Board of Executive Directors
For consideration
On or after 11 December 2018

PR-4658
27 November 2018
Original: English
Public
Simultaneous Disclosure

To: The Executive Directors

From: The Secretary

Subject: Regional. Proposal for a loan, a nonreimbursable investment financing, and a nonreimbursable technical cooperation for the "Sustainable Energy Facility for the Eastern Caribbean Expanded (SEF-Expanded)"

Basic Information:

Operation type .... Global Credit Operation (GCR), Investment Grant Operation (IGR), and Technical Cooperation (TCP)

Borrower/Beneficiary.. Caribbean Development Bank

Loan
Amount .... up to US$60,000,000

Source .... Green Climate Fund (GCF)

Nonreimbursable Investment Financing
Amount .... up to US$20,000,000

Source .... Green Climate Fund (GCF)

Nonreimbursable Technical Cooperation
Amount .... up to US$5,900,000

Source .... Republic of Italy, through its Ministry for the Environment, Land and Sea

Inquiries to: Christiaan Gischler (extension 3411) or Camila González (extension 1218)

Remarks: The attached operation is being submitted according to the rules and procedures established pursuant to Resolution DE-103/14, approving the "Proposal to Modify the Procedures for Approval of Nonreimbursable Operations. Approved version" (document GN-2752-4).

The loan is included in Annex III of document GN-2915, "2018 Operational Program Report" or the respective update. However, the amount of the nonreimbursable investment financing exceeds the established ceiling.

Reference: GN-1838-3(6/18), DR-398-18(8/18), GN-2915(2/18), GN-2469-2(3/08), DE-44/08, GN-2470-2(3/08), DE-45/08, OP-219-3(5/13), GN-2752-4(8/14), DE-103/14, GN-2895(6/17), DE-31/17, SC-114(4/10), PR-4322(9/15), DE-97/15, DE-98/15, DE-99/15

PUBLIC
SIMULTANEOUS DISCLOSURE

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

REGIONAL

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

(RG-L1112)

AND

GREEN CLIMATE FUND (GCF) GRANT FOR THE SUSTAINABLE ENERGY FACILITY FOR THE EASTERN CARIBBEAN EXPANDED (SEF-EXPANDED)

(RG-G1013)

AND

REPUBLIC OF ITALY (REI) GRANT FOR THE SUSTAINABLE ENERGY FACILITY FOR THE EASTERN CARIBBEAN EXPANDED (SEF-EXPANDED)

(RG-T3170)

LOAN PROPOSAL

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CONTENTS

ANNEXES	
Annex I	Development Effectiveness Matrix (DEM) - Summary
Annex II	Results Framework
Annex III	Fiduciary Arrangements

ELECTRONIC LINKS

REQUIRED

1. Environmental and Social Management Report (ESMR)
2. Monitoring and Evaluation Plan (M&E Plan)

OPTIONAL

1. Technical Annex
2. Cost Benefit Analysis
3. Revised Indicative Pipeline
4. SEF Program Operating Manual (OM)
5. Regional Integration Technical Annex
6. Gender Annex
7. Challenges and Opportunities for the Energy Sector in the Eastern Caribbean
8. Unlocking Geothermal Power
9. Dominica (DOM) Energy Dossier
10. Grenada (GRE) Energy Dossier
11. Saint Kitts and Nevis (SKN) Energy Dossier
12. Saint Lucia (SL) Energy Dossier
13. Saint Vincent and the Grenadines (SVG) Energy Dossier
14. Donor Coordination Annex
15. Full Funding Proposal
16. Safeguard Policy Filter (SPF)

ABBREVIATIONS	
5ECC	Five Eastern Caribbean Countries
A&B	Antigua and Barbuda
AFS	Audited Financial Statements
AMA	Accreditation Master Agreement
BOD	Board of Executive Directors
CDB	Caribbean Development Bank
Cm	Centimeter
CRG	Contingent Recovery Grant
CTF	Clean Technology Fund
DOM	Dominica
EA	Executing Agency
ECC	Eastern Caribbean Countries
EE	Energy Efficiency
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
ESG	Environmental, Social and Governance
ESIA	Environmental and Social Impact Assessment
ESMR	Environmental and Social Management Report
FAA	Funded Activity Agreement
FI	Financial Intermediary
GCF	Green Climate Fund
GCL	Global Credit Loan
GDP	Gross Domestic Product
GE	Geothermal Energy
GEF	Global Environment Facility
GHG	Greenhouse Gas
GRE	Grenada
GSI	GeoSmart Initiative
IDB	Inter-American Development Bank
IMELS	Ministry for the Environment, Land and Sea
Km	Kilometer
kWh	Kilowatt hour
LCOE	Levelized Cost of Energy
M&E Plan	Monitoring & Evaluation Plan
MW	Mega Watt
NDA	National Designated Agency
OC	Ordinary Capital
OM	Operating Manual
OSF	Other Special Funds
PCR	Project Completion Report
PMR	Project Monitoring Report
PPA	Power Purchase Agreements
PPP	Public Private Partnerships
PUP	Public Utilities Policy
RE	Renewable Energy

ABBREVIATIONS	
REI	Republic of Italy
SAPR	Semi-Annual Progress Reports
SEF	Sustainable Energy Facility
SEF-2015	Sustainable Energy Facility for the Eastern Caribbean
SEF-Expanded	Sustainable Energy Facility (SEF) Expanded
SFR	Special Funds Resources
SKN	Saint Kitts and Nevis
SL	Saint Lucia
SPF	Safeguard Policy Filter
SSF	Safeguard Screening Form
SVG	Saint Vincent and the Grenadines
SVGCL	Saint Vincent Geothermal Company Limited
TC	Technical Cooperation
tCO_2e	Ton of Carbon Dioxide equivalent
US$	United States Dollars
WB	World Bank

PROJECT SUMMARY

REGIONAL

SUSTAINABLE ENERGY FACILITY FOR THE EASTERN CARIBBEAN EXPANDED (SEF-EXPANDED) (RG-L1112; RG-G1013; AND RG-T3170)

Financial Terms and Conditions						
Borrower/Beneficiary: Caribbean Development Bank (CDB)				**GCF (loan)**[a]	**GCF (grant)**	**Italy (grant)**
			Amortization Period:	20 years	N/A	N/A
Executing Agency: CDB			**Disbursement Period:**	5 years	8 years	5 years
			Grace Period:	5.5 years	N/A	N/A
Sources	**Amount (US$ millions)**	**%**	**Interest type:**	Fixed	N/A	N/A
IDB (Green Climate Fund GCF) [d] **(RG-L1112) (loan):**	60.00	69.8	**Interest rate:**	0.75%	N/A	N/A
			Service Fee:	0.50%[b]	N/A	N/A
IDB (GCF) (RG-G1013) (grant):	20.00	23.3	**Commitment Fee:**	0.50%[c]	N/A	N/A
IDB (Republic of Italy-REI) [e] **(RG-T3170)** [f] **(grant):**	5.90	6.9	**Currency of Approval:**	United States Dollars (US$)		Euros (EUR)
Total:	85.90	100.0				

Project at a Glance

Project Objective/Description: the objective of the SEF-Expanded is to reduce the financial, technical and institutional barriers which Geothermal Energy (GE) development encounters in the Five Eastern Caribbean Countries (5ECC),[g] and to provide institutional strengthening and capacity building to the governments of the 5ECC and to the CDB for GE development.

Special Contractual Clauses prior to the first disbursement of the financing: the Borrower/Beneficiary shall present evidence that the Operating Manual (OM) of the Sustainable Energy Facility for the Eastern Caribbean (SEF-2015) has been updated, including new sub-loan/sub-grant model agreements, and the operating guidelines for the proper fulfillment of the obligations of the Bank with the donors, in accordance with the terms and conditions agreed upon between the CDB and the Bank (¶3.4).

Special Contractual Clauses of Execution: prior to the first disbursement of each sub-loan or sub-grant financed as Contingent Recovery Grant (CRG), the Borrower/Beneficiary shall submit to the Bank: (i) a final draft appraisal report prepared by the Borrower/Beneficiary, in terms satisfactory to the Bank, as further detailed in the OM; (ii) copy of the signed sub-loan/sub-grant agreement between the Borrower/Beneficiary and the developer for the sub-project; (iii) in the case of a developer established under a Public-Private Partnership (PPP), evidence that the sub-project complies with the requirement of at least 25% of equity contributions towards the total cost of the sub-project; and (iv) evidence that the sub-project complies with the eligibility criteria set forth in the OM (¶3.5).

For other special contractual clauses of execution see Annex B of the Environmental and Social Management Report (ESMR).

Exceptions to Bank Policies: an exception to Bank's current procurement policies set forth in documents GN-2349-9 and GN-2350-9 is requested for approval by the Board of Executive Directors (BOD) so that works, goods 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 or administered by the Bank (¶3.7).

Strategic Alignment						
Challenges[h]:	SI	☐	PI	☑	EI	☑
Cross-Cutting Themes[i]:	GD	☑	CC	☑	IC	☑

[a] Repayment will be done in 30 installments, commencing on the 1st interest payment date following the fifth anniversary of the effectiveness of the loan agreement. Amortization payments, commitment and service fees will be made semi-annually at the same date as interest payments.

[b] The service fee established by the GCF is set to cover the GCF's administration and mobilization costs. The service fee is payable on the outstanding principal amount of the loan remaining unpaid by the CDB.

[c] The commitment fee shall be calculated over the amount of the loan not yet disbursed to CDB.

[d] The GCF's Board at its meeting on October 14th, 2016 approved a funding proposal to provide resources to be used for the financing of this program. Resources from the GCF will be used in accordance with the provisions set forth in the Accreditation Master Agreement (AMA) entered between the GCF and the IDB on August 29th, 2017 and effective on March 30th, 2018, pursuant to Resolution DE-31/17 (document GN-2895), and those set forth in the Funded Activity Agreement (FAA) for this program, which will be entered into between the GCF and the Bank subject to the Loan Proposal's approval by the IDB's BOD. GCF resources for the program will be available once the FAA has been signed and entered into effect.

[e] Through its Ministry for the Environment, Land and Sea (IMELS).

[f] Non-reimbursable resources provided by the REI through its IMELS and administered by the IDB through a Project Specific Grant according to Document SC-114 and the Administration Agreement signed between IDB and IMELS on November 29th, 2017. Under such administrative agreement, the resources provided by the donor will be administered by the Bank and the Bank will charge an administrative fee according to the Bank's current policy on administration of fees from donor contributions to trust funds and project specific grants. In this case, the administrative fee to be distributed to the Bank's offices supporting the operation execution to cover the costs associated with the administration and execution of the contribution from Italy. The total grant contribution from IMELS amounts to EUR5,000,000 (equivalent to US$5,902,281 at an exchange rate of 1.18 US$/EUR from December 13th, 2017). The amount available for the SEF-Expanded is US$5,607,167, which is the total contribution net of a 5% administration fee (US$295,114).

[g] Dominica (DOM), Grenada (GRE), Saint Kitts and Nevis (SKN), Saint Lucia (SL) and Saint Vincent and the Grenadines (SVG).

[h] SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

[i] GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, Problem Addressed, and Justification

1.1 **Context for this Operation.** The SEF-Expanded for the Eastern Caribbean operation, is a complement to the Sustainable Energy Facility for the Eastern Caribbean (SEF-2015) approved by the Inter-American Development Bank (IDB) in October 2015. Together, the SEF Expanded (US$85.6 million) and the SEF 2015 (US$71.5 million), comprise the SEF Program (US$157.1 million).

1.2 **Problem Addressed.** The independent Five Eastern Caribbean Countries (5ECC)[1] with Geothermal Energy (GE) potential, namely: Dominica (DOM), Grenada (GRE), Saint Kitts and Nevis (SKN), Saint Lucia (SL), and Saint Vincent and the Grenadines (SVG) are small island developing states located in the Eastern Caribbean region. The small and isolated systems that comprises the energy sectors in the 5ECC do not have the necessary scale to import lower cost fossil fuels, such as natural gas, and have not yet fully developed their Renewable Energy (RE) endowments. As a result, the energy matrices in the 5ECC are mainly dependent on imported fossil fuels, leading to high cost and volatile electricity prices for consumers.

