CARIBBEAN DEVELOPMENT BANK

TWO HUNDRED AND SEVENTY-FIRST MEETING OF THE BOARD OF DIRECTORS

TO BE HELD IN JAMAICA

MAY 16, 2016

Paper BD 64/16 and
Paper BD64/16 Corr. 1

GEOTHERMAL DRILLING PROJECT – ST. VINCENT AND THE GRENADINES
(President's Recommendation No. 924)

The attached Report appraises a project for exploratory drilling by the St. Vincent Geothermal Company Limited (SVGCL), a joint venture established between the Government of St. Vincent and the Grenadines (GOSVG) and St. Vincent Geothermal Holdings Limited, to assess the geothermal resource in the La Soufrière region in northern St. Vincent; and for the services of a community liaison officer (the CLO) to support and facilitate stakeholder engagement throughout the project implementation (the Project). The outcome of the Project will be the enhanced capability of SVGCL to make an evidenced based determination of the feasibility of continuing geothermal resource development for electricity production.

2. On the basis of the Report, I recommend:

(a) the provision of funds from the Special Funds Resources (SFR) of the Caribbean Development Bank (CDB) of an amount of four million Pounds Sterling (GBP4,000,000) and an amount not exceeding the equivalent of nine million six hundred and sixty-one thousand United States dollars (USD9,661,000) comprising:

(i) a grant to GOSVG of:

(aa) an amount of four million Pounds Sterling (GBP4,000,000) allocated from resources provided to CDB by the Government of the United Kingdom of Great Britain and Northern Ireland through its Department for International Development to support geothermal development in the Eastern Caribbean, which will be used by GOSVG to contribute to the capital of SVGCL, to assist SVGCL in financing the integrated drilling services (the Equity Component); and

(bb) an amount not exceeding the equivalent of one hundred and sixty-one thousand United States dollars (USD161,000) allocated from resources provided to CDB by the Inter-American Development Bank (IDB) (acting as administrator of the IDB/Global Environmental Facility Fund) to assist GOSVG in financing consultancy services of the CLO; (the TA Component) (together the GOSVG Grant); and

(ii) a contingently recoverable grant to SVGCL of an amount not exceeding the equivalent of nine million five hundred thousand United States dollars (USD9,500,000), allocated from resources provided to CDB by IADB (acting as the implementing entity of the Clean Technology Fund), to assist SVGCL in financing the integrated drilling services, (the SVGCL Grant);

on the terms and conditions set out and referred to in Chapter 7 of the attached Report;

(b) the conversion of the amount of the SVGCL Grant, in full, once the adequacy of the geothermal resources is proven and independently certified, to a loan to SVGCL of an amount not exceeding the equivalent of nine million five hundred thousand United States dollars (USD9,500,000), which shall be re-payable over a period of up to twelve (12) years following a grace period of two (2) years at an interest rate of 1.75% per annum;

(c) a waiver of CDB's Guidelines for the Selection and Engagement of Consultants (2011) for the CLO contract to allow for country eligibility to be extended to IADB member countries.

(d) a waiver of CDB's Guidelines for Procurement (2006) to allow the procurement of goods, works and services in respect of the integrated drilling services contract to be without restriction as to country eligibility.

3. Funds are available within CDB's existing resources and/or borrowing programme for the relevant disbursement period.

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

CARIBBEAN DEVELOPMENT BANK

APPRAISAL REPORT

ON

GEOTHERMAL DRILLING PROJECT
ST. VINCENT AND THE GRENADINES

Considered at the Two Hundred and Seventy-First Meeting of the Board of Directors on May 16, 2016.

(BD 64/16)
AR 16/5 SV

Director, Projects Department	*Mr. Daniel Best*
Division Chief *Economic Infrastructure Division*	*Mr. Andrew Dupigny*

MAY 2016

This report was prepared by an Appraisal Team comprising:

Allison Davis, Portfolio Manager (Coordinator and Engineer); Dexter Jaggernauth, Operations Officer (Analyst); Valerie Isaac, Operations Officer (Environment); Ann Marie Chandler, Operations Officer (Social Analyst); Leah Bobb-Semple, Legal Counsel; Christine Dawson, Senior Country Economist; and Karene Daniel, Coordinating Secretary

CURRENCY EQUIVALENT

Dollars ($) throughout refer to United States Dollars (USD) unless otherwise stated.

GPB1.00 = USD1.4145 (as at April 16, 2016)

ABBREVIATIONS

BMCs	-	Borrowing Member Country
BOD	-	Board of Directors
CDB	-	Caribbean Development Bank
CLO	-	Community Liaison Officer
CRG	-	Contingently Recoverable Grant
CTF	-	Clean Technology Fund
DFID	-	Department for International Development
EAP	-	Energy Action Plan
ECCB	-	The Eastern Caribbean Central Bank
ECI	-	Emera (Caribbean) Incorporated
EHS	-	Environmental, Health and Safety
EMP	-	Environmental Management Plan
ESAP	-	Environment and Social Action Plan
ESIA	-	Environmental and Social Impact Assessment
ESMP	-	Environmental and Social Management Plan
ESMS	-	Environmental and Social Management System
EU	-	Energy Unit
FDI	-	foreign direct investment
GCF	-	Green Climate Fund
GDP	-	Gross Domestic Product
GE	-	geothermal energy
GEF	-	Global Environment Facility
GOSVG	-	Government of St. Vincent and the Grenadines
GR	-	Government Relations
GRM	-	grievance redress mechanism
HDI	-	Human Development Index
HS	-	Health and Safety
IDB	-	Inter-American Development Bank
IFC	-	International Finance Corporation
IFIs	-	International Financial Institutions
IMF	-	International Monetary Fund
IPP	-	Independent Power Producers
ISP	-	Implementation Support Plan
IUCN	-	International Union for Conservation of Nature
kWh	-	Kilowatt-hour
M&E	-	Monitoring and Evaluation
mn	-	million
MW	-	megawatt
MWe	-	megawatt equivalent
n.a	-	not applicable
NEP	-	National Energy Policy
NPLs	-	Non-Performing Loans
OAS	-	Organization of American States

OECS	-	Organisation of Eastern Caribbean States
OIE	-	Office of Independent Evaluation
p.a.	-	per annum
PC	-	Project Coordinator
PCR	-	Project Completion Report
PLW	-	Project Launch Workshop
PM	-	Project Manager
PMT	-	Project Management Team
PPES	-	Project Performance Evaluation System
PPP	-	public private partnership
PV	-	photovoltaic
RAP	-	Resettlement Action Plan
RE	-	renewable energy
RG	-	Reykjavik Geothermal Limited
RMF	-	Results Monitoring Framework
SEF	-	Sustainable Energy Facility
SEP	-	Stakeholder Engagement Plan
SETA	-	Sustainable Energy Technical Assistance
SIA	-	Social Impact Assessment
SMP	-	Social Management Plan
SPV	-	special purpose vehicle
SVG	-	St. Vincent and the Grenadines
SVGCL	-	St. Vincent Geothermal Company Limited
TA	-	Technical Assistance
TGC	-	St. Vincent Geothermal Holdings Ltd.
TOR	-	Terms of Reference
UK	-	United Kingdom
USD	-	United States Dollar
VINLEC	-	St. Vincent Electricity Services Limited
WB	-	World Bank

