02 | 29.43 | |
| SEF-Expanded | GCF | - | - | 7.65 | 35.77 | 21.35 | 15.23 | - | - | 80.00 | 80.00 |
| SEF Program | | 0.05 | 2.88 | 27.92 | 49.65 | 37.75 | 24.01 | 2.32 | 6.92 | 151.50 | |

III. TECHNICAL ISSUES AND SECTOR KNOWLEDGE

- 3.1 The CDB¹¹ will be the Borrower/Beneficiary and the Executing Agency for the SEF-Expanded. CDB's capacity to implement the program was bolstered since the beginning of SEF execution by retaining an expert consulting firm to provide support in GE project appraisal. Moving forward, CDB will continue to strengthen its capacity by retaining three different consulting firms to: (i) provide legal advisory services to GE projects; (ii) perform environmental and social impact assessments and studies for GE projects; and (iii) provide specialized geothermal technical and financial advisory services¹², in accordance with terms of reference agreed with the Bank.

IV. ENVIRONMENTAL SAFEGUARDS AND FIDUCIARY SCREENING

- 4.1 **Environmental and social risks.** As a GCL, this operation is classified for its environmental and social impact as a financial intermediary operation for which ex-ante impact classification is not yet feasible as per the provisions of Directive B.13 of the IDB's Environment and Safeguards Compliance Policy (OP-703). The GE sub-projects currently contemplated to be part of the SEF-Expanded include high risk operations.

¹¹ The CDB is an Aa1 rated financial institution (according to [Moody's August 2017 update](#)) indicating its obligations are judged to be of high quality and subject to very low credit risk.

¹² Based on lessons learned from SEF execution, it is very important to provide support for facilitating initial public-private engagement for negotiation of the Power Purchase Agreements.

- 4.2 IDB and CDB developed a protocol for the preparation of all GE sub-projects financed with SEF resources including the SEF-Expanded, under which the CDB and IDB will undertake hand-in-hand due diligence for each sub-project. Please refer to Annex III for more details. For Category A GE sub-projects financed with SEF-Expanded resources the ESIA will be disclosed to the public at least 120 days prior to Board Consideration by the CDB.

V. EXCEPTION TO BANK POLICIES

- 5.1 As with the SEF, an exception to GN-2349-9 and GN-2350-9 will be requested for approval by the Board of Executive Directors so that goods, works and services providers from CDB member countries, which are not members of the IDB, may participate in the procurement processes for activities to be financed with resources of the program. Such exception was requested and approved by the Board for the SEF-2015.
- 5.2 The Bank may recognize eligible expenditures chargeable to the loan and incurred during the 18 months prior to the date of approval of the loan but subsequent to the date of approval of the project profile. Expenditures charged to the loan will total no more than US\$4 million (5% of the proposed loan amount) and will be related to the activities under Component 2. Expenditures must conform to the Bank's procurement policies or substantially similar procedures, in accordance with operational policy OP-507.

VI. RESOURCES AND TIMETABLE

- 6.1 The Proposal for Operation Development (POD) will be distributed to Quality and Risk Review (QRR) committee by September 5th, 2017 and to the Board of Executive Directors for approval on November 8th, 2017. US\$34,114 are required to complete the preparation of the operation (see Annex V).

CONFIDENTIAL

¹ The information contained in this Annex is confidential and will not be disclosed. This is in accordance with the "Deliberative Information" exception referred to in paragraph 4.1 (g) of the Access to Information Policy (GN-1831-28) at the Inter-American Development Bank.



Safeguard Policy Filter Report

Operation Information

| | | |
|---|----------------------------------|-------------|
| Operation | | |
| RG-L1112 Sustainable Energy Facility (SEF) for the Eastern Caribbean-Green Climate Fund Programme | | |
| Environmental and Social Impact Category | High Risk Rating | |
| B13 | {Not Set} | |
| Country | Executing Agency | |
| REGIONAL | | |
| Organizational Unit | IDB Sector/Subsector | |
| Caribbean Group | ENERGY INTEGRATION | |
| Team Leader | ESG Primary Team Member | |
| CHRISTIAAN GISCHLER BLANCO | Zachary Daniel Hurwitz | |
| Type of Operation | Original IDB Amount | % Disbursed |
| Loan Operation | \$60,000,000 | 0.000 % |
| Assessment Date | Author | |
| 18 Jul 2017 | zacharyh ESG Primary Team Member | |
| Operation Cycle Stage | Completion Date | |
| ERM (Estimated) | 2 Aug 2017 | |
| QRR (Estimated) | 11 Sep 2017 | |
| Board Approval (Estimated) | {Not Set} | |
| Safeguard Performance Rating | | |
| {Not Set} | | |
| Rationale | | |
| {Not Set} | | |

Safeguard Policy Items Identified

[B.1 Bank Policies \(Access to Information Policy– OP-102\)](#)

The Bank will make the relevant project documents available to the public.

[B.1 Bank Policies \(Disaster Risk Management Policy– OP-704\)](#)

The operation is in a geographical area exposed to [natural hazards](#) ([Type 1 Disaster Risk Scenario](#)). Climate change may increase the frequency and/or intensity of some hazards.



Safeguard Policy Filter Report

B.1 Bank Policies (Disaster Risk Management Policy– OP-704)

The sector of the operation is vulnerable to natural hazards. Climate change may increase the frequency and/or intensity of some hazards.

B.1 Bank Policies (Disaster Risk Management Policy– OP-704)

The operation has the potential to exacerbate risk to human life, property, the environment or cause economic disruption ([Type 2 Disaster Risk Scenario](#)).

B.1 Bank Policies (Gender Equality Policy– OP-761)

The operation has the potential to affect negatively women or gender equality ([Negative gender impacts may include the following](#))

B.1 Bank Policies (Resettlement Policy– OP-710)

The operation has the potential to disrupt the livelihoods of people living in the project area of influence (not limited to involuntary displacement, see also Resettlement Policy)

B.2 Country Laws and Regulations

The operation is expected to be in compliance with laws and regulations of the country regarding specific women's rights, the environment, gender and indigenous peoples (including national obligations established under ratified multilateral environmental agreements).

B.3 Screening and Classification

The operation (including [associated facilities](#)) is screened and classified according to its potential environmental impacts.

B.4 Other Risk Factors

There are [associated facilities](#) (see policy definition) related to the operation.