1.3 The dependence of the energy matrix on volatile and imported fossil fuels contributes to the high electricity tariffs. Electricity tariffs in the 5ECC are among the highest in the world. In 2013, the average electricity tariff was US$0.39 per Kilowatt hour (kWh)[2] (with lower oil prices averaging US$50/barrel the tariff is estimated at US$0.27/kWh). By comparison, the 5ECC's average electricity tariff is four times higher than in Florida's State in the United States of America and about three times higher than an average electricity tariff in Central America. Because electricity tariffs in the 5ECC are indexed to fuel prices or include a fuel surcharge with a direct pass through to end consumers, customers of the electric utility companies are exposed to fluctuations in international oil prices and often subject to high and unpredictable electricity monthly bills. In 2014, the fuel cost represented 53% of the total cost to end users.

1.4 High dependence on imported petroleum products places a heavy burden on the 5ECC economies. High electricity prices hinder economic growth, are disproportionately burdensome to the poor and cause excessively high energy bills for the public sector. Therefore, public resources that could be used to provide more social services are diminished. Oil imports as a percentage of Gross Domestic Product (GDP) exceed 7% (see Table 1). Limited borrowing capacity, with Debt-to-GDP ratios averaging 83.9%, limits governments ability to invest in

[1] These countries are members of the Caribbean Development Bank (CDB), but not of the IDB. While the AMA between the GCF and the IDB includes references to the use of GCF resources in IDB's borrowing member countries (¶6.10), the agreement establishing the IDB 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) and the GCF BOD approved this operation, including the element of on-lending to CDB member countries which are not IDB borrowing member countries, taking into account such provision of the IDB Charter.

[2] Castalia (2014). Caribbean Regional Energy Integration Assessment: Scenarios and Opportunities. Report to IDB.

RE thus perpetuating dependence on imported fossil fuels and its tightening effect on fiscal space. Moreover, tourism, on which many Caribbean countries rely heavily,[3] is particularly exposed to spillovers from oil price shocks that lower tourism revenues.

Table 1: Key Information on the Energy Sector in the 5ECC

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)	87.70
GRE	0.40	0.26	10% (2012)	101.1 (2012	89.20
SL	0.37	0.24	9% (2011)	116 (2011)	81.10
St. Kitts	0.35	0.27	9% (2010)	22.6 (2010)	67.20
Nevis	0.37	N/A			
SVG	0.36	0.30 (2015)	11% (2011)	91 (2011)	85.00

1.5 The decline in oil prices since 2014 alleviated to some extent the pressure that high electricity tariffs can place on the economies. However, tariffs remain higher than the Latin American average and susceptible to the volatility of oil prices in the global market. Therefore, ECC's governments continue to demonstrate strong commitment to pursuing RE and keep pushing forward to achieve their national determined contributions commitments and the regional sustainable energy targets adopted by the Caribbean community member countries. For the 5ECC, GE could go a long way towards realizing these targets. GE has the largest potential for displacing fossil fuels in the region (¶1.8). All 5ECC are known to have significant geothermal potential[4] that could dramatically reduce their dependence on imported fossil fuels thus providing long-term energy security and shielding these economies from oil price volatility and shocks. A summary of the results of feasibility studies and project design studies for each of the 5ECC is presented in the Technical Annex.

1.6 **Power Sector Overview.** All countries, except for SKN, have a vertically integrated electricity utility, responsible for generation, transmission, and distribution. In SKN, two vertically integrated electricity utilities exist; one is responsible for generation, transmission, and distribution of electricity on St Kitts and another on Nevis. The electric utilities in DOM, GRE, and SL are privately owned while utilities in SVG and SKN are entirely state owned (see Table 2). For a detailed energy sector overview of each of the 5ECC see the Energy Dossiers for DOM, GRE, SKN, SL, and SVG.

3 On average tourism-related GDP represents 40% of total GDP and more than 50% of Tourism Sector costs are related to energy use.

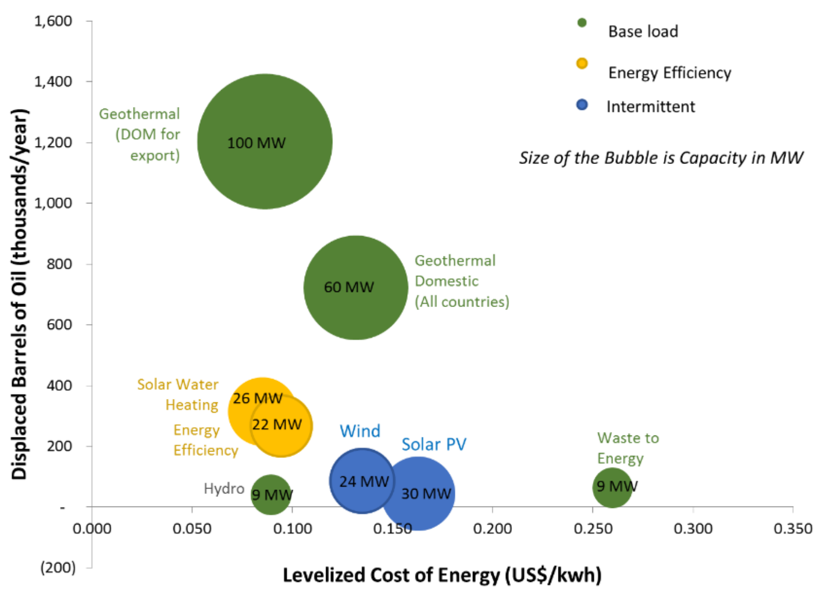
4 GE potential is manly given by natural thermal activity, thermal water springs, and active or non-active volcanic activity. All ECC except for A&B have shown thermal activity of some kind which was later confirmed with surface studies indicating potential to develop GE.

Table 2: Electric Utilities in the 5ECC

Country / Island	Utility	Government Ownership (%)	Peak/ Baseload Demand[1](MW)	Installed Generation Capacity (MW)	Generation Capacity from RE (%)	Average Fuel Cost (US$/kWh sold) (2013)
DOM	DOMLEC	21	16.8/8	26.7	25%	0.18
GRE	GRENLEC	21.6	29.2/15	48.6	1%	0.22
SL	LUCELEC	45.4	59.7/30	86.2	0%	0.22
St. Kitts	SKELEC	100	24.0/12	43.0	0.05%	N/A
Nevis	NEVLEC	100	9.3/4.5	13.9	20%	N/A
SVG	VINLEC	100	25.7/13	51.4	10%	0.20

1.7 **Rationale for an Emphasis on GE.** Figure 1 compares GE with other technologies that can be developed to realize the region's sustainable energy potential. Vertical axis shows the number of barrels of oil that each technology would displace while the horizontal axis shows their all-in cost or Levelized Cost of Energy (LCOE). Bubble size shows the potential of the technology in terms of Mega Watt (MW) of potential installed capacity and the color indicates whether the technology is Energy efficiency (EE), baseload or intermittent. As shown, GE, a baseload energy with more than 90% capacity factor, offers the lowest LCOE (around US$0.10/kWh), the largest potential displacement of oil barrels (more than 2 million barrels), the largest estimated installed capacity potential (over 160 MW), and the possibility, in some cases, of exporting power to neighboring islands via undersea cables.[5,6] Furthermore, GE provides ancillary services to support the electricity system, which are not provided by other non-conventional RE.

Figure 1: Key RE and Energy Efficiency (EE) Alternatives for the 5ECC

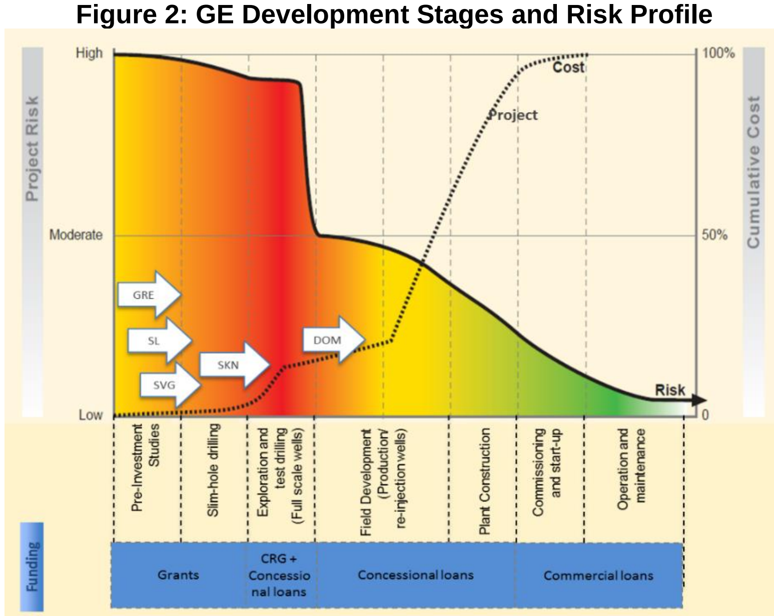


5 Nevis could be connected to St Kitts, DOM to Guadeloupe, and DOM to Martinique with a 5 Kilometer (km), 70 km and 100 km undersea cable, respectively.

6 For further details on GE potential and other technologies in the ECC refer to Challenges and Opportunities for the Energy Sector in the Eastern Caribbean: Achieving an Unrealized Potential.

1.8 **GE Technology Challenges.** Geothermal main challenges are that it is capital intensive and its risk profile is front-loaded as there is high uncertainty regarding the viability of the resource and whether it can sustain a commercial power plant. Typically, a geothermal project can take from five to ten years to be developed and undergoes the following stages: (i) pre-investment studies: studies are conducted to start identifying potential sites for exploration; studies include the analysis of existing literature and data, as well as geologic, geophysics and geochemistry studies (analyses commonly known as 3G's); (ii) drilling phase: once potential sites for exploration are selected, the developer starts drilling wells to confirm the existence of a geothermal resource, its exact location and its ability to support a geothermal plant of a certain capacity. A drilling program can include drilling slim-hole[7] and/or full-scale[8] exploratory wells; (iii) field development: with the results of the drilling program the developer can complete project design and move ahead with drilling the production and re-injection[9] wells required to meet the capacity of the plant as designed; (iv) plant construction: the power plant is built including the installation of the steam gathering system to connect and move the steam from the production wells to the plant and the geothermal fluids from the plant back to the re-injection wells; (v) commissioning and start-up: during this stage the plant starts operating and tests are done to certify the plant is delivered according to specifications; and (vi) operation and maintenance: after plant completion has been deemed satisfactory, the plant, as well as the steam field will be operated and maintained on an ongoing basis. Figure 2 shows the different stages in GE development as briefly described above, and the cost and risk associated to each stage.

Figure 2: GE Development Stages and Risk Profile



Source: Energy Sector Management Assistance Program (2012) with author's changes

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7 Slim-hole wells are holes with a diameter that is no wider than 15 Centimeters (cm) that require a smaller drilling equipment than larger diameter wells do and; therefore, are generally less costly to drill.

8 Full-scale exploratory wells are 20cm or more in diameter and require mobilizing heavy drilling equipment.

9 Re-injection wells return the geothermal fluids to the reservoir after having been used to generate power. This allows the fluids to be reheated in the reservoir and maintains reservoir pressure.

1.9 The risk profile of geothermal projects makes bankability of the exploratory stage of GE projects extremely difficult. Costly investments in drilling and testing of exploratory wells are required, amid high uncertainty, to prove the capacity of the geothermal resource to support the construction and operation of a power generation plant at a viable electricity cost. Most private investors are either not willing to assume the resource risk associated with exploratory drilling or, if they are, they place a high premium on their equity contributions due to the risks involved. Public Sector participation in funding the exploration stages directly and/or by mobilizing multilateral grant and concessionary debt financing in support of GE development can contribute de-risking projects and mobilizing private sector investments.

1.10 **Regulatory Challenges for GE.** The 5ECC have taken steps to improve their governance frameworks to promote the adoption of RE, but further work and changes are required for the successful implementation of RE in general and GE specifically. Most of the countries lack laws and regulations governing the exploration and development of geothermal resources. DOM, Nevis, and SVG have passed legislation that defines what a geothermal resource is and who owns it and sets out the process for assigning rights to explore and exploit it. The other countries are working to prepare geothermal resource development bills, which are currently at different stages.

1.11 **GE Development through Public Private Partnerships (PPP).** GE development is new to the region and institutional capacity is insufficient for public institutions to undertake complex infrastructure projects that call for collaboration between public and private actors, ideally through PPP arrangements. As shown in Table 3, the estimated investment requirements to develop GE in the 5ECC exceed US$600 million. Governments in the 5ECC already highly indebted (¶1.20) and lack the specialized knowledge, expertise, and experience required to develop this energy source. Hence, PPP would allow governments participation in an ownership of a strategic asset without having to bear the entire financial burden associated with financing required investments. This is also a reason for including a component for institutional capacity strengthening.