TABLE OF CONTENTS

APPENDICES

FIGURE

COUNTRY DATA: ST. VINCENT & THE GRENADINES

(XCD except where indicated)

	2009	2010	2011	2012	2013	2014
PER CAPITA GDP (current market prices; $)	18,187	18,139	17,828	18,096	18,709	18,871
GROSS DOMESTIC PRODUCT (GDP)						
GDP at Current Market Prices ($mn)	1,822.3	1,839.3	1,825.5	1,870.9	1,945.7	1,970.3
Demand Components:						
Total Consumption	1,912.2	1,931.5	1,908.5	1,990.5	2,102.6	2,149.1
Gross Capital Formation	438.6	464.0	440.4	449.4	481.6	438.7
Goods & Non-Factor Services	(528.5)	(556.2)	(523.3)	(569.0)	-638.5	-618.6
GDP at Market Prices	1,822.3	1,839.3	1,825.5	1,870.9	1,945.7	1,969.1
GVA at Basic Prices	1,525.9	1,556.5	1,555.2	1,592.5	1,666.7	1,672.6
Gross domestic savings ratio (%)	(4.9)	(5.0)	(4.5)	(6.4)	(8.1)	(9.1)
SECTORAL DISTRIBUTION of CURRENT GDP (%)						
Agriculture, Livestock and Forestry	6.5	6.7	7.0	6.8	7.1	7.3
Fishing	0.6	0.5	0.5	0.4	0.5	0.5
Mining & Quarrying	0.3	0.3	0.2	0.2	0.1	0.1
Manufacturing	5.3	5.7	5.1	5.0	5.0	5.4
Electricity & Water	4.1	4.6	4.3	4.2	3.9	3.9
Construction	9.5	9.0	8.8	8.5	8.7	7.7
Wholesale & Retail Trade	14.8	14.3	14.0	14.5	14.4	14.3
Hotels & Restaurants	2.3	2.0	2.5	2.7	2.9	2.8
Transport, Storage and Communications	14.6	14.0	13.9	13.9	13.5	13.5
Financial Intermediation	7.3	7.3	6.1	6.1	5.9	6.2
Real Estate, Renting and Business Activities	15.1	15.2	15.6	15.2	14.8	15.0
Public Administration, Defence & Compulsory Social Security	9.4	10.8	11.5	12.0	12.3	12.7
Education	5.5	5.5	5.9	6.1	5.9	5.8
Health and Social Work	2.9	3.1	3.2	3.4	3.3	3.2
Other Community, Social & Personal Services	2.7	2.2	2.4	2.2	2.3	2.3
Activities of Private Households as Employers	0.3	0.3	0.3	0.3	0.3	0.3
GDP at Current Factor Cost ($mn)	1,525.9	1,556.5	1,555.2	1,592.5	1,666.7	1,672.6
GDP at Constant 2006 Prices ($mn)	1,419.6	1,386.3	1,389.7	1,407.8	1,440.3	1,436.8
Annual rate of growth in GDP (%)	(2.0)	(2.3)	0.2	1.3	2.3	(0.2)
MONEY AND PRICES ($ mn)						
Consumer prices (av. annual % change)	0.4	1.5	3.2	2.6	0.8	0.2
Money supply (M1; annual % change)	(7.6)	(3.9)	(4.0)	9.0	3.7	13.9
Total domestic credit(net)	1,029.2	892.0	906.7	959.5	998.9	1,020.2
Estimated Tourism Expenditure (USD mn)	90.1	86.2	91.7	94.1	92.3	93.2
CENTRAL GOVERNMENT FINANCES ($ mn)						
Current Revenue	466.5	483.8	462.5	472.6	462.6	532.3
Current Expenditure	469.8	473.2	495.2	488.9	491.3	508.9
Current Account Balance	(3.2)	10.7	(32.7)	(16.3)	(28.7)	23.4
Capital Revenue	1.5	1.0	10.4	5.4	34.3	0.7
Capital Expenditure and Net Lending	106.0	78.4	63.0	54.2	151.8	125.2
Primary Balance before grants	(56.8)	(14.3)	(39.3)	(20.7)	-98.2	-55.4
Primary Balance after grants	20.1	(0.2)	(3.1)	5.9	-72.2	-34.7
Overall Balance before grants	(107.8)	(66.7)	(85.3)	(65.1)	-146.1	-101.1
Overall Balance after grants	(30.9)	(52.6)	(49.1)	(38.5)	-120.1	-80.4
BALANCE OF PAYMENTS (USD mn)						
Merchandise Exports (f.o.b)	53.4	45.0	43.4	48.7	49.2	48.1
Merchandise Imports (c.i.f)	293.8	297.7	292.3	314.6	325.6	318.6
Trade balance	(240.4)	(252.7)	(248.9)	(265.9)	(272.1)	(265.9)
Net Balance on services account	44.7	47.1	55.0	55.5	35.6	99.4
Income (net)	(13.0)	(17.4)	(12.9)	(11.7)	0.1	(0.0)
Transfers (net)	11.4	10.0	7.9	7.4	13.6	13.4
Current Account Balance	(197.3)	(213.0)	(198.9)	(214.7)	(222.8)	(215.8)
TOTAL PUBLIC DEBT (USD mn)						
Total public debt	409.8	445.8	461.4	501.0	536.7	572.2
Domestic debt outstanding	160.6	171.8	170.5	220.0	236.9	247.1
External debt outstanding	249.2	274.0	290.9	281.0	299.8	325.1
Debt Service	25.8	26.5	70.8	72.0	50.9	52.0
Amortisation	17.4	20.6	45.0	45.0	31.1	32.3
Interest Payments	8.4	7.9	25.8	27.0	17.7	16.9
Total debt service as % of current revenue	26.5	29.1	26.3	25.7	29.7	27.9
AVERAGE EXCHANGE RATE						
Dollar(s) per US dollar	2.7	2.7	2.7	2.7	2.7	2.7

COUNTRY DATA: ST. VINCENT & THE GRENADINES

	2009	2010	2011	2012	2013	2014
POPULATION						
Mid-Year Population ('000)	100.2	101.4	102.4	103.4	104.0	104.4
Population Growth Rate (%)	1.1	1.2	1.0	1.0	0.6	0.4
Crude Birth Rate	…	…	…	…		
Crude Death Rate	…	…	…	…		
Infant Mortality Rate	…	…	…	…		
EDUCATION						
Net School Enrollment Rate (%)						
Primary	87.4	89.4	…	…	74	97
Secondary	77.3	98.0	…	…	69	96
Pupil-Teacher Ratio						
Primary	17	16.0	16.0	16.0	16	16
Secondary	17	18.0	17.0	15.0	15	15