B.5 Environmental Assessment Requirements

An environmental assessment is required.

B.6 Consultations

Consultations with affected parties will be performed equitably and inclusively with the views of all stakeholders taken into account, including in particular: (a) equal participation by women and men, (b) socio-culturally appropriate participation of indigenous peoples and (c) mechanisms for equitable participation by vulnerable groups.

B.7 Supervision and Compliance

The Bank is expected to monitor the executing agency/borrower's compliance with all safeguard requirements stipulated in the loan agreement and project operating or credit regulations.

B.9 Natural Habitats and Cultural Sites

The operation will result in the degradation or conversion of Natural Habitat or Critical Natural Habitat in the project area of influence.

B.10. Hazardous Materials



Safeguard Policy Filter Report

The operation has the potential to impact the environment and occupational health and safety due to the production, procurement, use, and/or disposal of hazardous material, including organic and inorganic toxic substances, pesticides and persistent organic pollutants (POPs).

B.11. Pollution Prevention and Abatement

The operation has the potential to pollute the environment (e.g. air, soil, water, greenhouse gases).

B.13. Noninvestment Lending and Flexible Lending Instruments

Ex-ante impact classification may not be feasible for this type of operation. This includes: policy-based loans, Financial Intermediaries (FIs) or loans that are based on performance criteria, sector-based approaches, and conditional credit lines for investment operations.

B.17. Procurement

Suitable safeguard provisions for the procurement of goods and services in Bank financed operations may be incorporated into project-specific loan agreements, operating regulations and bidding documents, as appropriate, to ensure environmentally responsible procurement.

Potential Safeguard Policy Items

B.1 Bank Policies (Indigenous People Policy– OP-765)

The operation has the potential to negatively affect indigenous people (also see [Indigenous Peoples Policy](#)).

B.4 Other Risk Factors

The borrower/executing agency exhibits weak institutional capacity for managing environmental and social issues.

B.9 Natural Habitats and Cultural Sites

The operation will result in the degradation or conversion of Critical Cultural Sites in the project area of influence.

Recommended Actions

Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PP (or equivalent) and Safeguard Screening Form to ESR.

Additional Comments

This operation is executed by a Financial Intermediary, and is a continuation of RG-L1070, including the same scope and framework of potential infrastructure projects. As a result, the present operation will inherit the risk level. Both operations include the potential construction of both geothermal exploration and production projects, most if not all of which are located inside or bordering protected areas in volcanic regions in the Eastern Caribbean. Those potential geothermal production projects would include transmission lines, separating stations, lagoons, access roads, and other associated facilities that, together with the projects, may cause impacts on critical natural and/or cultural habitat, including protected areas.



Safeguard Policy Filter Report

| Environmental and Social Strategy (ESS) | |
|--|--|
| Operational Name | Sustainable Energy Facility for the Eastern Caribbean - Green Climate Fund Programme (SEF-GCF Programme) |
| Operation Number | RG-L1112; RG-G1013 |
| Operation Details | |
| IDB Sector | Energy |
| Type of Operation | Financial Intermediary |
| Impact Categorization | B13 (FI-1) |
| Disaster Risk Rating | High |
| Borrower | Caribbean Development Bank (CDB) |
| Executing Agency | Multiple |
| IDB Loan US\$ (and total project cost) | 60 million (RG-L1112); 16 million (RG-G1013), 4 million (RG-T2951) (total project cost 80 million) |
| Applicable Policies/Directives | OP-102; OP-703 (B.1, B.2, B.4, B.5, B.6, B.7, B.9; B.10, B.11, B.13, B.17); OP-704; OP-710, OP-761, OP-765 |
| Operation Description | |
| <p>The Sustainable Energy Facility is a financial intermediary operation that will benefit the Caribbean Development Bank in supporting the development of geothermal energy (GE) in the Eastern Caribbean (EC), which will contribute to the development of five 10MW (±5) geothermal power plants, one in each of the five Eastern Caribbean islands with geothermal potential: St. Vincent and the Grenadines, Grenada, Dominica, St. Kitts and Nevis, and St. Lucia. However, the actual size of each plant built will be based on each government's planned initiatives, the size of the geothermal resources, and the availability of additional grant resources and private funding for each individual plant. The program will finance activities in all stages, from pre-investment studies to power plant development. Table 1 shows the current status and estimated cost to develop GE in EC, which is approximately US\$617 million, of which the IDB would finance US\$80 million.</p> <p>Construction activities for geothermal exploration typically involve drilling and testing of new production and reinjection wells, construction and filling of cooling and sediment ponds, pumping and transport of water, installation of equipment, and potential new access roads and other ancillary facilities.</p> <p>Construction activities for geothermal production typically involve drilling and testing of additional production and reinjection wells, construction of power plant buildings and cooling towers, construction of liquid and steam separating facilities, construction of substations and transmission lines, construction and filling of additional cooling and sediment ponds, pumping and transport of additional water, installation of equipment, construction of new or expansion of existing access roads, and additional ancillary facilities such as easements, waste management facilities, and worker camps.</p> <p>Civil works for commercial-diameter exploration have already begun construction in St. Vincent and the Grenadines, supported by the operation RG-L1071 currently in supervision.</p> | |
| Key Potential ESHS Risks and Impacts | |
| <p>Possible environmental and social impacts and risks during geothermal exploration include (i) potential contamination of soil and surface and subsurface water resources, including aquifers, nearby hot springs, natural thermal features, and rivers, by drilling mud (essentially a suspension of a natural clay material - bentonite - with some additives added), drilling mud with cuttings, or through the reinjection of the geothermal fluid (essentially a mixture of hot water and steam, at temperatures that</p> | |

can reach 290°C, with dissolved salts and gases); (ii) increased water demand for drilling and testing wells and for the cooling system; (iii) potential contamination due to the disposal of solid wastes; (iv) potential fragmentation of critical natural habitat or natural habitat, including within or bordering protected areas, and potential border effects on flora and fauna; (v) noise and vibrations generated during drilling; and (vi) increased heavy traffic and potential traffic accidents in the vicinity of the project site; (vii) noise, dust, and light pollution; (xiii) soil erosion and loss of vegetation (ix) impacts related to worker influx; and (x) livelihood impacts associated with land acquisition. Most of these construction impacts and risks can be adequately mitigated through the implementation of appropriate environmental, health and safety management plans and standard operating procedures (SOPs). At this stage, it is not expected that involuntary resettlement would be needed, or that indigenous peoples would be affected in any way; nonetheless, the possibility exists.