Table 3: Investments Required for GE Development by Stage in the 5ECC

Country/ Island	Stage									Cost Trans-mission & Distribu-tion $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	-	done	-	done	7.00	15.00	30.00	15.00	**67.00**
SVG	done	skip	-	2	14.00	3	21.00	15.00	30.00	16.30	**96.30**
GRE	done	2	6.00	2	14.00	3	21.00	15.00	30.00	16.30	**102.30**
SL	done	2	6.00	2	14.00	6	42.00	25.00	56.00	16.30	**159.30**
Nevis	done	done	-	2	14.00	3	21.00	15.00	30.00	12.10	**92.10**
St. Kitts	done	2	4.00	2	14.00	3	21.00	15.00	30.00	16.30	**100.30**
Total		**6**	**16.00**	**10**	**70.00**	**18**	**133.00**	**100.00**	**206.00**	**92.30**	**617.30**

1.12 To successfully tap their GE endowments, governments in the 5ECC must strengthen their capacity to deploy infrastructure projects mobilizing private investment. Government entities responsible for energy matters are under-staffed and lack the capacity to effectively deal with private developers. Utility companies are also relatively small and lack experience negotiating contracts for the supply of energy that can represent up to 60% of baseload generation. Also, except for DOM, there are no national energy regulators which slows the process for developing policy and regulation. Therefore, countries face the challenge to negotiate with private sector developers in the absence of an overarching and complete policy and regulatory framework, and within a capacity and resources imbalance vis-a-vis their private counterparts. Additionally, the SEF Program is a complex operation involving multiple donors, different financial instruments, support for different energy technologies, and for structuring PPP arrangements for which there is limited track record in the region. Consequently, the SEF-2015 included support for strengthening CDB's execution capacity. Experience executing SEF-2015 underscores the need to strengthen local institutional capacity to keep pace with private-sector-led GE projects and to continue to build up CDB's capacity to structure and finance PPP arrangements and execute geothermal operations.

1.13 **Proposed Intervention.** The SEF-Expanded aims to help de-risk GE projects 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. Therefore, a line of credit to the CDB will include resources from different donors which the CDB will make available on-demand to meet the 5ECCs financing needs for unlocking geothermal development. Among SEF Program's financial instruments, the Contingent Recovery Grant (CRG) allows for shifting some of the project developer's risks away. Initially provided as a grant to fund drilling activities, the CRG will convert to a loan if geothermal resources are proven in adequate quantities and quality to support the construction and operation of a GE plant.[10] International experience shows that risk mitigation instruments and concessional financing can facilitate the early exploration stages and successfully installing a power plant while reducing electricity tariffs for end users.[11] Once the geothermal resource is proven, in quantity and quality, GE projects are more likely to access appropriately priced financing. The high risk associated with exploration is significantly reduced, increasing attractiveness to private investors. Also, considering the limited experience of 5ECC governments and CDB structuring and financing PPP arrangements, Component 2 of SEF-2015 and now Component 2 of SEF-Expanded will provide institutional strengthening support for the 5ECC governments and the CDB through the transfer of technical expertise to develop local competencies as well as the availability of specific training and advisory services as required by the CDB and the governments to deploy GE. Each of the 5ECC is expected to develop its own GE potential and geothermal generation plant. DOM, GRE, SKN, and SVG are each expected to develop 10 Mega Watt (MW) plants and SL a 20 MW plant. Each of these projects is at a different stage of development. Details on the progress shown by each of the GE projects are presented in the Technical Annex.

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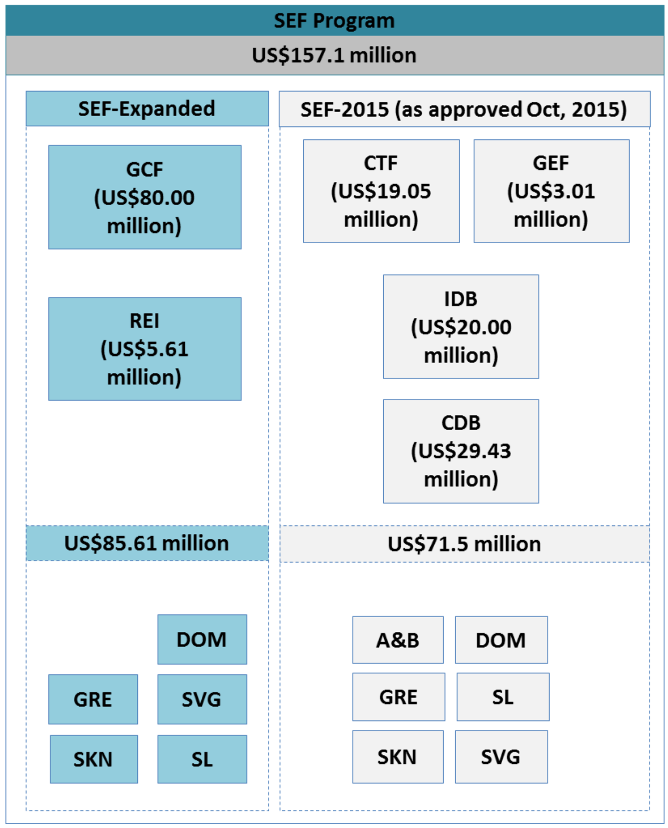
[10] The OM of the program will define the criteria for determining successful and unsuccessful drilling as well as the percentage of investment required from the Private Sector sponsors.

[11] IDB (2017). Unlocking Geothermal Power: How the Eastern Caribbean Could Become a Geothermal Powerhouse. Technical Note No. IBD-TN-1256.

1.14 **Sustainable Energy Facility (SEF) Program.** The SEF-Expanded complements the SEF-2015 by increasing the funds available for GE development in 5ECC with resources from the Green Climate Fund (GCF). The SEF-Expanded also includes co-financing resources from the Republic of Italy (REI) mainly for pre-feasibility studies to determine potential sites for exploratory drilling. Figure 3 below shows how SEF-Expanded resources add to the total pool of resources available under SEF-2015 enabling SEF Program to provide: (i) a larger share[12] of the investment needs for GE development in the region; and (ii) more risk mitigation instruments for GE projects, unlocking private investment.

Figure 3: SEF Program Resources (SEF-2015 & SEF-Expanded)



1.15 Resources approved under SEF-2015 total US$71.5 million, including: (i) loans from IDB's Ordinary Capital (OC) (US$20 million); (ii) CRG[13] from the Clean Technology Fund (CTF) (US$19.05 million); (iii) grants from the Global Environment Facility (GEF) (US$3.01 million); and (iv) local counterpart resources from the Caribbean Development Bank (CDB) (US$29.43 million). SEF-Expanded provides additional resources, as follows: (i) loans from GCF (US$60 million); (ii) grants from GCF (US$20 million); and (iii) grants from the REI (US$5.60 million).[14] While SEF-2015 resources are available for six ECC

[12] While the SEF-2015 represented approximately 11% of total estimated GE investment needs, this percentage increases to 25% for the SEF Program after the injection of SEF-Expanded resources.

[13] CRG are grants that CDB can offer to the GE developer for exploratory drilling, which will be converted into a loan in case the exploration is successful, but don't have to be repaid if exploration fails.

[14] Amount equivalent to €4.75 million at an exchange rate of US$1.18 per Euros (EUR) as of December 13th, 2017, which is the total net contribution, after deducting the 5% administration fee. The contribution from the REI has been received in EUR and immediately converted into US$ to be executed/disbursed in US$.

(the 5ECC plus A&B) to support EE and RE broadly, SEF--Expanded resources are available only for GE development and hence, only the 5ECC can access this funding.

1.16 Since the preparation of the SEF-2015, an indicative project pipeline was developed including EE, intermittent RE, and GE projects identified by CDB and IDB and expected to apply for program funding during the eight years of SEF-2015 execution (2016-2023). Due to the program's on-demand nature, this pipeline is periodically reviewed by CDB and IDB to reflect the latest market developments in the 5ECC, the progress in program execution, and any additional resources mobilized either by CDB or IDB in support of program objectives. The most recent update was done in May 2018 and includes an indicative allocation of SEF--Expanded resources to be added to the program's pool of resources (see Revised Indicative Pipeline).

1.17 **SEF-2015 Progress.** Since reaching eligibility in April 2016, the SEF-2015 has committed 53% of program resources.[15] As of May 2018, CDB had approved nine funding operations with SEF-2015 resources: (i) four EE operations totaling US$18.56 million in A&B, GRE, SKN and SVG; (ii) two GEF-funded capacity building grants to SVG and GRE in amounts of US$0.161 million and US$0.571 million, respectively; (iii) a US$9.5 million CRG for GE exploration in SVG; (iv) a GEF-funded grant of US$1.08 million for A&B to install solar Photovoltaic Systems in health and education facilities; and (v) an IDB-funded loan for power grid reconstruction in DOM,[16] due to the damage caused by Hurricane Maria in September 2017. As shown in Table 4, a total of US$38.04 million in loans and grants have been approved by CDB. Additional CDB counterpart resources funded by grants from other donors in the amount of £4 million (pounds sterling)[17] have been committed for slim-hole drilling in SVG, £8.5 million in DOM for plant development and £3.5 million in SL for production drilling (not included in the table below).

Table 4: SEF-2015 Allocated vs. Committed Resources as of May 2018 (US$ millions)

	SEF-2015: Current Indicative Allocation versus Commitments (as of May 2018)									
	IDB		CTF		GEF		CDB		Total	
Country	Alloc.*	Com.**	Alloc.*	Com.**	Alloc.*	Com.**	Alloc.*	Com.**	Alloc.*	Com.**
A&B	-	-	-	-	1.08	1.08	7.19	6.99	8.27	8.07
DOM	8.17	8.17	-	-	-	-	4.57	-	12.74	8.17
GRE	3.29	-	-	-	0.84	0.57	5.38	0.12	9.52	0.69
SKN	1.20	-	3.55	-	-	-	6.47	6.27	11.22	6.27
SL	-	-	-	-	-	-	0.20	-	0.20	-
SVG	7.34	-	15.50	9.50	0.93	0.16	5.38	5.18	29.15	14.84
All ECC	**20.00**	**8.17**	**19.05**	**9.50**	**2.85**	**1.81**	**29.20**	**18.56**	**71.10**	**38.04**
Project Mgmt/Eval	-	-	-	-	0.16	-	0.24	-	0.40	-
Total SEF	**20.00**	**8.17**	**19.05**	**9.50**	**3.01**	**1.81**	**29.44**	**18.56**	**71.50**	**38.04**
% Com./Av.	**41%**		**50%**		**60%**		**63%**		**53%**	

* Total resources allocated under the SEF (updated as of May 2018).
** Total resources committed by the CDB (updated as of May 2018).
Does not include DFID.

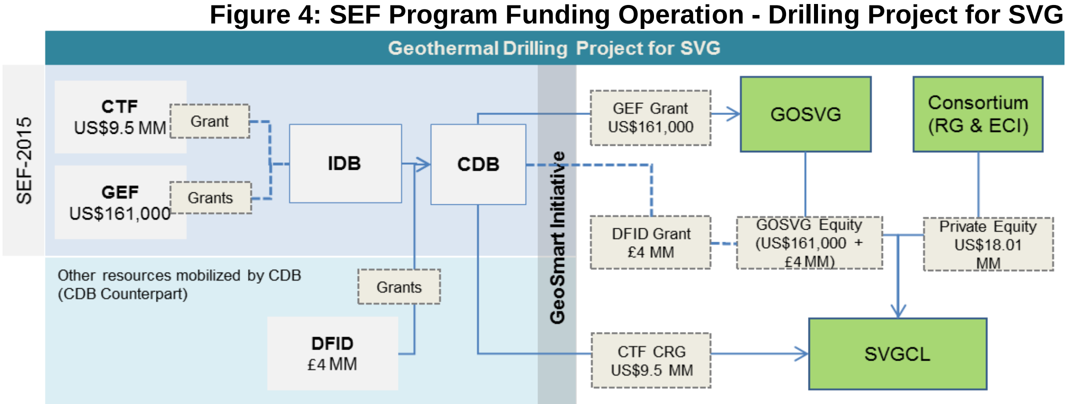
15 Resource commitments entail the approval by CDB's Board of funding operations.

16 Repair of the distribution infrastructure in DOM, as required to restore the system's ability to integrate power from an upcoming geothermal project which is already in planning stage for plant construction, is eligible under the SEF-2015.