COUNTRY DATA: ST. VINCENT & THE GRENADINES

	1980	1990	2000	2010
INDICATORS OF HUMAN DEVELOPMENT				
HEALTH				
Life Expectancy at Birth (years)	67.1	70.4	69.6	70.0
Male	65.0	68.0	…	66.0
Female	70.4	72.0	…	74.0
Dependency Ratio	1.0	0.8	…	…
Male	1.0	0.8	…	…
Female	0.9	0.8	…	…
Human Development Index	…	0.71	0.713	0.715
HOUSING AND ENVIRONMENT				
Households with piped water (%)	37.8	53.8	…	…
Households with access to flush toilets (%)	24.0	33.2	…	…
Households with electricity (%)	37.3	66.8	…	…

Source(s): ECCB Research Dept, GOSV
… not available
Data as at March 2016

PROJECT SUMMARY

Financial Terms and Conditions			
Beneficiaries:	1. St. Vincent Geothermal Company Limited (SVGCL) 2. Government of St. Vincent and the Grenadines (GOSVG).	**Funding Source:**	Special Fund Resources (SFR) allocated from funds provided by: (i) United Kingdom (UK) Department for International Development (DFID); and (ii) Inter-American Development Bank (IDB) through the Global Environment Facility (GEF) and Clean Technology Fund (CTF) under the Sustainable Energy Facility (SEF).
		Amortisation Period: (on conversion)	12 years following grace period
Executing Agency:	SVGCL	**Grace Periods: (on conversion)**	2 years
		Disbursement Period:	December 31, 2016 – October 30, 2017

Source: Caribbean Development Bank (CDB) SFR	**Amount ('000)**		
CTF	9,500	**Interest Rate: (on conversion)**	1.75%
GEF	161		
UK-DFID GBP4 mn *	5,658	**Interest Rate:**	N/A
Sub-Total	15,319		
Counterpart	15,136	**Commitment Fee:**	N/A
TOTAL:	**30,454**		
***GPB1=$1.4145 as at April 16, 2016**			

Risk Management	
Country Rating: Outlook:	This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

	(USD'000)
Undisbursed:	53.9
Outstanding Loans:	132.1
Exposure (Outstanding + 50% Undisbursed): Availability:	This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

Incremental Capital Adequacy Charge: N/A

Office of Risk Management Commentary:

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

Project Summary

Project Outcome and Description:

The outcome of the Project will be enhanced capability of SVGCL to make an evidenced-based determination of the feasibility of continuing geothermal resource development in the La Soufrière region for electricity production. The Project will comprise the following:

(a) Project Preparation;

(b) Offsite Infrastructure;

(c) Integrated Drilling Services

(d) Land, Crop Compensation and Resettlement;

(e) Project Management;

(f) Engineering Services; and

(g) Technical Assistance (TA).

Exceptions to the CDB's Policies:

A waiver of CDB's Guidelines for the Selection and Engagement of Consultants (2011) for the Community Liaison Officer (CLO) contract is sought to extend eligibility to IDB member countries, in accordance with the SEF Finance Agreement signed with IDB (Board Paper BD 100/15). [redacted]. In addition, a further waiver of CDB's Guidelines for Procurement (2006) is sought to extend eligibility for the Integrated Drilling Services contract to all countries, given the specialist nature of the services to be provided and the countries in which companies providing them are established. [redacted]

Gender Marker Summary

Gender Marker	Analysis	Design	Implementation	Monitoring and Evaluation	Score	Code
	0.5	0.5	0.5	1	**1.75**	MM[1]

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

[1] Marginally Mainstreamed: The Project has limited potential to contribute significantly to Gender Equality. The Gender Marker Analysis is at Appendix 4.4.

1. STRATEGIC CONTEXT AND RATIONALE

FINANCING REQUEST

1.01 By letter dated April 6, 2016, SVGCL, an established joint venture between GOSVG and St. Vincent Geothermal Holdings Limited, comprising Emera (Caribbean) Incorporated (ECI) and Reykjavik Geothermal Limited (RG), requested financing from CDB to partially fund the exploratory drilling in the vicinity of the La Soufrière volcano in the north of St. Vincent. The purpose of the undertaking is to assess the geothermal resource and provide the requisite information to make a determination regarding its exploitation for use by a proposed geothermal power plant.

COUNTRY CONTEXT

General

1.02 SVG is a multi-island state located between Saint Lucia to the north and Grenada to the south in the Windward Islands of the Lesser Antilles, an arc of islands in the Caribbean Sea. SVG comprises the main island of St. Vincent and seven smaller inhabited islands with about 30 uninhabited islets and cays constituting the Grenadines. Together, they occupy a total landmass of 388 km^2. The estimated population of SVG in 2015 was approximately 110,000 people, with approximately 100,000 of these living on the main island St. Vincent. The Gender and Social Context of the Project is given at Appendix 1.1.

Macroeconomic Context

1.03 SVG is a small, open middle-income economy, with limited diversification of its economic structure, high import dependence and extreme vulnerability to external shocks. Most of the gross domestic product (GDP) is concentrated across very few sectors and its growth, over the past decades, has been inadequate to reduce the country's high rate of unemployment and poverty. The overall economic objective of GOSVG is to accelerate sustainable and inclusive economic development by facilitating private sector investment and growth. To attain this objective, a key strategy is to "re-engineer" economic growth in order to spur higher levels of sustained economic activity, through strategic public interventions including geothermal energy development, that will help facilitate the creation of a more enabling business environment for private sector growth and development.

1.04 The success and failure in doing business has profound impact on the economic development of a country. SVG's small size; access to finance; inadequate supply of skilled and employable labour; high input and energy costs; and problems with the supply of electricity are among a number of factors that contribute to disadvantages in terms of economies of scale and price competitiveness that create barriers to private sector expansion and sustaining inclusive growth. In the electricity sector, GOSVG faces particular challenges to ensure continuing security of supply and maintain affordability. The results of World Bank (WB) Enterprise Surveys for 2010, ranked electricity costs as one of the biggest obstacles to doing business in SVG and in countries across the Eastern Caribbean. WB's 2016 ease of doing business ranking, which sheds light on how easy or difficult it is for a local entrepreneur to open and run a small to medium-size business, corroborates this finding and shows substantial bottlenecks persist. Of 189 economies surveyed and ranked, SVG's business regulatory environment is ranked 111. According to the data collected on the ease of "getting electricity" including the reliability of supply and transparency of tariffs, SVG stood at 79 in the ranking, compared to the regional average of 70.6 for Latin America and the Caribbean.

1.05 The development and utilisation of geothermal energy will assist with facilitating a more competitive and efficient electricity market that will underpin a more enabling business environment. Geothermal development for electricity production offers good transformational potential for robust long-term growth. Removing other barriers to business and accelerating structural reforms to buttress competitiveness will be essential to leverage the growth-enhancing impact of these transformational projects and unlock the potential for stronger, private-sector development and place the economy on a more sustainable footing. The detailed Macroeconomic Review of the Project is given at Appendix 1.2.