Possible environmental and social impacts and risks during geothermal energy production include (i) an increased level of micro-seismicity in the region; (ii) land subsidence; (iii) soil and surface and subsurface water contamination; (iv) increased demand on surface and groundwater resources, including aquifers, nearby hot springs, natural thermal features, and rivers; (v) air emissions including hydrogen sulfide; (vi) health and occupational accidents; (vii) increased exposure of community and workers to explosions, well blowouts and pipeline failures; and (viii) increased vulnerability of community and workers to natural and induced disaster risks.

The capacity of the Caribbean Development Bank to manage the impacts and risks of geothermal projects is nascent, but has improved through collaboration with the IDB during the execution of RG-L1071. Due diligence will assess the extent to which the CDB has progressed on the management of geothermal impacts and risks and the degree to which further capacity building is necessary.

Information Gaps and Strategy for Analysis and Management

CDB and IDB have agreed that leadership on environmental and social analysis at the project level will be driven by CDB in close collaboration with IDB. Given the high risk nature of sub-projects financed, both institutions will ensure that the projects comply with the specifics of their respective and largely harmonized environmental and social policies. As such, under the framework of RG-L1071, the CDB and IDB previously agreed to a Protocol for the Management of Geothermal Sub-Projects (**Annex 2**) that will also constitute the Environmental and Social Management System (ESMS) of the current Operation.

The Protocol will be refined and complemented during due diligence, and incorporated into the Regulatory Operating Manual, which will be finalized and implemented prior to approval of the operation by the IDB Board of Directors.

Regarding environmental and social studies of projects, none of them are needed as per the Bank's policies prior to approval of financial intermediary operations. However, the IDB contracted the development of an Environmental and Social Impact Assessment (ESIA) for the exploration phase of the La Soufrière Geothermal Project currently under construction in St. Vincent and the Grenadines, financed by RG-L1071. This ESIA complies with IDB safeguards policies as well as with the IFC Performance Standards. A new ESIA will be required for the production stage of the La Soufrière Geothermal Project. Additional environmental studies are planned to be developed during the preparation of the operation, including an ESIA for geothermal development in Grenada.

As per the Protocol, for Category A sub-projects, disclosure of ESIs will occur 120 days prior to the respective CDB board date; for Category B sub-projects, disclosure of ESIs will occur 30 days prior to the respective CDB board date. These disclosure requirements will be incorporated into the Operating Manual of the operation.

Based on Directive B.13 of the Environment and Safeguards Compliance Policy (OP-703), the Facility is classified as a Financial Intermediary. The Facility's target investments are five geothermal projects located respectively in Dominica, Grenada, St. Lucia, St. Kitts and Nevis, and St. Vincent and the Grenadines. A number of these projects are located in critical natural habitats and would be classified as Category A or Category B operations under the IDB's environmental and social impact classification system (**Annex 3**). Based on the initial information presented, this Facility is categorized as high risk Financial Intermediaries (FI-1).

Based on available documentation, it is not expected that OP-710 on Involuntary Resettlement or OP-765 on Indigenous Peoples will be triggered for this Project. However, due diligence will examine if land acquisition, economic displacement or impacts to traditional or indigenous peoples may occur in relation to the proposed sub-projects.

The environmental and social due diligence for the Facility will focus on implementing the CDB-IDB Protocol on Management of Geothermal Projects, the particular approach with regard to geothermal project finance investments, as well as the fundamental operational aspects in relation to Category A sub-projects (**see Annex 2**). This will include details on early communication to IDB about the financing of projects to enable IDB to identify: (i) the need for complementary analysis; (ii) the need to implement mitigation measures to address any non-compliance with IDB policies; (iii) the monitoring framework to be implemented during the execution of the Facility; and (iv) evaluate available information at the sub-project level, to include visits if necessary, to identify E&S feasibility and the severity of potential risks.

Additionally, during due diligence the IDB and the CDB will examine the CDB's progress on the integration of the Protocol into their processes and procedures to manage environmental and social risk and CDB's capacity to execute these processes and procedures. The results of the due diligence will be presented in an Environmental and Social Management Report. This will include a description of the key aspects of the Protocol, related contractual requirements, and the identification of the activities and its timeframe that will need to be conducted as part of the initial phase of implementation of the Facility's management mechanisms.

Opportunities for IDB Additionality (if any) *(recommended not to exceed 150 words)*

Given the tendency for geothermal resources to be located within or bordering protected areas or areas of high conservation value, the potential exists for the IDB to add value to conservation efforts for each geothermal subproject.

Annex Table: Operation Compliance with IDB Safeguard Policies

See below.

Additional Annexes (if any)

Annex 1: Current Status and estimated cost to develop 10MW GE by stage (US\$ millions)

| Country/ Island | Stage | | | | | | | | | NA | Total Cost \$MM |
|--------------------|----------------|-------------------------------|--------------|-------------------------------|--------------|--|--------------|------------------------------------|--------------------------------|-----------------|-----------------------|
| | Pre-Investment | | | Exploration | | Field Development | | | | CostT&D \$MM | |
| | Studies | Slim hole/ wells (#) | Cost \$MM | Full scale wells (#) | Cost \$MM | Production /re- injection wells | Cost \$MM | Cost steam gathering \$MM | Cost Power Plant \$MM | | |
| DOM | done | done | done | done | done | done | 7 | 15 | 30 | 15 | 67 |
| SVG | done | skip ¹ | 0 | 2 | 14 | 3 | 21 | 15 | 30 | 16.3 | 96.3 |

¹ From 2013 to 2014 private developers in SVG conducted significant surface exploration activities that support the argument that the Soufriere volcano hosts a >200 °C geothermal reservoir. Slimholes are therefore not deemed necessary.

| | | | | | | | | | | | |
|------------------|------|----------|-----------|-----------|-----------|-----------|------------|------------|------------|-------------|--------------|
| GRE | done | 2 | 6 | 2 | 14 | 3 | 21 | 15 | 30 | 16.3 | 102.3 |
| SL | done | 2 | 6 | 2 | 14 | 6 | 42 | 25 | 56 | 16.3 | 159.3 |
| Nevis | done | 2 | done | 2 | 14 | 3 | 21 | 15 | 30 | 12.1 | 92.1 |
| St. Kitts | done | 2 | 4 | 2 | 14 | 3 | 21 | 15 | 30 | 16.3 | 100.3 |
| Total | | 8 | 16 | 10 | 70 | 18 | 133 | 100 | 206 | 92.3 | 617.3 |