17 £4 million equivalent to US$5.6 million at an exchange rate of 0.71 £/US$.

1.18 The first GE sub-project funded by CDB using a combination of SEF-2015 resources was a Geothermal Drilling Project for SVG approved on May 16th, 2016. In this operation, CDB bundled grants and CRG to enhance of Saint Vincent Geothermal Company Limited (SVGCL)[18] capability to make an evidenced-based determination of the viability of the geothermal resource in the La Soufriere region. The operation comprised: (i) grant funding provided by the United Kingdom Department for International Development in the amount of £4 million which will be used by the government of SVG to contribute to SVGCL equity; (ii) US$161,000 allocated from GEF resources to assist the government in financing consultancy services of a community liaison officer for the project; and (iii) a CRG to SVGCL of US$9,500,000, allocated from CTF resources to finance drilling services for the exploratory drilling program mitigating exploration risk. Figure 4 below shows how the three sources of funding were combined by CDB and made available to SVGCL for financing the drilling program in SVG.

Figure 4: SEF Program Funding Operation - Drilling Project for SVG



1.19 Once the existence of a geothermal resource and its suitability to support a power plant is independently certified, the next step for funding this sub-project will be triggered. The CRG will convert to a loan repayable over a period of up to 12 years, following a grace period of two years which covers the construction phase of the geothermal plant. Simultaneously, SVGCL is expected to apply to CDB for support for the construction of the plant. Loans from IDB and GCF through the SEF Program will be used for this purpose at that stage. In SKN and GRE, CDB is in a dialogue with the stakeholders to support both governments in exploratory drilling, while in DOM, conversations have taken place to analyze the potential funding of a transmission line to bring geothermal power to end users.

1.20 **Lessons Learned.** The main lessons learned from execution of the SEF-2015 are: (i) ECC governments, which must enter in a complex Power Purchase Agreement (PPA) negotiations with private sector developers, require timely support to enable fair and effective negotiations and outcomes. Considering this, the SEF-Expanded includes under Component 2 (¶1.33), resources which can be executed directly by CDB to provide the support 5ECC governments need to negotiate and partner with the private sector; (ii) SEF Program resources should be complemented by resources provided by other donors and programs in a way that maximizes the

[18] SVGCL is a special purpose vehicle formed by the Government of SVG, Emera Caribbean and Reykjavik Geothermal.

value for beneficiaries. That is, by using the most concessional resources at early stages to overcome the exploration risks and to facilitate the 5ECC governments' coordination of GE projects and engagement with the private sector developers; and (iii) it is important for CDB to continue to bolster its capacity to implement the program as it has done since the inception of the SEF-2015 by retaining an expert consulting firm to provide support in GE project appraisal. Moving forward, and with the SEF-Expanded resources coming online, CDB will continue to strengthen its capacity by retaining consulting firms to provide specialized advisory services to 5ECC governments in support of GE development.

1.21 **GeoSmart Initiative (GSI).** CDB is coordinating its efforts to mobilize resources from different donors to support GE development under an umbrella concept denominated GSI. Initial funding for GSI came through SEF-2015 and will be complemented by the SEF-Expanded. However, since 2015 CDB has mobilized additional resources for geothermal development in the 5ECC using GSI is a branding vehicle and coordination mechanism by which CDB engages with beneficiaries and with other donors. To complement resources provided by IDB through the SEF Program, CDB will continue to mobilize additional resources under GSI by seeking financing from various donors, funds and bilateral facilities.

1.22 **Coordination and Leveraging Effect with Other Donors.** Both, IDB and CDB, have played an instrumental role in engaging different donors that can support the region's GE development. The SEF Program has the potential to leverage a total of at least US$7.8 per dollar of IDB's OC resources. Efforts are ongoing to continue to mobilize resources from other donors as required, as well as to coordinate with other donors which are already engaged in the region's efforts with GE. The Donor Coordination Annex presents the main actors engaged in GE in the 5ECC and the way the SEF Program is coordinating with them. For instance, the package of funding approved by CDB for the GE project in SVG is complementary to a US$15 million loan from the International RE Agency and the Abu Dhabi Fund for Development for which the country had already been declared eligible. Similarly, as CDB engages DOM and SL, both countries that have been receiving Technical Cooperation (TC) support from the World Bank (WB) to develop their GE potential, CDB will be looking for ways in which GSI can complement efforts already underway.

1.23 **CDB as a Borrower of IDB's Resources.** On January 27th, 1977, the IDB Charter was amended to allow the IDB to provide financial resources to the CDB to support the development of its members.[19] On September 28th, 1977, the IDB and the CDB entered an agreement setting forth the general standards applicable to operating relations between both institutions. Since then, the IDB has financed six global loans[20] to the CDB totaling US$134 million where resources were on lent by the CDB to projects in the ECC.

1.24 The proposed financing to the CDB complies with all three criteria (compatibility, complementarity, and additionality) as set forth in the Bank's Operational Policies and Strategies Manual (OP-601: Relationship with Sub-Regional Financial

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19 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.

20 The SEF-2015 (3561/OC-RG), currently in execution, is the last of these operations that has been approved.

Institutions - General Policy). Regarding compatibility, a review of CDB policies and operational practices shows that CDB policies and strategies are consistent with those of the Bank's, predicated on consistent principles. While the CDB does not have an equivalent Public Utilities Policy (PUP) (GN-2716-4), this operation is in compliance with the principles of IDB's Public Utilities Policy (PUP) (GN-2716-4) as: (i) each sub-project will be financially sustainable as it will generate, though the electricity tariff charged to final users, sufficient funds to meet the financial commitments and the operational and maintenance costs of the systems related to the operation; and (ii) each project will achieve environmental and social sustainability as a result of a thorough due diligence process on all geothermal sub-projects (¶2.9) (See Analysis of Compliance with the PUP). Compliance with the Bank's PUP will be documented for each sub-project following the rules and procedures established in the program Operating Manual (OM). Regarding complementarity between CDB and IDB, since the Bank cannot lend directly to the ECC (not member countries of the Bank), the CDB provides the channel for Bank assistance to support the social and economic development of these countries. Finally, regarding additionality, this loan has a multiplier effect with regards to financial resource flow to the sub-region and will increase the level of resources that the CDB could provide to the beneficiary countries.

1.25 **The GCF.** The GCF was established at the United Nations Framework Convention on Climate Change Conference of the Parties 16 held in Cancun in 2010 as an international fund created to support low-emission and climate-resilient investments in developing countries. The mandate of the GCF is to make a significant and ambitious contribution to combat climate change by promoting a paradigm shift towards low-emission and climate-resilient development pathways. The GCF has established a results management framework, which includes eight strategic impacts to be achieved at the GCF level – four in mitigation and four in adaptation. The mitigation strategic impacts of the GCF are intended to reduce emissions from energy generation and access; transport; forest and land use; as well as buildings, cities, industries and appliances.

1.26 **GCF's BOD Approval of the SEF-Expanded.** IDB's Full Funding Proposal for the SEF-Expanded was circulated for consideration by the GCF's BOD in September 2016.[21] Prior to that, and in line with the GCF's no-objection procedure,[22] IDB obtained, through the CDB, a no-objection from the National Designated Agency (NDA) of each of the 5ECC. With GCF Board's approval granted in October 2016, and as per GCF project cycle, IDB now must prepare and seek internal approval of the proposal, in accordance with its own policies and procedures, and the considerations and requirements set forth in the investment framework and results

[21] As per the GCF project cycle, voluntary concept notes may be submitted to the GCF Secretariat for feedback and recommendations prior to the submission of a full funding proposal. IDB submitted its Concept Note to the GCF Secretariat in July 2015. The GCF Secretariat carried out due diligence and verified the proposal's: (i) compliance with GCF's interim environmental and social safeguards, gender policy and financial policies; and (ii) performance against the criteria for project and program funding. Additionally, the Technical Advisory Panel independently assessed the proposal's performance against activity-specific criteria.

[22] An accredited entity may submit a proposal to GCF only in conjunction with a no-objection letter signed by the official representative of the NDA or the beneficiary country's focal point (including the case of multi-country proposals).

management framework of the GCF.[23] Upon IDB's proposal approval, the individual Funded Activity Agreement (FAA) between the GCF and IDB (contribution agreement) will be finalized and signed. As provided in the AMA between the GCF and the Bank,[24] a FAA will be signed between the Bank and the GCF for purposes of establishing the terms and conditions applicable to the funding provided by GCF for this specific program.[25]

1.27 **Strategic Alignment.** All sub-projects 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 borrowers and to IDB's institutional priorities as outlined in the Updated Institutional Strategy 2010-2020 (AB-3008). Each sub-loan (sub-grant) contributes to the development challenges of: (i) productivity and Innovation, by reducing the cost of electricity generation thus increasing economic competitiveness; and (ii) economic integration,[26] by financing GE development in countries that could export electricity to neighboring islands. Also, aligns to the cross-cutting themes of: (i) climate change and environmental sustainability, by replacing fossil fuels with a renewable and clean energy source thus reducing carbon emissions; (ii) gender and diversity, by ensuring women's participation in GE training and public consultations regarding GE projects; and (iii) institutional capacity and rule of law, by providing support to CDB and the 5ECC governments to strengthen institutional capacity for developing GE. According to the joint MDB approach on climate finance tracking, 100% of total IDB funding for this project is invested in climate change mitigation activities. This contributes to the IDB's climate finance goal of 30% of combined IDB and IIC operational approvals by year's end 2020.

B. Objective, Components and Cost

1.28 The objective of the SEF-Expanded is to reduce the financial, technical and institutional barriers which GE development encounters in the 5ECC, and to provide institutional strengthening and capacity building to the governments of the 5ECC and to the CDB for GE development. The SEF-Expanded includes the following components:

1.29 **Component 1: GE Project Development (US$80.45 million).** Will support GE projects as they advance through successive stages of development all the way to plant construction by offering funding under:

1.30 **Sub-component 1.1: Pre-feasibility (US$4.45 million).** Financed with the non-reimbursable TC provided by REI (RG-T3170) for purposes of carrying out pre-feasibility studies to identify promising exploratory drilling sites.

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[23] The GCF Initial Results Management Framework (GCF/B.07/04) outlines GCF's initial logic models and performance measurement frameworks.

[24] Pursuant to Resolution DE-31/17, the BOD authorized entering the AMA (see document: GN-2895).

[25] The FAA also incorporates by reference the terms and conditions of the AMA.

[26] The program has been evaluated using the Bank's Sector Strategy to Support Competitive Global and Regional Integration (GN-2565-4) to analyze and validate the project's contribution to the regional cooperation and integration financing goal (see Regional Integration Technical Annex).

1.31 **Sub-component 1.2: Exploration Drilling (US$16 million).** Grant resources that will be provided by GCF[27] (RG-G1013) for exploratory drilling risk mitigation.

1.32 **Sub-component 1.3: Field and Plant Development (US$60 million).** Financed by loan resources from GCF[28] (RG-L1112) to provide 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.

1.33 **Component 2: Technical Assistance: Regulatory Framework, Institutional Strengthening and Capacity Building (US$5.16 million).** Financed by a US$4 million grant from GCF[29] (RG-G1013) to provide non-reimbursable TC to the CDB and the 5ECC. Additional funds from REI (RG-T3170) for US$1.16 million will be used to provide technical assistance to the 5ECC. Technical assistance to the CDB includes the following activities: (i) developing staff capacity to evaluate and execute sub-loans; (ii) consulting services to provide specific skills and advisory services when required for sub-project preparation; and (iii) drafting of legal documents (i.e. loan contracts for GE sub-loans). Technical assistance to the 5ECC governments will support the ministries responsible for energy and electric utilities, to develop an effective legal, policy and regulatory framework for the implementation of GE projects, as well as to make progress in negotiations with private sector actors to develop GE. To this end, resources from GCF or REI will support: (i) transaction advisory support to structure projects and negotiate with private partners; (ii) training to acquire the necessary skills to enable GE development and project execution; and (iii) capacity building to strengthen governments technical, institutional, environmental and regulatory capacity. Program management costs may also be financed under this component.

1.34 The cost of the SEF-Expanded operation is estimated at US$85,607,167 of which US$80,000,000 will be financed by the GCF, and US$5,607,167 by the REI. No additional CDB counterpart resources are considered because US$37,872,000 have already been approved under the SEF-2015. Table shows the total cost of the SEF-Expanded by source and component.

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[27] Component 1. Output 1.1. Exploration Drilling as per funding proposal to the GCF.