ENERGY SECTOR ANALYSIS

Energy Sources - General

1.06 SVG, like most other countries in the Caribbean region, is heavily dependent on imported petroleum products to meet its energy requirements. SVG's oil imports are sourced from Petrocaribe S.A., a Caribbean oil alliance with Venezuela, and from Trinidad and Tobago. In the primary energy mix, petroleum products account for 96%, hydropower 3% and other marginal energy sources account for the remaining 1%. The largest consuming sectors of the imported petroleum products are the transportation sector, which utilises 66.4%, and the power sector which utilises 27.5% for electricity production.[2] Electricity production on all of the islands is entirely diesel-based, except for the main island of St. Vincent where 80% of the electricity is produced by diesel generators and the remaining 20% by small hydropower plants.

Renewable Energy - Geothermal

1.07 SVG are volcanic islands with an active volcano, La Soufrière, in the north of the main island St. Vincent and, as such, it is expected to have excellent geothermal potential. Since 1991[3], several studies have been undertaken to examine the prospects for power generation from geothermal energy on St. Vincent. To date, no exploratory drilling has been done and therefore potential estimates of the geothermal resources have been made over the years based on preliminary investigations and analysis of various geoscience data. A recent GOSVG study stated that this potential could range from about 100 MWe (Deane 2009, p. 16)[4] to as much as 890 MWe[5] (per Huttrer) (Joseph 2008, p. 14).

1.08 More recently, technical support has been received from a number of agencies to progress geothermal surface reconnaissance studies. Following a letter of intent signed in January 2013 between GOSVG and RG and Light and Power Holdings [now ECI], a comprehensive desk study was undertaken with the focus on a geographic cross section between the Wallibou hot spring area and the summit of Mount Soufrière. The study utilised information from previous studies, together with other data sources and remote sensing techniques, to provide the most complete data set to date on the possible deep and hot geothermal resource under Mount Soufrière. It was concluded that the Soufrière volcanic systems show all

---

[2] The Government of St. Vincent and the Grenadines, *Energy Action Plan for St. Vincent and the Grenadines – First Edition*, Organization of American States (OAS) – Caribbean Sustainable Energy Program, April 2010. http://www.sepa-americas.net/proyectos_detalle.php?ID=6

[3] The study was carried out by Geotermica Italiana and was a part of a larger Eastern Caribbean geothermal reconnaissance project, funded by the United Nations and Caribbean Community Secretariat. In St. Vincent, the project area covered the whole island with geological and volcanological studies, as well as petrography and volcanic hazard studies. Water samples were collected from cold and hot springs as well as steam from fumaroles on Mount Soufriere.

[4] Deane, L. (2009). First Eastern Caribbean Geothermal Conference: Situation and Perspective of Geothermal Development in Eastern Caribbean Countries: Saint Vincent and the Grenadines. Mount Nevis, Nevis: Energy Unit, Prime Minister's Office, Government of St. Vincent and the Grenadines.

[5] Joseph, E. (2008). "Geothermal Energy Potential in the Caribbean Region." Barbados. http://www.un.org/esa/sustdev/sids/2008_roundtable/presentation/energy_joseph.pdf. Accessed February 3, 2012.

the right ingredients to host a >200 °C geothermal reservoir at depth and this provided the impetus to pursue a surface exploration campaign, the results of which form the basis to move forward with exploratory drilling as the next step in the geothermal development on St. Vincent.

1.09 Subsequently, another Letter of Intent was signed on May 13, 2014 among the same parties and a Business Plan was prepared and completed in June 2015. The approach taken by GOSVG with regard to geothermal development, and more specifically the origination and development of this Project, was based on a number of factors including: (a) the high risk profile of the early stages of geothermal development; (b) a lack of technical capacity within GOSVG to pursue such an undertaking; (c) the relatively small market of qualified geothermal developer and operators; (d) the lack of concessional financing for exploratory drilling; and (e) the experience and credibility of the two private sector sponsors ultimately selected.

Renewable Energy – Other

1.10 In addition to the potential geothermal resource, SVG has other significant forms of renewable energy (RE) sources which can provide for heat, electricity and possibly fuel. These resources include solar thermal, solar photovoltaic (PV), wind, hydro and biomass which, if exploited to the fullest potential can provide a larger share of SVG's energy needs than is presently the case. While hydropower has long been used by St. Vincent Electricity Services Limited (VINLEC)[6] for electricity production and is a mature technology, solar energy is only recently being tapped for hot water and electricity production now that the technologies have become more competitively priced.

1.11 VINLEC currently has three solar PV installations as part of their electricity production mix – two roof-mounted installations of 10kW and 177kW at the Cane Hall Engineering Complex and the Cane Hall Stores Building respectively and a 383kW ground-mounted installation at Lowman's Bay Power Station. While there is limited data available for the energy sector in SVG, it is estimated that there are about 21 solar PV installations, (20 privately-owned and 1 government-owned), on the Grenadines island of Bequia with a total capacity of around 149kW.

1.12 There is considerable wind energy potential mainly on the eastern side of St. Vincent and Bequia and on all of the smaller islands. In September 2005, VINLEC commenced wind resource measurements at a site in Brighton and in March 2007, expanded the exercise to Ribishi Point. Both sites showed great potential for development, as the measured mean wind speed at a height of 10 metres (m) exceeded 8 metres per second which is the standard acceptable for exploitation. A feasibility study for a grid-tied 1MW wind park at Ribishi Point, the preferred location, was undertaken. However, with the construction of the new airport in an adjacent location, this site is unlikely to be developed.

[6] VINLEC, a state-owned entity, is SVG's sole supplier of electricity and will be the offtaker should the geothermal resources be proven to support the construction of a geothermal power plant. VINLEC serves 42,000 customers and provides electricity to 98% of the population of SVG. Electricity is generated mainly by diesel generators located at power stations in Cane Hall and Lowman's Bay on the mainland and in Bequia, Union Island, Canouan and Mayreau and account for 80% of the electricity production. The remaining 20% is from hydropower stations located at Cumberland, South Rivers and Richmond on the mainland. VINLEC has undertaken a study to examine the feasibility of expanding its use of the hydropower for electricity production. The current peak demand on the mainland is just over 21MW. VINLEC supplies electricity to its customers through a network of 33kV, 11kV, 400V and 230V lines totalling approximately 350 miles in length.

Issues and Constraints

Vulnerability to Oil Price Shocks

1.13 Consequent upon SVG's high dependence on imported petroleum products, the country is highly exposed and vulnerable to fluctuations in international oil pricing. In the past, high oil prices have adversely impacted domestic prices of goods and services, including electricity tariffs, and in turn have influenced economic planning and development. Despite the current downward pressure on global oil prices, there is expectation that prices will increase again in the medium term. Fuel prices in SVG are regulated[7] and thus do not reflect day-to-day variations in prices on the international market. Additionally, the Petrocaribe S.A. energy cooperation agreement helps GOSVG to control fuel prices and further preserve some stability in pricing for the end-users, despite significant price variations in the market. However, for oil-importing countries like SVG, both price volatility and high prices still present serious challenges to economic progress and poverty reduction and bring into sharp focus the issue of energy security.