Annex 2. CDB-IDB Protocol for the Management of Geothermal Sub-Projects (Environmental and Social Management System for the operation)

| | |
|--|---|
| 1. Project Identification/ Screening | <ul style="list-style-type: none"> • Presentation to IDB by CDB of basic project eligibility material • Project management planning between ESG project teams (IDB and CDB) |
| 2. Project Preparation /Assessment (Pre-Investment Activities) | <ul style="list-style-type: none"> • Provision of initial environmental, social and health and safety information for assessment and classification • Identification of key risks, and provisional Safeguard gaps • Engagement of external consultant to lead/support the preparation of ESIA material, and other E&S documentation • CDB/IDB pre-due diligence (as necessary) • Preparation and disclosure of E&S appraisal documentation |
| 3. Due Diligence (Exploration and Production Activities) | <ul style="list-style-type: none"> • Completion of document preparation • CDB/IDB formal due diligence of risks, impacts, and mitigation measures, and identification of Safeguard gaps • Development of project specific Environmental and Social Management Plans • Disclosure of ESIA • Preparation and disclosure of environmental and social risk and requirement report |
| 4.Approval / Contract Negotiation | <ul style="list-style-type: none"> • Incorporation of all necessary environmental and social covenant material pertaining to CDB/IDB Safeguard requirements |
| 5. Supervision and Monitoring | <ul style="list-style-type: none"> • Joint periodic supervision of project per requirements and management plans |
| 6.Reporting | <ul style="list-style-type: none"> • Review of regular Sponsor reports on project operation |

Annex 3. Process stages for hand-in-hand due diligence to be included in the Operating Manual of the operation

- 1.1 IDB and CDB have agreed that for all Geothermal high risk sub-projects (Category A and B+), IDB will undertake due diligence alongside CDB's team throughout the project preparation, appraisal, and monitoring phases.² The objective of this hand-in-hand due diligence is to help build E&S capacity in CDB's analysis of high risk geothermal projects, and ensure that project impacts are adequately mitigated according to the IFC Performance Standards and WB EHS Guidelines. The process steps defined below will be incorporated into the Operating Manual for this Facility developed between IDB and CDB, and are designed to correspond with CDB's existing credit and approval process stages. Recognizing that funds from CDB, and by

² Category A projects in sectors that are not in geothermal or associated with a geothermal project will come to IDB only for non-objection.

extension IDB, can be used at either grant (feasibility study, slim hole) or loan stages (exploration, production, plant construction and operation), the process steps are customized accordingly.

- 1.2 For the Grant approval project cycle (applying exclusively for geothermal sub-projects) for 3G or slim hole drilling, the corresponding E&S procedures are:

| CDB Grant Approval Cycle | CDB E&S Role | IDB E&S Role |
|--|---|---|
| 1. Grant application received (may or may not include E&S analysis) | <ul style="list-style-type: none"> CDB reviews E&S analysis, if any, presented by project sponsor/developer CDB determines validity / eligibility of grant application. If advancing, provides IDB with corresponding E&S documentation, and pre-classification | <ul style="list-style-type: none"> IDB receives application and corresponding E&S analysis, if any. |
| 2. CDB defines/reviews Terms of Reference (TOR) for pre-investment activities eligible for grant funding (3G analysis, E&S analysis, infrastructural assessment, slim hole drilling) | <ul style="list-style-type: none"> CDB prepares TOR for E&S Scoping Analysis as either a component of wider TOR or a separate document Sends TOR to IDB for review and comment | <ul style="list-style-type: none"> IDB reviews and inputs into prepared E&S TOR scope, and coordinates comments with IDB review of wider TOR <p><u>Formal Sign-off</u></p> <ul style="list-style-type: none"> IDB returns TOR with comments within five working days. |
| 3. Grant Awarded | <ul style="list-style-type: none"> CDB informs IDB of selected consultant, and liaises with consultant in execution of the work. CDB engages IDB on an as needed basis for advice/offer of opinion. CDB visits site on an as-needed basis to evaluate progress and specific impacts CDB confirms environmental pre-classification and sends near-final draft of Scoping Analysis to IDB. | <ul style="list-style-type: none"> IDB informed of any particular E&S risk concerns (in event of project visit). IDB provides comment, if any, on near-final draft of Scoping Analysis. |
| 4. Completion of Analysis/Pre-Investment Activity | <ul style="list-style-type: none"> CDB receives final report / analysis and sends to IDB. On basis of successful analysis, CDB informs IDB of possible second phase (loan). | <ul style="list-style-type: none"> IDB reviews final products and reports. |

- 1.3 For the Loan approval project cycle (applying to all Category A and B+ geothermal sub-projects), the project proponent may be undertaking exploratory drilling, developing production and reinjection wells, constructing power plants, sub-stations, or transmission lines. As the investment activities are more significant in scope with the potential for greater E&S impacts additional process stages apply. As such, the corresponding E&S procedures are:

| CDB Loan Approval Cycle | CDB E&S Role | IDB E&S Role |
|-------------------------|--------------|--------------|
|-------------------------|--------------|--------------|