[28] Component 1. Output 1.2. Production Drilling and Output 1.3 Power plant, Steam gathering as per Funding Proposal to the GCF.

[29] Component 2. Output 2.1. Regulatory Framework; and Output 2.2. Institutional Strengthening, Capacity Building as per funding proposal to the GCF.

Table 5: Cost of the Program by Source and Components (in US$ millions)

Component/Sub-component	GCF		REI	Total SEF-Expanded
	RG-L1112 (loan)	RG-G1013 (CRG & grant)	RG-T3170 (grant)	
1. GE Project Development	60.00	16.00	4.45	80.45
1.1 Prefeasibility	-	-	*4.45*	*4.45*
1.2 Exploration drilling	-	*16.00*	-	*16.00*
1.3 Field and plant development	*60.00*	-	-	*60.00*
2. Technical Assistance and Program Management	-	4.00	1.16	5.16
Total SEF-Expanded	**60.00**	**20.00**	**5.61**	**85.61**

The REI committed € 5.0 million to this project, which is equivalent to US$5,902,281 at an exchange rate of 1.18 US$/EUR as of December 13th, 2017. The table shows the REI amount net of an administrative fee of 5% of the contribution as charged by the Bank.

C. Key Results Indicators

1.35 **Expected Results.** As a Global Credit Loan (GCL), the main outputs of the SEF-Expanded are the funding of operations (CRG, loans, and grants) that will be approved, executed, and supervised by the CDB. Component 1 is expected to result in the development of five geothermal power plants with up to 60 MW of generation capacity and the transmission infrastructure to bring that electricity to market. Component 2 is expected to result in 5ECC countries receiving training and advisory services necessary to implement GE projects. Program impacts include: (i) reduction of Greenhouse Gas (GHG) emissions estimated at 313,421 Ton of Carbon Dioxide equivalent (tCO2e) per year;[30] (ii) reduction of 722,000 barrels/year of imported oil products; (iii) regional penetration of RE sources in the electricity matrix increasing from an estimated 10% to 30%; (iv) reduction of the average electricity generation cost, which if passed on to customers, results in a reduction of the electricity tariff from US$0.33/kWh in 2015 to US$0.27/kWh; and (v) the mobilization of US$535 million of financial resources for GE development.

1.36 **Results Matrix.** The expected impacts, results and outputs, which include CTF[31] and GCF[32] core outcome indicators, are detailed in the SEF-Expanded Results Matrix (Annex II). Although the SEF-2015 and the SEF-Expanded each have a Results Matrix, the SEF Program will be executed and monitored as a whole and the IDB's Project Monitoring Report (PMR) will include all funding sources.

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[30] The SEF-2015 contemplated a reduction in CO_2 emissions of 375,930 metric tons per year of which 313,421 correspond to the GE projects in the 5ECC.

[31] In addition to project success indicators that track validation of the resource base, the leverage achieved by the donor funds, and the ability of the project to achieve financial closure, core indicators relevant to CTF include volumes of GHG avoided and MWh generated.

[32] The GCF mitigation performance measurement framework includes three core indicators (M.1: tons of GHG emissions produced; M.2: cost per ton of CO_2-equivalent reduced; and M.3: volume of public and private funds catalyzed by the GCF that would be applied to all mitigation interventions. Also, due to the focus of the intervention, IDB recommended other indicators from the GCF list 3.1: annual energy savings (GWh) as a result of GCF interventions; and 6.1: MW of capacity from low-emission sources).

1.37 **Gender Related Indicators.** The program incorporates in its components, elements which will contribute to the achievement of the first strategic gender objective[33] of empowering women economically by facilitating access to economic opportunities and promoting women's entrepreneurship. The Results Matrix includes the corresponding gender indicators (see Gender Annex).

1.38 **Economic Viability.** A Cost Benefit Analysis was developed for each of the sub-projects identified in the program's Revised Indicative Pipeline. The GE sub-projects have an aggregate Economic Net Present Value (ENPV) of approximately US$252.9 million and all of them are financially and economically viable; the Economic Internal Rate of Return (EIRR) is greater than 12% for all GE sub-projects.[34] A sensitivity analysis was conducted and indicates that the program's economic viability is maintained despite of changes in the values of some key variables.[35]

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing Instruments

2.1 **Program Structure and Donors.** The SEF-Expanded will be structured as a GCL to the CDB, chargeable to GCF resources administered by the IDB according to the AMA and the FAA. The GCL will be complemented with resources from the REI administered by the IDB according to the administration agreement signed between the IDB and REI on November 29th, 2017. Due to the on-demand nature of the SEF Program, the CDB, with input from IDB will determine which sub-projects will receive funding based, among other factors, on the countries' development priorities and on the CDB's internal programming processes and following the rules and procedures established in the program OM. Sub-projects may be financed by the CDB either from one source of funding or a combination of them. For instance, CDB could use a combination of CTF grants for exploratory drilling, GEF grants for capacity building, and REI grant for feasibility studies and bundle this in one CDB funding operation. This will be determined by the CDB with input from IDB in the context of each sub-project based on the criteria and guidelines set in the OM.

2.2 **Use of Resources.** SEF-Expanded resources will be used by the CDB for the financing of GE sub-projects that meet the eligibility criteria set forth in the OM and to provide technical assistance. Grant resources provided by REI under Sub-component 1.1 and Component 2 will be provided as non-reimbursable grants to 5ECC governments or GE projects. When financing exploratory drilling activities (Sub-component 1.2), grant resources from the GCF may be used by the CDB as a CRG where the CDB offers a grant to the GE developer for exploratory drilling

33 Implementation Guidelines for the IDB's Operational Policy on Gender Equality in Development.

34 The lowest EIRR among the sub-projects analyzed is 14.4%.

35 For GE projects the ENPV falls from US$252.9 million in the base case to US$47 million when the price for monetizing carbon emissions decreases by 40%, the capital expenditures increase by 20%, and there is a 20% reduction in oil prices with respect to the U.S. Energy Information Administration 2017 reference projection.

which will be converted into a loan in case the exploration is successful.[36] GCF loan resources will be used by CDB to make Sub-loans to finance GE field and plant infrastructure. GCF grant resources under Component 2 will be provided as non-reimbursable technical assistance to 5ECC in governments and GE projects in support of Program implementation. Under Component 2, CDB may also be a beneficiary of technical assistance.

2.3 **Indicative Resource Allocation.** 5ECC countries will have equitable opportunity of access to SEF Program resources which will be available on a first-come first-served basis, provided that: (i) a minimum of three countries receives funding; and (ii) no single country receives more than 50% of program resources.[37] The Revised Indicative Pipeline was last updated in May 2018 and presents not only the updated resource availability, having added SEF-Expanded resources to those already available under SEF-2015, but also updated information on GE sub-projects expected development timelines. The total cost of the SEF Program, including both SEF-2015 and SEF-Expanded is US$157,105,865. Table 6 shows the total cost of the SEF Program (including both SEF-2015 and SEF-Expanded) and the indicative resource allocation by country (¶1.16).

Table 6: SEF Program – Indicative Allocation by Country (US$ millions)

	Total SEF Program (SEF 2015 & SEF-Expanded)										
	SEF-2015					SEF-Expanded					Total SEF Program
	IDB	CTF	GEF	CDB	Total SEF-2015	GCF			REI	Total SEF Expanded	
Country	RG-L1071 (OC loan)	RG-G1009 (inv. grant)	RG-G1004 (Inv. & TA grant)	(loans & grants)		RG-L1112 (loan)	RG-G1013 (CRG)	RG-G1013 (grant)	RG-T3170 (grant)		
A&B	-	-	1.08	7.19	8.27	-	-	-			
DOM	8.17	-	-	4.57	12.74	-	-	0.50			
GRE	3.29	-	0.84	5.38	9.52	10.00	7.35	0.50	5.61	84.61	155.71
SKN	1.20	3.55	-	6.47	11.22	6.00	25.55	1.00			
SL	-	-	-	0.20	0.20	-	6.45	0.50			
SVG	7.34	15.50	0.93	5.38	29.15	-	20.65	0.50			
All ECC	**20.00**	**19.05**	**2.85**	**29.20**	**71.10**	**16.00**	**60.00**	**3.00**	**5.61**	**84.61**	**155.71**
Proj.Mgmt/Eval	-	-	0.16	0.24	0.40	-	-	-	-	-	0.40
CDB	-	-	-	-	-	-	-	1.00	-	1.00	1.00
Total SEF	**20.00**	**19.05**	**3.01**	**29.44**	**71.50**	**16.00**	**60.00**	**4.00**	**5.61**	**85.61**	**157.11**

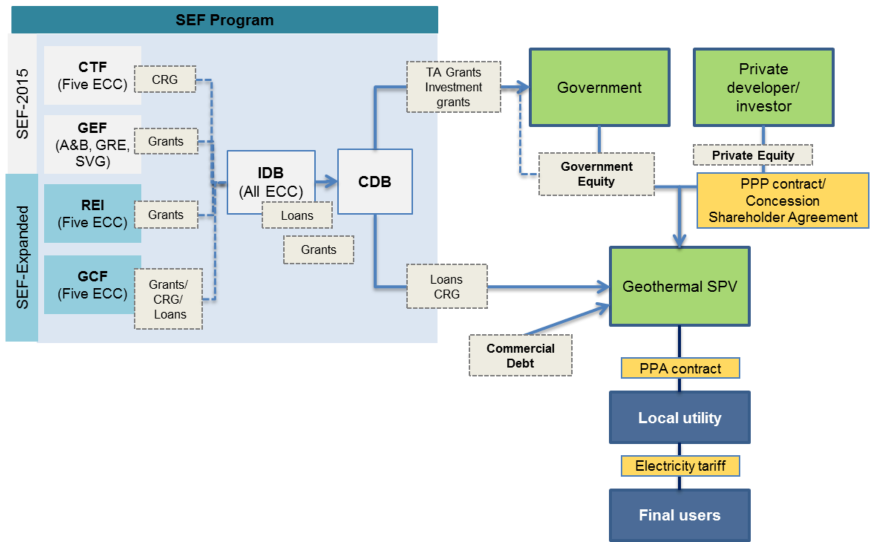
2.4 **Sub-project Eligibility Criteria**. Eligibility criteria are elaborated in the OM. However, financing instruments will be used and structured in a way to incentivize Private Sector participation and GE sub-projects ideally will be structured as legally established PPP. The minimum requirements sub-projects must comply to access program funding are: (i) having a Results Matrix that includes project impact, outcome and output indicators with baseline data and targets; and (ii) having an Environmental and Social Impact Assessment (ESIA) and meeting the social safeguards criteria, as noted in ¶2.7. For sub-projects at field development or plant construction stages, an additional eligibility criterium is that the exploration phase has been successfully completed as certified by an independent party. Figure 5 shows the preferred mechanism by which the SEF Program will make resources

[36] The OM of the program will define the criteria for determining successful and unsuccessful drilling as well as the percentage of investment required from the private sector sponsors.

[37] This amount is based on the cumulative expenditure needed to complete at least one geothermal investment starting from exploratory drilling.

available to GE projects in the region structured as a joint venture between the government and the private sector developer.

Figure 5: SEF Program Lending and on-Lending Structure



2.5 GE eligible sub-projects should have a contractual[38] and/or regulatory mechanism in place that reflects as much as possible the concessionality granted to them in the PPA signed with the off-taker and in the electricity tariffs to final users. The financial terms and conditions agreed with the GCF and REI provide the concessionality required for the SEF Program.

2.6 Consistent with the risk profile of GE development depicted on Figure 1, exploration risk mitigation and technical assistance resources are expected to be disbursed earlier during program execution. These resources allow countries to fund their drilling programs and mitigate risks for GE developers until there is enough certainty as to the existence and quality of the geothermal resource. Only then can loan resources be used for financing field development and plant construction phases. Therefore, grants provided by CTF, GEF, and GCF are expected to be mostly frontloaded while loans provided by IDB, and GCF are expected to be mainly backloaded as shown in Table 7.

[38] If the regulation for GE exploration and exploitation are not in place, then the contracts between CDB and GE PPP should include the necessary provisions to compensate the lack of regulations.