High Cost of Electricity

1.14 It should be noted that electricity tariffs across the Eastern Caribbean Sub-Region are considered very high by international standards. This is the situation in SVG where there are small isolated domestic markets in the Grenadines. The high tariffs are linked mostly to the high cost of fuel as an input to electricity production. However, the electricity industry is capital intensive and recovery of investment, together with other fixed costs from comparatively small customer bases, further exacerbates the problem. Of the 12 utilities surveyed in the Sub-Region, the tariffs of VINLEC tariffs are the 5th highest in the domestic customer category, 3rd highest in the commercial customer category and 2nd highest in the industrial customer category.[8]

Legislative, Regulatory and Institutional Support for Renewable Energy Development

1.15 GOSVG adopted a National Energy Policy (2009) (NEP) in March 2009 and an Energy Action Plan (EAP) in April 2010 which present a vision and plan, respectively, for SVG's future as one of energy independence by meeting its energy needs from reliable, affordable and RE resources. The intention is for independent power producers (IPP), making use of RE sources, to be connected to the national electricity grid. However, wide scale integration into the electricity grid of distributed generation from RE sources requires that policy objectives be supported by appropriate legislative, regulatory and institutional frameworks, together with robust rules of engagement, including a grid code and a compensation mechanism for these producers. Therefore, amendments to the Electricity Supply Act (1973) (the Act), which is the guiding instrument for operations in the energy sector, will need to be made to support the policy objective.

1.16 In order to facilitate the proposed geothermal development, GOSVG passed the Geothermal Resources Development Bill 2015 on August 18, 2015. Its main purposes are to (a) encourage and facilitate the safe production of geothermal energy for the benefit of the people of SVG; (b) encourage responsible land management; and (c) promote the use of renewable energy. The Bill makes provision for a National Energy Committee to function in an advisory role to the Minister responsible for energy. However, geothermal development requires comprehensive oversight in a number of areas of expertise and by several stakeholder Ministries and/or Agencies.

---

[7] Fuel prices are adjusted monthly based on an average of the previous three-month period.

[8] Caribbean Association of Electric Utilities Tariff Survey 2014 [Domestic - $0.28/KWh; Commercial - $0.36/KWh; Industrial – USD0.32/KWh].

1.17 To date, the Energy Unit (EU) within the Ministry of National Security, Air and Sea Port Development has been leading the engagement on behalf of GOSVG with the private partners in SVGCL in the first stages of the geothermal development. EU was set up in 2008 with a mandate to assist with the development and implementation of energy policy actions, mainly relating to RE and energy efficiency, but is short on capacity even to handle the normal day-to-day activities. Despite the legislation and supporting rules and regulations being developed to govern geothermal development, the institutions to administer these need to be established. There is an urgent need to build institutional capacity to ensure that the requisite regulatory oversight and enforcement with respect to geothermal development is carried out in accordance with globally accepted standards. Additionally, institutional strengthening will be necessary to manage GOSVG's further engagement with the geothermal developer and any other prospective developer desirous of entering the energy sector as an IPP and to participate in stakeholder engagement activities.

1.18 Currently the Act grants VINLEC, a wholly government-owned utility, exclusive rights to generate, transmit, distribute, and sell electricity in St. Vincent for a period of 60 years, expiring in 2033. Additionally, in the absence of a regulator, the Act provides for VINLEC, with the Minister's approval, to grant sub-licenses to generate, transmit, distribute, and sell under certain terms and conditions and within a specified area. As VINLEC will be the sole off-taker of any electricity supplied by the proposed geothermal plant, should the exploratory drilling be successful, this would present a situation of conflict. Therefore, the Act will need to be amended.

1.19 Some work has been started to address the deficiency in the Act with regard to integrating other RE sources into the energy mix. In October 2010, CDB approved a Sustainable Energy Technical Assistance (SETA) Project for the Organisation of Eastern Caribbean States (OECS) which included a component that reviewed each member's legislation and regulatory framework with a view to supporting the transition of their respective energy sectors toward increased penetration of RE. CDB has examined the issues and constraints surrounding the Legislative, Regulatory and Institutional Support for Renewable Energy Development as outlined in paragraphs 1.15 to 1.18 and intends to offer additional support to GOSVG for capacity building through the provision of TA.

COUNTRY SECTOR STRATEGY

1.20 GOSVG recognises that the continued dependence on imported fossil fuel to meet the country's energy needs is neither sustainable nor desirable, particularly within the context of the role that energy plays in its efforts to diversify the country's economy and pursue poverty reduction imperatives. Accordingly, it has set out broad guiding principles in NEP, two of which are to strengthen the national economy by reducing the dependence on imported fossil fuel and to expand exploitation of indigenous energy resources. Whereas hydro resources have long been exploited for the production of electricity and more recently solar energy for hot water provision, geothermal energy, which is likely to exist in large measure due to the volcanic composition of SVG, has to date gone untapped. EAP outlines the specifics of the approaches that GOSVG intends to undertake to realise its policy objectives.

1.21 The transformation and modernisation of the energy sector will require financial resources that exceed the national budget of GOSVG as well as any burden that can be reasonably carried by VINLEC. Hence, GOSVG has been aggressively pursuing concessional financing to support the geothermal development, given its high costs and risks and the ultimate impact of these costs on the purchase price for the electricity so produced.

LINKAGE OF PROJECT TO CDB'S COUNTRY AND SECTOR STRATEGY AND POVERTY GOALS

1.22 CDB's Energy Sector Policy and Strategy (2015) has as one of its areas of focus "promoting infrastructure to provide affordable, clean, sustainable and reliable energy supply" through the use of RE technologies for utility based energy supply infrastructure expansion. The Project falls within this area of focus for CDB. Should this drilling project prove successful and the geothermal resources are proven sufficient to support a geothermal plant to provide electricity to the national grid, it is expected that CDB will consider providing finance for its construction. The ensuing project will be consistent with CDB's strategic objective of "supporting inclusive and sustainable growth and development", the corporate priority to "promote environmental sustainability" and the cross-cutting theme of energy security. Such a project will increase the percentage of RE in the energy mix of SVG. Additionally, the 2014-18 Country Strategy Paper for SVG makes an allocation of $0.3 mn in grant resources for use by GOSVG to finance consultants to "provide advisory services with respect to geothermal development and to support its formulation of a roadmap for expanded use of renewable energy".

RATIONALE FOR PROJECT AND TYPE OF FINANCING

1.23 A stated GOSVG policy objective for the energy sector is reduced dependence on imported energy through continued and expanded exploitation of indigenous resources, given the negative impact that the price volatility of imported energy has had on the economy to date. One such indigenous resource is geothermal which, unlike other RE sources, has the potential to supply base load electricity to meet the demand on mainland St. Vincent. However, geothermal development has significant site-specific geological uncertainties, which make site selection, resource assessment, and even financing difficult. Therefore, it must be undertaken in a systematic way[9]. Having completed the preliminary surveys and surface exploration, the results indicate that the geothermal development should proceed to the next stage of proving the resource. This exploratory drilling project seeks to make that determination as it is not possible to validate the geothermal resource with sufficient confidence for commercial development without drilling to depths that allow for assessment of the geological conditions.