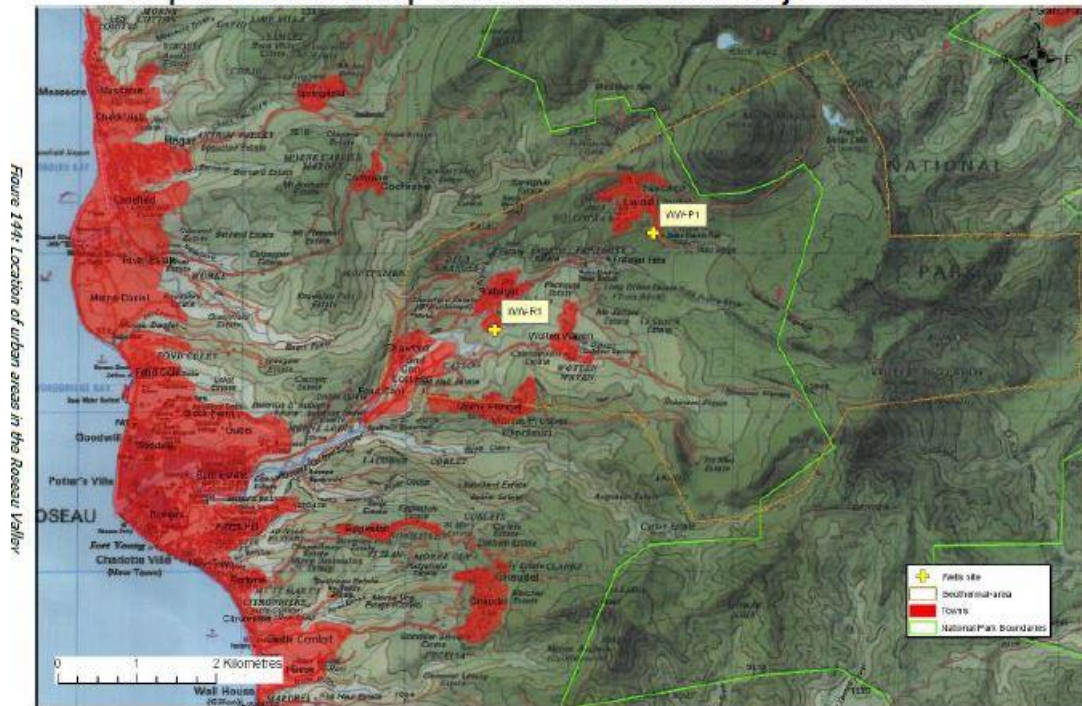
| | | |
|---|--|--|
| 1. Preparation of CDB Concept Note | <ul style="list-style-type: none"> CDB makes pre-classification and proposes E&S strategy for due diligence | <p><u>Formal Sign-Off</u></p> <ul style="list-style-type: none"> IDB provides input into strategy and clearance on pre-classification. |
| 2. Project preparation and definition of Terms of Reference (TOR) second stage investment (exploratory drilling, development of production/reinjection wells, plant construction, etc.) | <p><u>Scenario 1: ESIA prepared</u></p> <ul style="list-style-type: none"> Where ESIA is available, CDB conducts analysis of the adequacy of the documentation, identifies gaps with regard to IFC PS and WB EHS Guidelines, and proposes plan to IDB for additional analysis/ engagement of consultants/ etc. so that gaps are addressed and sends draft TOR if applicable. CDB initiates coordination with IDB for project due diligence during Appraisal <p><u>Scenario 2: ESIA not prepared</u></p> <ul style="list-style-type: none"> CDB prepares a comprehensive TOR to define scope of ESIA, and sends to IDB for review/comment/approval. Project Appraisal stage for E&S is on hold until ESIA is prepared and is made publicly available. | <p><u>Scenario 1: ESIA prepared</u></p> <ul style="list-style-type: none"> IDB reviews ESIA, gaps identified, and TOR prepared. Coordinates comments with wider IDB preparation of TOR. IDB coordinates with CDB on project due diligence. <p><u>Scenario 2: ESIA not prepared</u></p> <ul style="list-style-type: none"> IDB reviews TOR prepared and provides comments, coordinating with wider IDB preparation of TOR. |
| 3. Appraisal | <ul style="list-style-type: none"> CDB and IDB conduct formal due diligence of risks, impacts, and mitigation measures. CDB liaises with consultants in finalizing the Environmental and Social Appraisal document, Environmental and Social Management Plans, and any necessary Action Plans. CDB sends final documentation, including final environmental categorization to IDB for review and approval. On IDB's review and reply of documentation, CDB initiates negotiations with proponent for inclusion in Loan Documentation. CDB ensures ESIA is publicly disclosed and available in the respective Country and at a minimum 30 days before the Project is considered for approval by CDB's Board. | <ul style="list-style-type: none"> IDB participates in formal due diligence on E&S issues. IDB confirms categorization, reviews Environmental and Social Appraisal and approves management and action plans IDB is kept abreast of negotiations. |
| 4. Approval | <ul style="list-style-type: none"> CDB prepares Loan Documentation with inclusion of all agreed E&S requirements. A summary of the Environmental and Social Appraisal is | <p><u>Formal Sign-off</u></p> <ul style="list-style-type: none"> IDB provides non-objection on E&S requirements, E&S legal covenants, and related material as necessary. IDB |

| | | | |
|--|--|--|--|
| | | simultaneously disclosed on CDB's project webpage and to CDB's Board at a minimum 10 days prior to Board's meeting. | coordinates E&S sign-off with wider IDB non-objection. |
| 5. Funding agreements, and legal E&S covenants | | <ul style="list-style-type: none"> CDB incorporates necessary E&S covenants per agreed management plans/action plans into loan agreement. | |
| 6. Supervision | | <ul style="list-style-type: none"> CDB prepares TOR for supervision and E&S audit of sponsor's management of E&S issues. CDB conducts supervision of E&S management on an annual or bi-annual basis depending on severity of risk and impacts. Supervision costs for consultant are paid for by CDB's project budget. When necessary, and on the recommendation of external consultant, CDB may require the sponsor to adopt a Corrective Action Plan (CAP) where particular risks become present. | <ul style="list-style-type: none"> IDB reviews TOR for supervision, and E&S audit, and provides comments if required. IDB participates as necessary in subsequent supervision missions. Copies of Supervision reports provided to IDB. In case of a CAP, IDB will review and approve the defined CAP. |