Table 7: SEF Program - Projected Disbursements by Source (US$ millions)*,**

Operation	Source	2016	2017	2018	2019	2020	2021	2022	2023	End of Project	
SEF-2015	CTF	-	-	-	15.50	3.55	-	-	-	**19.05**	**71.50**
	GEF	0.01	1.09	0.08	1.25	0.25	0.25	0.01	0.08	**3.01**	
	IDB	-	-	-	4.71	4.56	6.24	1.20	3.29	**20.00**	
	CDB	0.02	0.29	3.93	6.89	17.12	0.62	0.49	0.06	**29.44**	
SEF-Expanded	GCF	-	-	1.65	14.10	12.95	17.36	16.55	17.39		**80.00**
	REI	-	-	1.39	2.83	1.39	-	-	-		**5.61**
SEF Program		**0.04**	**1.38**	**7.05**	**45.28**	**39.81**	**24.47**	**18.25**	**20.83**		**157.11**

* This table shows the disbursement projections for the program which are based on: (i) actual SEF-2015 commitments as of May 2018; and (ii) expected SEF-2015 and SEF-Expanded approvals during program execution (see Revised SEF Program Project Pipeline).

** The Dollar/Euro exchange rate used for estimating total program cost is US$1.18/EUR (as of December 13th, 2017).

B. Environmental and Social Safeguard Risks

2.7 As a GCL, this operation is classified for its environmental and social impact as a Financial Intermediary (FI) 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. As such, this project is classified as a high risk FI (FI-1).

2.8 The construction impacts for GE projects represent the more significant risks, which can include: (i) potential contamination of soil and ground water by drilling mud; (ii) increased water demand from wells drilling and testing and for the cooling system; (iii) potential land contamination due to the disposal of drilling mud and solid wastes; (iv) noise and vibrations generated during drilling; (v) effects of drilling on groundwater aquifers, nearby hot springs, natural thermal features, and induced micro seismicity and ground subsidence; (vi) increased heavy traffic and potential traffic accidents in the vicinity of the project site; (vii) noise and dust emissions; (viii) soil erosion and loss of vegetation; and (ix) potential impacts to thermal features; and potential impacts to marine habitat and fauna. 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.

2.9 Due to the high-risk nature of these sub-projects, the Bank will engage the CDB in a hand-in-hand Environmental, Social and Governance (ESG) due diligence process on all geothermal sub-projects, providing final sign off and closely monitoring project implementation with the support of an external consultant paid by the Bank. In addition to this requirement, the Bank will require, as part of the loan contract to be entered between the Bank and the CDB, that the latter complies with all applicable local environmental, social, health and safety, and labor regulatory requirements, and in relation to the financing of sub-projects with SEF Program resources ensure that each sub-project complies with: (i) CDB´s ESG policies and review procedures; (ii) in-country regulations; (iii) IDB's list of excluded activities; (iv) fundamental principles of the rights at work; and (v) the International Finance Corporation Performance Standards and applicable WB environmental, health and safety guidelines. For Category A GE projects financed with SEF-Expanded resources the ESIA will be disclosed to the public at least 120 days prior to CDB's Board consideration. For further details on the possible risks and impacts, due diligence process stages and risk management mechanisms, and contractual requirements, please refer to the Environmental and Social Management Report (ESMR).

C. Fiduciary Risk

2.10 The fiduciary risk of the project has been assessed as low mainly due to the adequacy of the CDB's organizational structure and procedures for fiduciary management, its demonstrated capacity in the fiduciary management of projects, and the overall low risk of the CDB's operational performance.

2.11 The CDB is an AA1 rated financial institution (according to Moody's May 2018 update) and its obligations are judged to be of high quality and subject to very low credit risk. Its status was upgraded from that in 2015, which according to related reports[39] described CDB's business profile: (i) as strong and reflected in its role as the cornerstone lender to Caribbean Governments; (ii) with an extremely strong financial profile, reflected through its strengthening capital adequacy; (iii) with a less diversified funding profile; and (iv) a solid liquidity.

D. Other Key Issues and Risks

2.12 **Development risks.** There is a high risk of having prolonged negotiations of the PPAs by which local utilities will purchase power from GE projects which can lead to important delays in program execution. This is related to a broader risk, that limited local institutional capacity to implement the SEF-Program could affect execution. Both the CDB and country governments have a limited track record structuring and financing this type of projects and sub loans and there is insufficient local institutional capacity in the 5ECC to accompany the pace of development of geothermal projects and to match the capabilities of private sector actors with which 5ECC governments will engage to structure and negotiate GE projects and contracts. For this not to affect the execution and effectiveness of the program, Component 2 resources will: (i) finance training for ECC governments to develop technical expertise and local competencies; and (ii) be used by CDB to retain the services of consulting firms to provide legal, financial, economic, and specialized geothermal advisory services and to perform environmental and social impact assessments and studies for GE projects.

2.13 **Governance risks**. Because not all countries have developed specific GE legislation and regulation, there is a high risk that it will be harder to establish a PPP and move forward with GE projects in the region. To mitigate this risk the OM will define a requirement for GE sub-projects to include, in the absence of supporting legislation and regulation, provisions in the PPP contracts defining: (i) process for granting a license to develop geothermal resources and assigning responsibility for monitoring geothermal resources to a government body; and (ii) tariff setting mechanism that will allow the electric utility to recover the cost of service regardless of the technology or fuel used to generate power, while

[39] Standard & Poor's Ratings Services provides high-quality market intelligence in the form of credit ratings and in its May 7, 2015 report on the CDB confirmed its "Stable" outlook and affirmed CDB's "AA/A-1+" status on long and short term foreign currency ratings.

reflecting any reductions in the costs of electricity generation. Notwithstanding the latter, Component 2 will provide support to governments to make the necessary changes to the legal and regulatory frameworks and for institutional strengthening and capacity building both for ECC governments and for CDB.

2.14 **Sustainability**. The proposed project structures for the GE projects include signing PPAs between the geothermal power provider and the utilities that purchase the electricity. The PPA electricity price will cover the investment as well as the operational and maintenance costs of the GE provider making GE projects sustainable.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of Implementation Arrangements

3.1 **Borrower and Executing Agency (EA).** The CDB will be the Borrower and the EA of the SEF-Expanded, as it was for the SEF-2015, through CDB's RE and EE Unit and will work in close collaboration with IDB and other donors. Individual GE sub-projects will be implemented by GE developers, in accordance with the criteria set forth in the OM.

3.2 **Financial Structure.** The CDB has two sources of funding for its borrowing members: (i) OC resources financed from equity contributions, market borrowings and income; and (ii) Special Funds Resources (SFR). The SFR comprises several funds, the largest of which is the Unified Special Development Fund, while all other funds together are referred to as the Other Special Funds (OSF). The GCF loan resources will be managed and accounted for as part of the OSF. The GCF grant resources and the grants provided by the REI will be administered as non--reimbursable financing.

3.3 **Fiduciary Agreements and Requirements.** The fiduciary agreements and requirements (Annex III) establish the financial management, planning, supervision and execution frameworks for the program. It is expected that the sub--loans financed with GCF loan resources will have a four-year commitment period (for the sub-loan agreements to be approved and signed by CDB) and a five-year disbursement period. The REI grant will have a disbursement period of five years. The GCF grant will have a disbursement period of 8 years and a commitment period of 7 years. As sub-projects financed by the CDB are implemented, the CDB will present disbursement requests to the Bank based mainly on the reimbursement of payments made and the advance of funds mechanisms. Advances from IDB to CDB will be disbursed based on the liquidity needs of the program for a six-month period. According to what is required by the GCF, the CDB will have to present a justification for the use of at least 70% of the total cumulative balances pending justification, and the Bank approve such justification, except for the first disbursement.

3.4 **Special Contractual Clauses prior to first disbursement of the financing. The Borrower/Beneficiary shall present evidence that the OM of the SEF-2015 has been updated, including new sub-loan/sub-grant model agreements, and the operating guidelines for the proper fulfillment of the obligations of the Bank**

with the donors, in accordance with the terms and conditions agreed upon between the CDB and the Bank. The provisions governing program execution, including the use of program resources and eligibility of each financial instrument to be used on a sub-project by sub-project basis, will be established in the SEF Program OM and agreed by the IDB and CDB. The OM has already been developed and approved by CDB and IDB for the SEF-2015. However, it is crucial that the OM be updated to reflect the SEF-Expanded resources and to include operating guidelines for the proper fulfillment of the obligations of the Bank under the AMA and the FAA as well as under the administration agreement signed between REI and IDB. Such operating guidelines will address, among other aspects, the additional and special monitoring and reporting requirements described in the AMA (AMA5.5).

3.5 **Special Contractual Clauses of Execution.** Prior to the first disbursement of each sub-loan or sub-grant financed as Contingent Recovery Grant (CRG), the Borrower/Beneficiary shall submit to the Bank: (i) a final draft appraisal report prepared by the Borrower/Beneficiary, in terms satisfactory to the Bank, as further detailed in the OM; (ii) copy of the signed sub-loan/sub-grant agreement between the Borrower/Beneficiary and the developer for the sub-project; (iii) in the case of a developer established under a PPP, evidence that the sub-project complies with the requirement of at least 25% of equity contributions of the total cost of the sub-project; and (iv) evidence that the sub-project complies with the eligibility criteria set forth in the OM.

3.6 **Project Cycle.** The executing mechanism summarized here will be fully described in the OM. To begin the project cycle, every sub-loan including CRG would require a two-page concept note and a no-objection from the IDB to move forward. A final no-objection will be requested prior to CDB's Board consideration and approval. For activities under Component 2, the CDB will use grant agreements to provide non--reimbursable technical assistance to 5ECC governments except when executing these resources directly on behalf of the Beneficiary or when used for the strengthening of CDB's capacity to implement the program (¶1.33). It is expected that as part of the program execution, the IDB project team will be continuously monitoring the development of the GE sub-projects and providing the required support to the CDB to facilitate their execution.

3.7 **Procurement of Goods and Services.** Given the consistency of CDB procurement policies with IDB policies (GN-2349-9 and GN-2350-9), it is recommended that the CDB procurement policies apply for operations receiving financing from this GCL. However, since the Bank's procurement policies require that Bank funds be used only to finance procurement activities contracted with firms or individuals of Bank's member countries, it is necessary, as with previous global loans to the CDB, to request an exception to the IDB's BOD to expand said eligibility to providers and goods originating from CDB member countries, which are not members of the Bank.

3.8 **Operation and Maintenance.** The EA commits during program execution to: (i) adopt the necessary measures for adequate maintenance for the works and equipment financed with program resources, in accordance with generally accepted technical standards; and (ii) submit to the Bank a report on the status of those works and equipment, and the annual maintenance plan for that year. If the inspections conducted by the Bank, or the reports it receives, show that maintenance is being performed below the agreed-upon levels, the EA will take the necessary steps to fully correct the deficiencies.

3.9 **External Control and Reporting.** In accordance with the Bank's Financial Management Guidelines OP-273-6, external control and reporting requirements will be met through the following during the disbursement period or any extensions thereof: (i) submission of CDB's Annual Audited Financial Statements (AFS) to be presented to the Bank within 180 days following the end of CDB's fiscal year;40 (ii) submission of annual audited financial statements for the Program, including financial information on sub-loans and sub-grants (considering all sub-projects approved and for which there has been at least one disbursement), within 180 days following the end of CDB's fiscal year. Audited financial statements will be conducted by an independent audit firm that is eligible to the Bank. The CDB may utilize the services of its auditors, once they are considered eligible to the Bank; and (iii) submission of semi-annual unaudited financial statements of the Program, according with the terms of the OM. These statements should be submitted within 60 days after the close of each semester (see Annex III).

B. Summary of Arrangements for Monitoring Results

3.10 The CDB will monitor and supervise operations based on their policies and procedures, and provide IDB with the necessary information to monitor and evaluate the program as well as to comply with its reporting obligations to the GCF and the REI (see Monitoring & Evaluation Plan (M&E)).

3.11 The IDB Project Team will be responsible for the preparation, and CDB for providing inputs, for project reporting to REI and to GCF in compliance with their respective agreements with the Bank.