1.24 Project preparation, auxiliary, and exploratory activities will both negatively and positively impact a wide cross section of the island's population, not only along the windward corridor and in the immediate environs of the Project. Stakeholders will need to be provided with opportunities to participate in the decision-making regarding issues that affect them as the Project progresses. It is therefore necessary to engage a dedicated resource to manage stakeholder engagement and to ensure that the International Finance Corporation (IFC) Performance Standards, the best-practice approach being employed for the environmental and social aspects of the Project, are adhered to.

Rationale for CDB Involvement

1.25 The high costs and uncertainty associated with proving the geothermal resource translates to a risk profile that is front-loaded, i.e. the exploratory drilling stage is the riskiest part of geothermal development. A geothermal development risk map is shown at Appendix 1.3. As a consequence, bankability of the Project at this stage is extremely difficult and most private investors are not willing to assume the resource risk associated with exploratory drilling. Where capital can be obtained to finance the exploration, whether by

[9] The stages of geothermal development in broad terms include preliminary surveys, surface exploration, test (exploratory) drilling, resource confirmation and quantification, field development and power plant construction, commissioning and operation. Completion of each stage represents an increase in the developer's understanding of the geothermal system, a decrease in overall uncertainty of the Project's financial viability and a key decision point for which a decision to move forward normally requires additional significant financial investment.

equity or by loan, the resource risk is priced at a high premium. CDB's proposed intervention by way of a contingently recoverable grant (CRG) from the SEF, will partially de-risk the Project by shifting some of the risks away from the developer. Additionally, CDB's intervention at this stage will provide a vehicle for financing from UK-DFID of the equivalent of GBP4 mn (approximately $5.7 mn). The DFID funding will be provided as a grant to GOSVG, through CDB, for use by SVGCL. The Project will also benefit from further concessionary funds from IDB and the Green Climate Fund (GCF) at the geothermal power plant construction stage.

1.26 Notwithstanding that up to this stage the developer has invested equity finance, CDB's intervention will reduce the overall cost of capital on conversion to a concessional loan should the Project prove resources in ample quantities and quality to support the construction and operation of a power station. It is expected that the eventual addition of geothermal power to the national grid would result in electricity price stabilisation and increased energy security for SVG. However, it is not possible at this stage to determine the exact impact on the tariff as this is dependent on a number of variables which include, *inter alia*, the cost of completing the remaining stages; the level of additional equity injection required from the developer; the availability and level of concessional funds for the completion of the remaining development stages; the required investment by the off-taker to receive geothermal energy; and the extent to which the off-taker can reduce its fixed costs.

2. PROJECT DESCRIPTION

OVERVIEW

2.01 The Project, one of exploratory drilling, is the second stage of a wider investment programme of geothermal development (the Programme) being pursued by GOSVG in collaboration with the private sector. The Programme includes works up to the construction and operation of a geothermal power plant. Upon completion of the drilling phase, if geothermal resources are proven in sufficient quantities and quality and independently verified, then the next stage of design, financing, construction and operation of the geothermal power plant will be pursued. The capital cost of the Programme is preliminarily estimated at approximately $87 mn (see Appendix 2.1).

PROJECT OUTCOME

2.02 The outcome of the Project will be enhanced capability of SVGCL to make an evidenced-based determination of the feasibility of continuing geothermal resource development in the La Soufrière region for electricity production.

PROJECT COMPONENTS

2.03 The Project will comprise the following:

(a) **Project Preparation:** - includes studies, preliminary surveys, surface exploration, environmental and social impact assessments.

(b) **Offsite Infrastructure:** - widening of existing access roads to the sites to the width of the road reserve.

(c) **Integrated Drilling Services:** - site investigation and civil works associated with site preparation, water infrastructure and well pads site preparation; mobilisation and

demobilisation of drill rig; and exploration well services and materials, re-injection well services and materials and well logging and testing.

(d) **Land, Crop Compensation and Resettlement:** - Value of approximately 2.5 hectares of crown land to be utilised by the Project, compensation to farmers for crops currently growing within road reserve and relocation of a single farmer[10].

(e) **Project Management:** - services of a Project Coordinator and supporting staff to manage project implementation.

(f) **Engineering Services:** - consultancy services to provide supervision and engineering during project implementation.

(g) **TA:** - services of a CLO to support and facilitate stakeholder engagement throughout project implementation. Draft Terms of Reference (TOR) for the CLO is at Appendix 2.2.

[10] Paragraph 4.30 (a) gives further details regarding the land to be used by the Project.

TABLE 2.1: DESIGN AND RESULTS MONITORING MATRIX - SUMMARISING THE DESIGN OF THE GEOTHERMAL DEVELOPMENT DRILLING PROJECT – ST. VINCENT AND THE GRENADINES

Narrative Summary	Performance Indicators/Targets	Data Sources/Reporting Mechanisms	Assumptions
1. IMPACT: Improved ability to reach financial close for a geothermal plant, if exploratory drilling results are favourable.	Financial close by June 30, 2018.	SVGCL's records.	**Assumptions for Achieving Impact** Geothermal Power Plant Project is commercially viable and acceptable to prospective financiers.
2. OUTCOME: Enhanced capability of SVGCL to make an evidenced-based determination of the feasibility of continuing geothermal resource development in the La Soufrière region for electricity production.	1. Acceptance by SVGCL of a report with recommendations including information on reservoir performance and other new data from the exploratory drilling. December 31, 2017.	1. SVGCL's records. 2. SVGCL's revised Business Plans. 3. CDB/IDB independent verification reports.	**Assumptions for Achieving Outcome** Test results and analysis of well characteristics are conclusive.
3. OUTPUTS: 1. Three Exploratory Wells. 2. Well Log and Test Results. 3. Stakeholder consultations on project implementation completed.	1. Three Exploratory Wells drilled by October 31, 2017. 2. Well Log and Test Results by November 15, 2017. 3. At least 20% of participants in stakeholder consultations are women. 4. Independent verification of well results by November 30, 2017.	1. Site inspection. 2. Project Completion Report (PCR). 3. SVGCL's records. 4. Disbursement records. 5. Stakeholder Consultation Reports	**Assumptions for Achieving Project Outputs** 1. No abnormal weather conditions occur during the construction period. 2. No natural hazard events during the construction period. 3. All necessary approvals/permit received.
4. INPUTS:	**USD ($'000)**		

	CDB SFR				
	CTF	**GEF Funds**	**DFID**	**TGC/ SVGCL**	**TOTAL**
1. Project Preparation 2. Land, Crop Compensation and Resettlement 3. Integrated Drilling Services 4. Offsite Infrastructure 5. TA	8,467	153	5,055	10,737	24,412
6. Project Management 7. Engineering Services				3,290	3,290
Base Costs	**8,467**	**153**	**5,055**	**14,027**	**27,702**
8. Contingencies	1,033	8	603	1,109	2,752
Total Project Cost	**9,500**	**161**	**5,658**	**15,136**	**30,454**
Percentage	31	0.5	18.5	50	100

1. Monthly progress reports from the Engineering Supervising Consultants.
2. Quarterly Reports of the Project Coordinator (PC) including Investment Cost of the Project.
3. CDB disbursement records.
4. CDB supervision visits and reports.