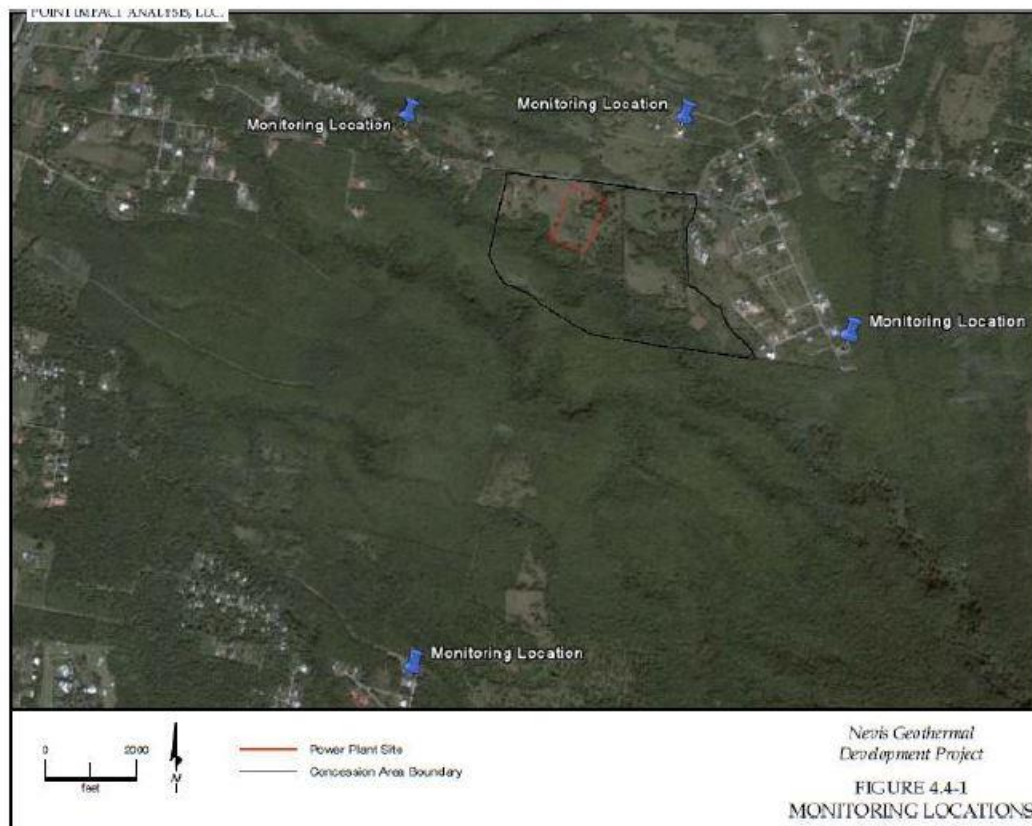
- 1.4 As part of the sub-project pre-classification and classification process described above, the below table provides general and indicative parameters to ensure the accurate categorization of sub-projects. Both CDB and IDB recognize that final categorization will depend on the sub-projects' specific impacts. For other non-geothermal Category A projects, which are unlikely under this Facility, IDB and CDB will agree on a case by case basis a due diligence process, but which will include at a minimum a two stage non-objection process at the concept and appraisal stages. This table below will be also incorporated in the Operating Manual.

| Category | Project examples and general parameters |
|-------------|--|
| Category A | <ul style="list-style-type: none"> Geothermal exploratory drilling, production and reinjection drilling, power plant construction, and construction of pipelines New transmission lines in excess of 30 km in areas of high conservation value linked to Geothermal Wind farms greater than 50 MW in capacity Projects with high social impacts, in indigenous communities, involving significant resettlement, or in areas of conservation value linked to Geothermal |
| Category B+ | <ul style="list-style-type: none"> Small-scale geothermal (less than 7MW) on existing degraded sites with no social/natural habitat impacts Early stage geothermal slim hole drilling New transmission lines in excess of 15 km Wind farms between 20-50MW in capacity, or with natural habitat impacts Solar projects greater than 50 MW, or with natural habitat impacts |
| Category B | <ul style="list-style-type: none"> Solar projects below 50 MW with no natural habitat impacts Energy efficiency projects with management of hazardous wastes |
| Category C | <ul style="list-style-type: none"> Energy efficiency projects with no management of hazardous wastes |

Annex 4. Map of geothermal areas of interest in Dominica



Annex 5. Map of geothermal areas of interest in Nevis



Annex 6. Map of geothermal exploration area in St. Vincent



Annex 7. Map of geothermal areas of interest in Grenada

Water plants (NAWASA)

Tanks_Boreholes

- dam
- spring
- tank
- treatment pl

drillingsite, intake, watersupply

- ★ Candidates of drilling site for exploration wells
- ▲ Candidates_intake
- Candidates of water supply lines
- ▲ Measurement of water flow rate in dry season
- candidate_zones_drilling pad_Jacobs2016

Roads

- Footpath
 — Main Road
 — Secondary
 — Tertiary
 — Track
 — Rivers

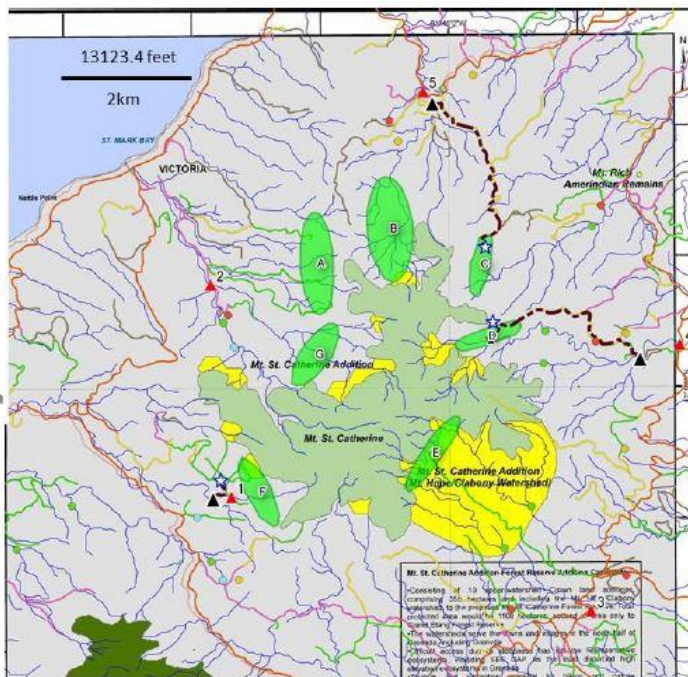


Table: Operation Compliance with IDB Safeguard Policies

| Policies / Directives | Relevant Aspect of Policy / Directive | Is This Policy / Directive Applicable? | Rationale for Applying Policy / Directive Rationale | Actions required during Preparation & Analysis |
|--|---|---|---|---|
| OP-703 Environment and Safeguards Compliance Policy | | | | |
| B.2 Country Laws and Regulations | Obtention of environmental licenses and permits | Yes | Projects to be included in the operation will require environment licences. | Incorporate eligibility criteria into the Operating Manual requiring all necessary licenses and permits be obtained prior to commencement of civil works. |
| B.3 Screening and Classification | Environmental and social risk categorization | No | As per B.13, Financial Intermediaries operations are not classified among A/B/C categorization system. | None. Subprojects will be classified according to CDB and IDB policies, as defined in the ESMS. |
| B.4 Other Risk Factors | Institutional capacity | Yes | The CDB has incipient experience in the management of environmental and social impacts of geothermal energy, through the St. Vincent operation. Continual support is necessary from the IDB during project preparation and supervision. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIAs. |
| B.5 Environmental Assessment and Plans Requirements | Assessment of environmental impacts and risks, and mitigation action plans and strategy | Yes | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and |