3.12 **Semi-annual Progress Reports.** The results of CDB's monitoring and supervision will be reported to the Bank through Semi-Annual Progress Reports (SAPR) submitted no later than 60 days after the end of each semester during the disbursement period. Because sub-projects can be financed from one source of funding or a combination of them, including sources approved under SEF-2015 as well as those under SEF-Expanded, CDB will produce SAPR comprising both operations. These SAPR will indicate the degree of fulfillment of the output indicators and progress toward the results and outcomes of the Results Matrix, making it possible for the Bank to monitor these indicators using the Bank's PMR. SAPR will include, for each sub-project, the following items, in accordance with the OM: (i) a report on its consistency with the eligibility criteria, as well as environmental and social safeguards criteria as detailed in the OM, and the IDB´s GCI-9 priority lending targets; (ii) CDB financial statements of the individual sub-project and summary updates on its situation, the problems encountered and measures taken to address them; (iii) status of the works and equipment financed with program resources and the annual maintenance plan for the reporting period; (iv) data on the impact, outcome and output indicators as defined by the CDB in

[40] CDB's fiscal year end is December 31st. As per CDB's financial rules, its AFS may not be released until approved by the Board of Governors at its annual meeting held in May of each year. Therefore, and maintaining consistency with previous Global Credit Loans to the CDB, the submission of the AFS is required 180 days after the end of the fiscal year.

the sub-project's Results Monitoring Framework approved by its BOD; and (v) other items required by the donors and detailed in the OM. The latter will be based on information in the CDB's Project Supervision Reports, copies of which will be annexed to the reports. The last SAPR will be presented to the Bank within 90 days after completion of the last activity of the program.

3.13 **Annual reports.** Annual reports will be prepared by the Borrower and submitted to the Bank within 40 days of the end of each calendar year during the disbursement period. The report shall be prepared in accordance with the OM, following GCF requirements, and will include, among others: (i) information on compliance with the financial, fiduciary, GHG emissions reduction as applicable, environmental and social requirements of the program; (ii) information on compliance with the gender aspects of the program; and (iii) information that confirms that the activities of the program have been carried out in accordance with the applicable intellectual property laws.

3.14 **Interim Independent Evaluation Report.** After four years from the effective date of the Contracts for SEF-Expanded, or when 50% of the resources of the SEF-Expanded have been committed, whichever occurs first, a midterm review will be conducted by the CDB, as detailed in the M&E Plan and according to the terms set forth in the OM, comprising both the SEF-2015 and the SEF-Expanded. This is in addition to the evaluation that will be conducted by the CDB, as detailed in the M&E Plan of SEF-2015.

3.15 **Final Independent Evaluation Report.** A report of the final evaluation of the Program will be presented to the Bank within 5 months after disbursement of 100% of the resources of the Program, according to the terms set forth in the OM.

3.16 **Project Completion Report (PCR).** A PCR, including an ex post Cost Benefit Analysis of the program, will be prepared evaluating the impact and results obtained by the program and each sub-project completed. It is recommended that the PCR be conducted once both SEF-2015 and SEF-Expanded have fully disbursed, so no sub-project is left out of the analysis. The PCR will include the progress in meeting the program results as defined in the Results Matrix, information on the execution of the program and lessons learned.

Development Effectiveness Matrix		
Summary		
I. Corporate and Country Priorities		
1. IDB Development Objectives	**Yes**	
Development Challenges & Cross-cutting Themes	-Productivity and Innovation -Economic Integration -Gender Equality and Diversity -Climate Change and Environmental Sustainability -Institutional Capacity and the Rule of Law	
Country Development Results Indicators	-Reduction of emissions with support of IDBG financing (annual million tons CO2 e)* -Installed power generation from renewable energy sources (%)*	
2. Country Development Objectives	**No**	
Country Strategy Results Matrix		
Country Program Results Matrix		The intervention is not included in the 2018 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		The project contributes to diversifying the energy matrices of the 5ECC away from imported liquid fossil fuels, reducing CO2 emissions, improving energy security and shielding these economies from oil price volatility and shocks.
II. Development Outcomes - Evaluability		**Evaluable**
3. Evidence-based Assessment & Solution	**9.3**	
3.1 Program Diagnosis	3.0	
3.2 Proposed Interventions or Solutions	3.6	
3.3 Results Matrix Quality	2.7	
4. Ex ante Economic Analysis	**10.0**	
4.1 Program has an ERR/NPV, or key outcomes identified for CEA	3.0	
4.2 Identified and Quantified Benefits and Costs	3.0	
4.3 Reasonable Assumptions	1.0	
4.4 Sensitivity Analysis	2.0	
4.5 Consistency with results matrix	1.0	
5. Monitoring and Evaluation	**8.5**	
5.1 Monitoring Mechanisms	2.5	
5.2 Evaluation Plan	6.0	
III. Risks & Mitigation Monitoring Matrix		
Overall risks rate = magnitude of risks*likelihood	**High**	
Identified risks have been rated for magnitude and likelihood	Yes	
Mitigation measures have been identified for major risks	Yes	
Mitigation measures have indicators for tracking their implementation	Yes	
Environmental & social risk classification	**B.13**	
IV. IDB´s Role - Additionality		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)		
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project		

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

This is a loan to the Caribbean Development Bank to expand the Sustainable Energy Facility (SEF) in support of Geothermal Energy (GE) development in 5 Eastern Caribbean Countries (5ECC) with GE potential. The SEF-Expanded complements the SEF-2015 by increasing the funds available for GE development in 5ECC with resources from the Green Climate Fund (GCF). The objective of the SEF-Expanded is to reduce the financial, technical and institutional barriers which GE development encounters in the 5ECC, and to provide institutional strengthening and capacity building to the governments of the 5ECC and to the CDB for GE development.

The diagnostic highlights the current vulnerability the 5ECC face due to high dependence on imported fossil fuels and the resulting high electricity tariffs, and the potential for GE development. The interventions proposed clearly respond to the factors identified as impeding the development of GE. The vertical logic of the program is well structured, with proper SMART output, outcome and impact indicators.

A Cost Benefit Analysis was developed for each of the sub-projects identified in the program's indicative pipeline. The main benefits come from projected savings in generation costs and reductions in greenhouse gas emissions. Key assumptions are discussed and seem justified. Sensitivity analysis was conducted around variables with more uncertainty and where the impact on viability could be greater.

The Monitoring and Evaluation Plan meet the requirements of the DEM. An ex-post Cost Benefit analysis is proposed as the evaluation methodology without attribution.

RESULTS MATRIX

Project Objective	the objective of the SEF-Expanded is to reduce the financial, technical and institutional barriers which Geothermal Energy (GE) development encounters in the Five Eastern Caribbean Countries (5ECC), and to provide institutional strengthening and capacity building to the governments of the 5ECC and to the CDB for GE development.				
Impact Indicators	**Units**	**Base Level (2015)**	**Target Level**	**Source of Verification**	**Comments**
Average electricity tariff for customers in ECC	US$/KWh	0.33	0.30	CARILEC Average Tariffs for ECC	Measures the average electricity tariff in the 5ECC covered by the program
Regional penetration of indigenous RE sources for power generation within the ECC	%	10	30	Reports from utilities in the ECC	Based on capacity installed (MW) as per the utilities' reports (e.g public reports, information provided by the utility to the CDB or CARICOM Energy Unit)
GHG emissions avoided by geothermal projects in the ECC	$ktCO_2e/yr$	0	313.4	Report from CDB. Estimations using IDB methodology	IDB estimations made following IDB methodology, based on installed capacity, electricity generation to be provided in EA reports based on information from governments and utilities in ECC, and an average conversion factor (ex post CBA). Final calculations to be checked with the utilities and the governments in the ECC.
Imports of fossil fuels for electricity generation avoided by geothermal projects in the ECC	Thousand barrels of oil	0	722		
Financing from other sources (e.g. commercial banks, private equity) leveraged by this program	US$ millions	15	535	Report from CDB	Funding from all sources including IDB, CTF and GEF funds approved under SEF-2015

Component 1. GE Project Development												
Indicator	**Units**	**Base**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**End of Project (EOP)**	**Source of Verification/ Comments**
Results												
Geothermal power generation capacity installed in projects facilitated or financed at some stage by the program.	MW	0			0	0	0	0	0	60	60	Report from CDB. Estimations of expected installed capacity based on quality of resource confirmed once exploration wells are drilled (measured at the end of the program)
Geothermal projects financed by the program with a power plant in construction or operation.	Number of GE projects	0			0	0	0	0	0	5	5	Report from CDB with information from ECC and private project sponsors (measured at the end of the program)
Outputs												
Grants provided to geothermal projects with resources from the program for doing pre-feasibility studies.	Number of grants approved by CDB's Board	0			1	0	0	0	0	0	1	Report from CDB
CRG provided to geothermal projects to complete exploratory drilling activities.	Number of CRG approved by CDB's Board	0			0	2	1	0	0	0	3	
Loans provided to geothermal projects at any stage of development with resources from the program.	Number of loans approved by CDB's Board	0			0	2	1	0	0	0	3	

Component 1. GE Project Development												
Indicator	**Units**	**Base**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**End of Project (EOP)**	**Source of Verification/ Comments**
Loans provided to finance transmission and distribution lines required for bringing GE to market.	Number of loans approved by CDB's Board	0			0	0	0	0	0	0	0[1]	

Component 2. Technical Assistance: Regulatory Framework, Institutional Strengthening and Capacity Building												
Indicator	**Units**	**Base**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**EOP**	**Source of Verification/ Comments**
Results												
ECC with legal and regulatory frameworks that enable Geothermal Energy (GE) development implemented	Number of countries	1			1	1	0	0	0	0	3	Report from CDB
Specialized advisory services provided to ECC to structure GE sub-projects and reach financial closing for the construction of power plants	Number of countries	0			1	1	1	0	0	0	3	Report from CDB. (Measured as total number of countries receiving specialized advisory services at the end of the program)
Public institutions responsible for energy in the ECC trained in GE technical, financial, or regulatory aspects	Number of institutions	0			0	1	2	0	0	0	3	Report from CDB

[1] According to the latest revision of the Indicative Pipeline, no resources have been indicatively allocated for this output. However, due to the on-demand nature of the program and because this output is considered within the Broader SEF program, it is important to keep it as part of the Results Matrix.

Component 2. Technical Assistance: Regulatory Framework, Institutional Strengthening and Capacity Building												
Indicator	**Units**	**Base**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**EOP**	**Source of Verification/ Comments**
Women trained in construction, operation and/or maintenance of RE infrastructure and projects	% of all persons trained	0			0	10	20	0	0	30	30	Reports from the CDB based on information from governments and private project sponsors. (Measured as an average of individual GE sub-projects at the end of the program)
Women participate in consultation processes related to GE projects	% of all persons consulted	0			0	13	22	0	0	35	35	
Outputs												
Technical assistance grants provided to governments in ECC with resources from the program	Number of countries	0			1	1	1	1	0	0	4	Report from CDB
Specialized advisory services contracts awarded to strengthen CDB's capacity to implement the program	Number of contracts	0			3	1	0	0	0	0	4	

Notes:

1. Further details on how to calculate each of the indicators are provided in Appendix A of the Monitoring and Evaluation Plan.
2. The targets in the results matrix are for each year, as opposed to cumulative targets up to the year. All targets are set taking into account the projects in the Revised Indicative Pipeline and considering the injection to the program of the SEF-Expanded resources.

FIDUCIARY ARRANGEMENTS

Country:	Regional
Project Number:	RG-L1112; RG-G1013; RG-T3170
Project Title:	SEF-Expanded
Executing Agency:	CDB
Fiduciary Team:	Vinicio Rodriguez, Fiduciary Financial Management Specialist; Maria Camila Padilla, Fiduciary Procurement Specialist, and Corey Carter, Fiduciary Consultant.

I. EXECUTIVE SUMMARY

1.1 In 2015, under the design stage of Project RG-L1071, SEF for the EC carried out an assessment of the CDB's fiduciary management capacity to execute the project. The evaluation[1], indicated that the CDB has adequate fiduciary capacity to execute the project and that the project has a low fiduciary risk assessment, and requires no mitigating actions. At this time, it is considered that a new assessment is not necessary, and their capacity has been confirmed through the execution of the project.

1.2 The CDB is a regional development bank, with an AA+/A-1+ credit rating as per Standard & Poor's (S&P) as of May 2017 and has sound internal control and fiduciary systems. It also has a demonstrated capacity of executing the Bank's financed projects, having executed 6 Global Credit Programs, of which two are currently in execution (2798/BL-RG and 3561/OC-RG).