Assumptions for Provision of Inputs

1. SVGCL is able to provide counterpart funds as required.
2. Inflation does not exceed 2% per annum (p.a.).

RESULTS MONITORING FRAMEWORK

Impact Indicators	Base Level 2016	Target Level 2018	Frequency of Reports	Data Collection Instruments	Responsibility for Data Collection
Financial Close	N/A	June 30, 2018	Once	SVGCL Records	SVGCL Staff
Outcome Indicators	**Base Level 2016**	**Target Level 2017**	**Frequency of Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Report with evidence-based recommendations	No evidence	December 31, 2017	Once	SVGCL Records	SVGCL Staff

Output Indicators	Base Level 2016	Target Level November 2016	Target Level June 2017	Target Level September 2017	Target Level December 2017	Frequency of Reports	Data Collection Instruments	Responsibility for Data Collection
Three Exploratory Wells Drilled	0	0	1	2	3	Once Monthly	PCR Consultants/PC's Reports SVGCL Records Disbursement Records	Consultant PC/SVGCL Staff. CDB Staff.
Independent verification of well results	0	-	-	-	Completed	Once	SVGCL Records Consultants/PC's Reports	Consultants/SVGCL Staff. Independently verified by CDB/IDB Consultants.
Well Log and Test Results Available	0	0%	25%	60%	100%	Monthly	SVGCL Records Consultants/PC's Reports	Contractor
% of participants in stakeholder consultations are women.		20	20	20	20	Quarterly	Stakeholder Consultation Reports	SVGCL Staff

LESSONS LEARNED AND INCORPORATED INTO DESIGN

2.04 The lessons learned and incorporated into this Project are drawn from the experience of other international financial institutions (IFIs) with similar projects, given that this is CDB's first intervention with respect to a geothermal project. The relevant lessons incorporated into the design of the Project are:

(a) *Mobilisation and provision of concessional resources for the high risk early stage of geothermal development.* The high level of uncertainty, the long gestation period before realising a return on investment and the high cost associated with proving the geothermal resource together act as a deterrent to private investors. In most cases, concessional financial assistance from IFIs and TA, where necessary, are utilised to enable the public owner – the government – to bear the resource risk in proving the resource prior to inviting private investors to participate in field development and power plant construction. For this project, GOSVG has partnered with a private developer, by way of the incorporation of a special purpose vehicle (SPV), to share the risk of early stage development. In addition to creating an enabling environment for entry by the private sector by enacting the necessary legislation and concluding supporting agreements, GOSVG has sought and obtained some concessional financing outside of that being provided by CDB to partially assist in the next phase of the geothermal development. These concessional resources should also have a positive impact on the levelised cost of electricity to be produced by the geothermal plant as this shows high sensitivity to the cost of capital.

(b) *The need for wide stakeholder engagement prior to and during project implementation.* The project developers, SVGCL, engaged in an extensive communication campaign during the preliminary preparation stage of the Project and drew up a draft Stakeholder Engagement Plan (SEP) to provide guidance throughout the project implementation. Following the detailed Environmental and Social Impact Assessment and during project appraisal by CDB, further areas that required consideration were highlighted, including the need for a trained stakeholder engagement expert to complete a full stakeholder analysis, revise SEP accordingly and establish a monitoring and evaluation (M&E) framework to test the efficacy of SEP. CLO will be recruited to support SVGCL in the operationalisation of SEP and to ensure that a best-practice approach is employed to provide stakeholders with a number of opportunities to participate in the decision making in relation to issues that affect them as the Project progresses.

(c) *Where there are multiple sources of funds, consolidate these into a single financing vehicle and/or assign a lead financier.* CDB has developed a new financing modality called the GeoSmart initiative to support geothermal energy development in the Region by providing financing instruments that are appropriate to address the level of risk associated with each stage of the geothermal development. Initial seeding of the GeoSmart initiative is through SEF, a facility arranged with IDB and described at Appendix 2.3. CDB will continue its efforts to mobilise additional resources for the GeoSmart initiative by seeking parallel financing from various donors, funds and bilateral facilities. DFID has made grant funds available to GOSVG for use on the Project and these will be administered by CDB under a Memorandum of Understanding dated May 16, 2016 with the UK acting through DFID.

3. FINANCING STRUCTURE AND COSTS

PROJECT COSTS

3.01 The Project is estimated to cost $30.45 mn. Cost estimates for the integrated drilling services were prepared by engineering consultants hired by SVGCL and are based on similar recent works. CDB is satisfied that these cost estimates are adequate for this type of works.

3.02 Table 3.1 presents the summary of estimated costs of the project components while Appendix 3.1 provides details of the cost, phasing and financing of the Project.

TABLE 3.1: SUMMARY OF PROJECT COSTS AND FINANCING PLAN ($'000)

Items	CDB SFR			TGC/ SVGCL	Total
	CTF	GEF Funds	DFID[1] [redacted]		
1. Project Preparation[2] [redacted]					
2. Land, Crop Compensation and Resettlement					
3. Integrated Drilling Services	8,467	153	5,055	10,737	24,412
4. Offsite Infrastructure					
5. Technical Assistance					
6. Project Management				3,290	3,290
7. Engineering Services					
Base Costs	**8,467**	**153**	**5,055**	**14,027**	**27,702**
8. Physical Contingency[3] [redacted]	847	8	506	912	2,271
Sub-total	**9,314**	**161**	**5,561**	**14,939**	**29,973**
9. Price Contingency[4] [redacted]	186	-	97	197	481
Total Financing Costs	**9,500**	**161**	**5,658**	**15,136**	**30,454**
Percentage Contribution	**31**	**0.5**	**18.5**	**50.0**	**100**

1/ This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.
2/
3/
4/

PROJECT FINANCING

3.03 The proposed project will be financed by:

(a) the provision of funds from CDB's SFR of an amount of four million pound sterling (GBP4,000,000) [approximately $5,658,000] allocated from resources provided to CDB by the Government of the United Kingdom of Great Britain and Northern Island through DFID to support geothermal development in the Eastern Caribbean, which will be used by GOSVG to contribute to the capital of SVGCL, to assist SVGCL in financing the integrated drilling services for the exploratory drilling;

(b) the provision of funds from CDB's SFR of $161,000 allocated from resources provided to CDB by IDB acting as Administrator of the IDB/GEF Fund to assist GOSVG in financing consultancy services of CLO;

(c) a CRG to SVGCL of $9,500,000 allocated from resources provided to CDB through IDB as the Implementing Entity of CTF, to assist SVGCL in financing part of the integrated drilling services contract (the SVGCL Grant), on the terms and conditions set out and referred to in Chapter 7 of the attached Report; and

(d) counterpart funding of $15.14 mn, representing 50% of the project costs will finance the project preparation, offsite infrastructure works, project management, engineering services, land and part of the integrated drilling services contract. This counterpart financing will be represented in cash and in kind.