| | | | | assessment activities, including ESIA's. |
|--|--|-----|---|--|
| B.5 Social Assessment and Plans Requirements | Assessment of social impacts and risks, and mitigation action plans and strategy | Yes | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| B.6 Consultation | Prior consultation with project-affected communities regarding impacts, risks, and mitigation strategy | Yes | Public consultation has not yet occurred on any project to be financed. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including public consultations. |
| B.7 Supervision and Compliance | Program and project supervision and monitoring. | Yes | IDB and CDB will undertake joint supervision of each project as defined in the process stages for hand-in-hand due diligence. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for CDB and IDB to undertake joint supervision. |
| B.8 Transboundary Impacts | N/A | No | The scope of the operation does not involve transboundary impacts. | N/A |
| B.9 Natural Habitats | Natural habitat and critical natural habitat | Yes | There is a potential that projects will intervene in critical natural habitat and natural habitat, including protected areas. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation |

| | | | | |
|---|---|-----|---|--|
| | | | | and assessment activities, including ESIA's. |
| B.9 Invasive Species | Use of invasive species for reforestation of suppressed vegetation | Yes | No ESIA exists for any project to be financed through the operation | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| B.9 Cultural Sites | Demarcated and declared indigenous lands, cultural and archaeological heritage. | Yes | No ESIA exists for any project to be financed through the operation There is the potential that projects may intervene in lands of indigenous and other traditional populations. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| B.10 Hazardous Materials | Avoid impacts associated with production, acquisition, use, and final disposal of hazardous materials | Yes | Geothermal fluids, if not processed or disposed of properly, contain materials hazardous to health. Petrochemicals may be utilized during project construction. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| B.11 Pollution Prevention and Abatement | Reduce or eliminate emissions, including gas, liquid, and solid | Yes | Construction of geothermal projects, ancillary facilities, and associated facilities, presents the potential for air, water, and terrestrial pollution. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| B.12 Projects Under Construction | Demonstrate that projects under | No | Commercial-diameter geothermal exploration | None |

| | | | | |
|---|---|-----|--|---|
| | construction comply with relevant provisions of the Environment and Safeguards Compliance Policy | | already under construction in St. Vincent was financed by RG-L1071, currently under supervision. | |
| B.13 Noninvestment Lending and Flexible Lending Instruments | | Yes | The operation has been classified as a B-13 operation (FI-1, high risk). | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection during all stages. |
| B.14 Multiple Phase and Repeat Loans | N/A | No | The program does not involve multiple phase or repeat loans. | N/A |
| B.15 Co-financing Operations | N/A | No | The program does not involve co-financing. | N/A |
| B.16 In-Country Systems | N/A | No | The program will not utilize In-Country Systems. | N/A |
| B.17 Procurement | Incorporate sustainable procurement into loan agreement, operating manual, and bidding documents. | Yes | There is the potential that sustainable procurement may not be incorporated into ESMPs. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIAs, ToRs for call for tenders, and contracts. |
| OP-704 Natural Disaster Risk Management Policy | | | | |
| Disaster Risk Assessment | Determination of disaster risk during Program preparation | Yes | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in |

| | | | | |
|--|--|------------------------------|--|--|
| | | | | order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| Disaster Risk Management Plan | Prevent and reduce vulnerability related to disaster risk | Yes | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| OP-710 Operational Policy on Involuntary Resettlement | | | | |
| Resettlement Minimization | Avoid or reduce resettlement to the maximum extent possible | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| Resettlement Plan Consultations | Consultation, availability of information, transparency, and participation of resettled populations in action plan | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Impoverishment Risk Analysis | Avoid impoverishment through resettlement to the greatest extent possible | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Resettlement Plan or Resettlement Framework (Prior to Analysis Mission/Board Approval) | Resettlement Plan or Resettlement Framework (Prior to Analysis Mission/Board Approval) | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Livelihood Restoration Program | Restore livelihoods of resettled populations to equal or better conditions | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |

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| Consent (Indigenous Peoples and other Rural Ethnic Minorities) | Obtain Free, Prior, and Informed Consent from Indigenous Peoples that are involuntarily resettled or economically displaced | Yes, more information needed. | No ESIA exists for any project to be financed through the operation. | |
| OP-765 Operational Policy on Indigenous Peoples | | | | |
| Sociocultural Evaluation | Identify potential affected indigenous peoples, lands, and resources and assess potential risks and impacts | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| Good-faith Negotiations | | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Agreement with Affected Indigenous Peoples | | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Indigenous Peoples Protection, Compensation, and Development Plan or Framework prior to Board Approval | Indigenous Peoples Protection, Compensation, and Development Plan or Framework prior to Board Approval | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Discrimination Issues Assessed and Addressed | | Yes, more information needed | No ESIA exists for any project to be financed through the operation. | |
| Transborder Impacts Addressed | N/A | No | The operation does not present any transborder impacts or risks. | N/A |
| Impacts on Isolated Indigenous Peoples Addressed | N/A | No | The operation does not present any impacts or risks to isolated indigenous peoples. | N/A |
| OP-761 Operational Policy on Gender Equality in Development | | | | |

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| Gender-based Exclusion Addressed | Introduce measures to prevent, avoid, or mitigate any adverse impacts and/or risks of gender-based exclusion identified in the project risk analysis. | Yes | No ESIA exists for any project to be financed through the operation. | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to preparation and assessment activities, including ESIA's. |
| Equal Access to Project Benefits/ Compensation Measures | Take care that conditions do not limit the access of women or men, as the case may be, to project participation and benefits. | Yes | No ESIA exists for any project to be financed through the operation. | |
| Uneven Impact Burden Addressed | Incorporate a gender analysis into its social impact and risk assessments. Where the analysis so indicates, include measures in a timely manner to prevent or mitigate these impacts in the risk management plans and monitor those measures. | Yes | No ESIA exists for any project to be financed through the operation. | |
| Disaggregation of Impact Data by Gender | Disaggregate project impacts and beneficiaries by sex (number and percentage) | Yes | No ESIA exists for any project to be financed through the operation. | |
| Consultation of Affected Women | In project-related consultations, seek the inclusion of the women and men affected in a | Yes | No ESIA exists for any project to be financed through the operation. | |