Table 1. Global Loan Programs to the CDB

Operation Number and Name	Approval Date	Final Disbursement Date	Total amount (US$ millions)
551/SF-RG Global Credit: Agriculture Industry, Tourism & Fishing	08/1978	03/1987	12.0
488/OC-RG; 758/SF-RG Global Loan II	10/1984	06/1992	25.0
926/OC-RG; 926/OC-RG; 1,926/OC-RG-2,975/SF-RG Credit Program for Small Caribbean States	05/1996	08/2007	37.0
1108/SF-RG Global CDB Loan	06/2002	12/2011	20.0
2798/BL-RG CDB Loan Program for the IDA-Eligible OECS Member Countries	08/2013	05/2019	20.0
3561/OC-RG SEF for the EC	10/2015	10/2023	20.0
		Total	**134.0**

1.3 This new operation, the SEF-Expanded, will be financed by US$80 million from the GCF for which the IDB applied and obtained approval on October 2016. The total SEF-Program amounts to US$151.5 million and includes the resources of the loan agreement 3561/OC-RG in the form of a GCL to the CDB, which will be complemented with resources from other sources, and on-lent to finance eligible sub-loans and sub-grants in beneficiary

[1] The assessment was carried out through a series of interviews and a review of the CDB's organization structure and procedures for fiduciary management.

countries in the independent EC countries, Antigua and Barbuda, DOM, GRE, Saint Kitts and Nevis, SL, and SVG. Other sources of resources that will contribute towards the project include the CTF and the GEF, which are both administered by the Bank, as well as resources to be provided by the CDB as local counterpart. The program will also receive a contribution of US$5 million euros from the Government of Italy.

II. EXECUTING AGENCY´S FIDUCIARY CONTEXT

2.1 The CDB's electronic Loan Management System (FlexCube) and financial management system (Smartstream), as well as its fiduciary oversight procedures, including its operational policies and procedures and procurement policies will be relied on for the project execution.

III. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS

3.1 The fiduciary risk of the project has been assessed as low mainly due to the adequacy of CDB's organizational structure and procedures for fiduciary management; its demonstrated capacity in the fiduciary management of projects; and, the overall low risk of the CDB operational performance.

3.2 The CDB is an AA+ rated financial institution that, according to recent reports[2] is based on its strong business profile which is reflected in its role as "the cornerstone lender" to Caribbean governments and its "extremely strong financial profile", reflected through its strengthening capital adequacy, its less diversified funding profile, and its solid liquidity. It should also be noted that the CDB has also continued to strengthen its governance structure through the consolidation of its risk management and monitoring framework, as well as through the introduction of new institutional checks and balances."

IV. ASPECTS TO BE CONSIDERED IN THE SPECIAL CONDITIONS OF CONTRACT

4.1 In order to move forward the contract negotiations by the project team and mainly by the Legal Department, herein are those fiduciary arrangements that must be negotiated, outlined below are agreements and requirements which will be incorporated into the special conditions:

a. **Rate of exchange agreed with the EA.** For purposes of determining the equivalency of expenditures incurred in local currency of the reimbursement of expenditures chargeable to the loan, the agreed exchange rate shall be the exchange rate on the effective date on which the Borrower, the EA, or any other person or legal entity in whom the power to incur expenditures has been vested makes the related payments to the contractor, supplier or beneficiary.

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[2] Standard & Poor's Ratings Services provides high-quality market intelligence in the form of credit ratings and in its May 7th, 2017 report on the CDB confirmed its "stable" outlook and affirmed CDB's AA+/A-1+ status on long and short term foreign currency ratings.

b. **External control and reporting.** In accordance with the Bank's Financial Management Guidelines OP-273-6, external control and reporting requirements will be met through the following during the disbursement period or any extensions thereof: (i) submission of the Annual Audited Financial Statements (AFS) of the CDB. These reports are to be presented to the Bank within 180 days[3] following the end of CDB's fiscal year[4] since the project will utilize the financial management system of the CDB; (ii) submission of annual audited financial statements for the Program, including financial information on sub-loans and sub-grants (considering all sub-projects approved and for which there has been at least one disbursement), within 180 days following the end of CDB's fiscal year. These AFS will be conducted by an independent audit firm that is eligible to the Bank. The CDB may utilize the services of its auditors, once they are considered eligible to the Bank; and (iii) submission of semi-annual unaudited financial statements of the Program, according with the terms set forth in the OM. These statements should be submitted within 60 days after the close of each semester.

V. FIDUCIARY ARRANGEMENTS FOR PROCUREMENT EXECUTION

5.1 Given the consistency of CDB procurement policies with IDB policies (GN-2349-9 and GN-2350-9), it is recommended that the CDB procurement policies apply for operations receiving financing from this GCL. However, since the Bank's procurement policies require that Bank funds be used only to finance procurement activities contracted with firms or individuals of Bank's member countries, it is necessary, as with previous global loans to the CDB, to request an exception to the IDB's BOD to expand said eligibility to providers and goods originating from CDB member countries, which are not members of the Bank.

VI. FINANCIAL MANAGEMENT

6.1 **Programming and Budget.** The CDB will allocate loan resources based on criteria specified in the Loan Contract and credit regulations.

6.2 **Accounting and Information Systems.** The CDB's financial management electronic system includes a Loan Management System (Flex Cube) and a General Ledger System (Smart Stream). One of the many features of CDB's Loan Management System, is its reporting capacity which allows for reports to be customized and generated via the use of COGNOS. The financial reports are prepared in accordance with International Financial Reporting Standards and under the historical cost basis. It is expected that the accounting system will facilitate the recording of all financial transactions, facilitate the financial management of sub-loans and provide information related to the overall financial execution of the project.

A. Disbursements and Funds Flows

6.3 The CDB will be responsible for the submission of all disbursement requests to the Bank.

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[3] As per CDB's financial rules, its AFS may not be released until approved by the Board of Governors at its annual meeting held in May of each year. Therefore, and maintaining consistency with previous Global Credit Loans to the CDB, the submission of the AFS is required 180 days after the end of the fiscal year.

[4] CDB's fiscal year end is December 31st.

6.4 A US$ Bank account will be designated by the CDB for the management of project resources.

6.5 Disbursements will be processed using the ex-post methodology.

6.6 **Disbursement methodology**. Unless CDB and the Bank agree otherwise, the reimbursement of payments shall be used as the disbursement method for the Program.

6.7 In the event that the Advance of Funds methodology is used as the disbursement method, the Borrower/Beneficiary undertakes to return any unused or unjustified resources to the Bank, including any income that has been obtained from the investment of such resources, when the Bank so requests and with a frequency not exceeding one (1) year. The refund shall be made following the instructions given by the Bank to the Borrower for that purpose. The Borrower undertakes to include a provision in these same terms in the sub-loan agreements to be entered into with the Sub-borrowers. Each advance of funds shall be subject to: (i) The request for advance of funds being presented in a manner acceptable to the Bank; and (ii) the CDB should have presented a justification for the use of at least 70%[5] of the total cumulative balances pending justification for this purpose, and the Bank having accepted such justification

6.8 In the case of sub-projects, justification of advance of funds or reimbursement of payments will be made based on disbursements of sub-loans or sub-grants by CDB.

6.9 **Internal control and audit.** The CDB will establish and maintain adequate internal control procedures and systems for the project. These procedures should provide a reasonable level of assurance that, at a minimum, project funds are used for their intended purposes; project transactions, decisions and activities are properly authorized and documented; and, project transactions are executed in accordance with the policies and procedures established in the relevant legal agreements, included those requirements established by the Green Climate Fund.

6.10 **Financial supervision plan**. The financial management supervision of the Project and sub-loans will be conducted by applying the Financial Management Guidelines for IDB-financed projects (OP-273-6), the provisions established in the Accreditation Master Agreement signed between the Bank and the GCF, and the Funded Activity Agreement signed for the Program. For this reason, it will be necessary to allocate resources to the fiduciary team for them to be able to conduct inspection visits, as required by the GCF.

6.11 **Execution mechanism.** The CDB's Renewable Energy and Energy Efficiency Unit will be mainly responsible for the fiduciary management of the project and will liaise with its Finance Department as it relates to the processing of payments and accounting and financial reporting of the project.

[5] As required by the GCF in the FAA.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/18

Regional. Loan ____/__-RG to the Caribbean Development Bank
Sustainable Energy Facility for the Eastern Caribbean Expanded
(SEF-Expanded)

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, acting as Accredited Entity of the Green Climate Fund (“GCF”), to enter into such contract or contracts as may be necessary with the Caribbean Development Bank, as borrower, for the purpose of granting it a financing to cooperate in the execution of a program for the Sustainable Energy Facility for the Eastern Caribbean Expanded (SEF-Expanded) (the “Program”). Such financing will be for the amount of up to US$60,000,000 from the resources of the GCF, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

2. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreement or agreements with the GCF as may be necessary to receive and administer resources from the GCF for the purposes of the Program, and to adopt any other measures as may be pertinent for execution of said agreement or agreements.

3. That the authorization granted in paragraph 1 above will be effective once the corresponding agreement or agreements to which reference is made in paragraph 2 of this Resolution have entered into effect.

(Adopted on ___ __________ 2018)

LEG/SGO/CCB/EZSHARE-456533210-36255
RG-L1112

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/18

Regional. Nonreimbursable Investment Financing GRT/__-____-RG
Sustainable Energy Facility for the Eastern Caribbean Expanded
(SEF-Expanded)

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, acting as Accredited Entity of the Green Climate Fund ("GCF"), to enter into such agreement or agreements as may be necessary with the Caribbean Development Bank, as beneficiary, for the purpose of granting it a nonreimbursable investment financing for a sum of up to US$20,000,000 chargeable to the resources of the GCF, and to adopt any other measures as may be pertinent for the execution of the project proposal contained in document PR-____ (the "Program").

2. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreement or agreements with the GCF as may be necessary to receive and administer resources from the GCF for the purposes of the Program and to adopt any other measures as may be pertinent for execution of said agreement or agreements.

3. That the authorization granted in paragraph 1 above will be effective once the corresponding agreement or agreements to which reference is made in paragraph 2 of this Resolution have entered into effect.

(Adopted on ___ _____________ 2018)

LEG/SGO/CCB/EZSHARE-456533210-36257
RG-G1013

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/18

Regional. Nonreimbursable Technical Cooperation ATN/__-____-RG
Sustainable Energy Facility for the Eastern Caribbean Expanded
(SEF-Expanded)

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreement or agreements as may be necessary with the Caribbean Development Bank, as beneficiary, for the purpose of granting it a nonreimbursable technical cooperation for the amount of up to US$5,900,000 chargeable to the resources granted by the Republic of Italy through its Ministry for the Environment, Land and Sea, pursuant to the agreement or agreements specified in paragraph 2 below, and to adopt any other measures as may be pertinent for the execution of the project proposal contained in document PR-____.

2. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreement or agreements with the Republic of Italy through its Ministry for the Environment, Land and Sea as may be necessary to receive and administer resources for the purposes described in the project proposal specified in paragraph 1 above, and to adopt any other measures as may be pertinent for the execution of said agreement or agreements.

3. That the authorization granted in paragraph 1 above will be effective once the Bank and the Republic of Italy through its Ministry for the Environment, Land and Sea have entered into the corresponding agreement or agreements to which reference is made in paragraph 2.

(Adopted on ___ __________ 2018)

LEG/SGO/CCB/EZSHARE-456533210-36256
RG-T3170

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

RG-L1112 AND RG-G1013

CERTIFICATION

RG-L1112	**US$60,000,000**
RG-G1013	**US$20,000,000**
TOTAL:	**US$80,000,000**

The Grants and Co-Financing Management Unit (ORP/GCM) received the commitment of the **Green Climate Fund (GRN)** for up to **US$80,000,000** as confirmed by the Fund Coordinator, Brady Martin (ORP/GCM), August 16, 2018. An operation financed by the GRN receives a conditional certification given the circumstances of the Accreditation Master Agreement between GRN and the IDB. As such, a commitment by the GRN does not have validity until the Funded Activity Agreement (FAA) between the IDB and the GRN is agreed upon and signed for an operation. In addition, the GCF board approval for this operation is pending an extension to the 120-day accredited entity approval deadline. Therefore, this certification will remain conditional until the operation is both granted an extension by the GCF Board and the FAA is signed and effective.

Certified by: Original Signed 8/20/2018

Sonia M. Rivera
Chief
Grants and Co-Financing Management Unit
ORP/GCM

Date

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

RG-T3170

CERTIFICATION

I hereby certify that this operation was approved for financing under **the COFINANCING SPECIAL GRANTS Account (COF)** through a Project-Specific Grant (PSG) administration agreement, signed by the IDB and the Italian Ministry for the Environment Land and Sea, committing an amount of up to EUR5,000,000 (approximately equivalent to US$5,902,281) in order to finance the activities described and budgeted in this document**.**

Certified by: Original Signed 8/20/2018

Sonia M. Rivera
Chief
Grants and Co-Financing Management Unit
ORP/GCM

Date