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| | gender-sensitive and socio-culturally appropriate manner. | | | |
| OP-102 Access to Information Policy | | | | |
| Disclosure of Environmental and Social Assessments Prior to Analysis Mission | Disclosure of Environmental and Social Assessments Prior to Analysis Mission | No | IDB policies do not require the disclosure of specific project ESIA's prior to Analysis Mission for Financial Intermediary operations | Incorporate the Protocol on Management of Geothermal Projects and process for hand-in-hand due diligence into the Operating Manual in order for IDB to grant its non-objection to due diligence and appraisal activities. |
| Disclosure of Final ESMP/ESMF, RP/RF, IPP/IPF before Board Approval | Disclosure of Final ESMP/ESMF, RP/RF, IPP/IPF before Board Approval | Yes | IDB policies do not require the disclosure of specific project ESMP/ESMF, RP/RF, IPP/IPF before IDB Board Approval. The ESMS of the operation (Protocol for Hand-in-Hand Due Diligence) will be disclosed on the IDB website prior to IDB Board Approval. | |
| Provisions for Disclosure of Environmental and Social Documents during Project Implementation | Disclosure of Environmental and Social Documents during Project Implementation | Yes | Environmental and social documents, including all specific project ESIA's, will be disclosed on the IDB website during Project Implementation, 120 days prior to CDB Board (Cat A) and 30 days prior to CDB Board (Cat B), as stated in the ESMS. | |

INDEX OF COMPLETED AND PROPOSED SECTOR WORK

| Area | Sudy/Technical Support | Description of works | Dates | References and electronic links |
|-----------------|--|---|-------------------|---|
| Knowledge | Unlocking Geothermal Power: How the Eastern Caribbean could be a Geothermal Powerhouse. | This document presents a strategy for developing geothermal potential through public-private partnerships (PPPs) in the Eastern Caribbean. The five countries of study are Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. It also presents the factors that enabled geothermal development in key geothermal markets, specifically Costa Rica, Nicaragua, El Salvador, the United States, Kenya, Iceland, and Guadeloupe. | 2017 | https://publications.iadb.org/handle/11319/8346 |
| Knowledge | Sustainable Energy in the Eastern Caribbean: Achieving an Unrealized Potential. | This paper focuses on how the Eastern Caribbean can achieve its unrealized potential to implement economically viable renewable energy and energy efficiency projects that displace fossil fuel-based electricity. | 2015 | https://publications.iadb.org/handle/11319/7967?locale-attribute=en |
| Knowledge | Study of Situation for Geothermal Energy Development; FINAL REPORT; April 2014; JICA, West Japan Engineering Consultants, Inc. | This study analyzes the situation of geothermal development in Dominica, St. Lucia, St. Vincent, and Grenada in order to identify challenges these countries face in developing geothermal resources. | 2014 | Not published. |
| Knowledge | Caribbean Regional Energy Integration Assessment: Scenarios and Opportunities | This study analyzes options for Caribbean countries, especially small ones that have not been able to benefit from cheaper fuel costs and other advantages of larger-scale markets, to address their energy problems through integration in the energy sector. | 2014 | Not published. |
| Knowledge | Strategy for Developing Geothermal Potential through Public-Private Partnerships in the Eastern Caribbean. | This document analyzes factors that enabled geothermal development in key geothermal markets, the potential for developing geothermal resources in the Eastern Caribbean, and proposes strategy for developing geothermal potential through Public-Private Partnerships (PPPs). | 2014 | Not published. |
| Bank Operations | Sustainable Energy Facility (SEF) for the Eastern Caribbean | The SEF, approved by the IDB in October, 2015, includes an array of financing mechanisms using resources from: (i) the ordinary capital of the Inter-American Development Bank (IDB) (US\$ 20 million); (ii) the Clean Technology Fund (CTF) (US\$ 19.05 million); (iii) the Global Environment facility (GEF) (US\$3.01 million); and (iv) the Caribbean Development Bank (CDB) (US\$ 29 million), to unlock investments in Sustainable Energy (SE) and mobilize private sector capital and expertise required for developing SE projects in the region. | Approved Oct 2015 | http://www.iadb.org/en/projects/project-description-title,1303.html?id=RG-L1071 |
| Bank Operations | The Sustainable Energy for the Eastern Caribbean Program (SEEC) led by the CDB which includes grant funding from the EU's Caribbean Infrastructure Fund (EU-CIF) and UK Department for International Development (DFID) (~ US\$ 10 million). | The SEEC programme is a four-year multi-donor trust facility. It will provide non reimbursable resources for energy efficiency and intermittent renewable energy for power generation in the Eastern Caribbean; geothermal energy is not considered in this operation. | 2015 | http://www.caribank.org/seec |
| Bank Operations | The regional technical cooperation Support for Cofinancing of Renewable Energy and Energy Efficiency (RG-T2480) | Support for Cofinancing of Renewable Energy and Energy Efficiency (RG-T2480) aims to reduce dependency on fossil fuels in Central America and the Caribbean regions; EC countries can benefit from this TC subject to existing Bank rules. | Approved May 2015 | http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=39609162 |
| Bank Operations | The 2012 IDB - CDB Global Loan Program for IDA-Eligible OECS Member Countries (RG-L1018, US\$ 20 million), which included SE as an eligible area. | The objective of the program is to contribute to accelerate the social and economic development of the four IDA-eligible OECS member countries This would be achieved via the financing of a Global Loan to the CDB, which would on-lend the funds for the financing of public sector projects in said eligible countries. | 2012 | http://www.iadb.org/en/projects/project-description-title,1303.html?id=RG-L1018 |

CONFIDENTIAL

¹ The information contained in this Annex is confidential and will not be disclosed. This is in accordance with the "Deliberative Information" exception referred to in paragraph 4.1 (g) of the Access to Information Policy (GN-1831-28) at the Inter-American Development Bank.