3.04 Contingent upon the success[11] of the Project, CRG will convert to a loan to SVGCL and will be repayable over a period of up to 12 years, following a grace period of 2 years which covers the construction phase of the geothermal plant, at an interest rate of 1.75% per annum. In the event that SVGCL obtains funds to assist in financing the construction of a geothermal plant resulting from the Project from sources to the exclusion of CDB, the full amount of the SVGCL Grant shall, at financial close for the construction phase of the geothermal plant, be converted to a loan to SVGCL in an amount not exceeding eleven million four hundred thousand United States dollars (USD11,400,000) representing the amount of the SVGCL Grant plus a twenty percent (20%) premium, and shall be re-payable immediately in a single payment.
3.05

4. PROJECT VIABILITY

TECHNICAL ANALYSIS

Options Considered

4.01 In order to support its stated energy policy objective of reducing the country's dependence on imported fossil fuel by expanding the exploitation of indigenous energy sources, GOSVG took the decision to explore the geothermal potential that is known to exist on SVG. As such, no other source option was considered, however, options for well size were examined.

4.02 When pursuing large geothermal development projects, it is customary to drill slim holes (exploratory drilling) to facilitate testing prior to undertaking the drilling of full sized production wells for field development (development drilling). However, in light of the small size of the proposed development (10-15 MW) when compared with the requisite high capital outlay for the exploratory drilling stage, full sized production wells will be drilled from the outset. This decision was not only based on the costs of mobilising and demobilising the respective drill rigs for a relatively small overall development, but was also influenced by the confidence provided by the positive results and data obtained from the several studies and investigations that were undertaken.

Surface Exploration

4.03 In addition to the comprehensive desk study previously described, a number of studies and assessments were commissioned by SVGCL, and undertaken, to arrive at the decision to move forward with the exploratory drilling phase of the geothermal development. Remote sensing to map the eastern slopes of La Soufrière some 4km inland, the focal point of the investigation, was done using LiDAR imaging from an aircraft as a result of the topography of the mountain which is characterised by steep ridges and narrow valleys. Resistivity surveys, utilising Magneto-telluric and Transient Electromagnetic Methods were carried out in 2013 and 2014 on 45 locations mainly on the eastern side of La Soufrière. Results

[11] Success is being defined as geothermal resources proven in ample quantities and quality to support the construction and operation of at least 7.5 MW geothermal power plant (as referenced in SVGCL shareholders' agreement).

revealed a resistivity structure that is comparable with that of high enthalpy geothermal fields across the globe that could yield temperatures of about 230 - 240 degree centigrade at a 1,000 to 1,200 meter depth under the area around the summit of the mountain and half way down the slopes. However, the recommendation was to drill the exploratory wells in locations closer to the summit with the higher resistivity while, if drilling is successful, the re-injection well would be located at a lower elevation approximately 500 metres below the exploratory wells.

Location

4.04 A site selection process was undertaken to identify the most suitable sites for drilling and ultimately the construction of the geothermal power plant. Nine sites were identified as potential drilling sites again using LiDAR imaging. These sites were evaluated based on the following criteria:

(a) Proximity to the geothermal resource;

(b) Access to cooling water for drilling and power plant;

(c) Risk from volcanic activity; and

(d) Constructability including the size of the site and accessibility.

Sites 1 and 3 were selected due to the close proximity to the geothermal resource, good access from the existing road, and a sufficiently large flat area for drilling and eventual power plant development. Whereas Site 1 is on land owned by GOSVG, Site 3 is on land that was recently sold by GOSVG and therefore will have to be repurchased.

4.05 The site selection was also supported by an infrastructure assessment study[12], the primary objectives of which were to assess the suitability of the existing infrastructure to accommodate the geothermal project; establish probable estimates of cost for the necessary upgrades to the infrastructure and provide preliminary timelines for the upgrades. It was concluded that the Windward Highway infrastructure was generally adequate and better suited for the transportation of the containers, equipment and the drill rig to a windward site. Low hanging vegetation and overhead power lines will require clearance prior to the use of this route. The tunnel at Byera Hill was found to be adequate in size for the passage of the containers and drill rig. Generally, from an infrastructure and access point of view, a Windward site is the preferred location for the drill pad and possible power station[13]. The results of this study informed the Project's cost estimates.

Geotechnical Investigations

4.06 Once the two sites were selected, geotechnical investigations were undertaken[14]. Soil samples were retrieved from seven test pits of 5.5m deep and analysed at a soils laboratory in Saint Lucia. The soil samples revealed that the formation was very similar at both sites, with a shallow layer of topsoil overlaying a gravelly, silty sand layer with approximately 70% sand content. The geotechnical investigations concluded that both sites were generally suitable for the proposed geothermal development. However, a number of recommendations were made for controlled development of the two sites. These included, *inter alia*, site grading, controlled placement and compaction of the granular material on the drill pad and site drainage. Also recommended was that a number of deep boreholes needed to be drilled to confirm the soil

[12] Feasibility Study to Assess Infrastructure Capacity for Geothermal Development at La Soufrière Volcano, St. Vincent, W.I. - May 2015
[13] Excerpts from Feasibility Study to Assess Infrastructure Capacity for Geothermal Development at La Soufrière Volcano, St. Vincent, W.I. – May 2015
[14] Site Investigations at Two Potential Sites for Geothermal Development at La Soufrière Volcano, St. Vincent, WI – May 2015.

strata at greater depth. The implementation of the infrastructure works will require the preparation of detailed topographical surveys, detailed designs and construction drawings and specifications[15].

Plant Size Selection

4.07 The technical and economic issues of integrating geothermal energy onto the electricity grid were considered in a June 2013 study[16]. In evaluating the financial and economic viability of a geothermal power plant versus continuing reliance on a fossil fuel power plant, three options[17] for the geothermal plant were considered against the base option of diesel generation, within the context of the country's current and projected overall electricity demand. The components included in the analysis related to development and exploratory costs; capital costs; transmission lines and substation costs; operating and maintenance costs; fuel costs; environmental mitigation costs; infrastructure improvement costs; and carbon credits.

4.08 The analysis indicated that an overall plant size in the range of 10-15 MW is best suited to be integrated into the grid to meet the electricity demand. Therefore, exploratory drilling will seek to confirm geothermal resources that can support a plant of this size. Given the size of VINLEC's power system, individual generating units would be sized at 5 MW to ensure that grid stability and system reliability are not compromised. Under the generation dispatch protocol, the hydropower generating units will continue to operate and be dispatched first, the geothermal power plant will be dispatched second and the newer diesel generating units at Lowman's Bay Power Station will be dispatched third. However, VINLEC will be required to keep in operation older diesel units at its Cane Hall Power Station for peaking and standby duty. This will have a consequential impact on its operating and maintenance costs.

INSTITUTIONAL AND FINANCIAL ASSESSMENT

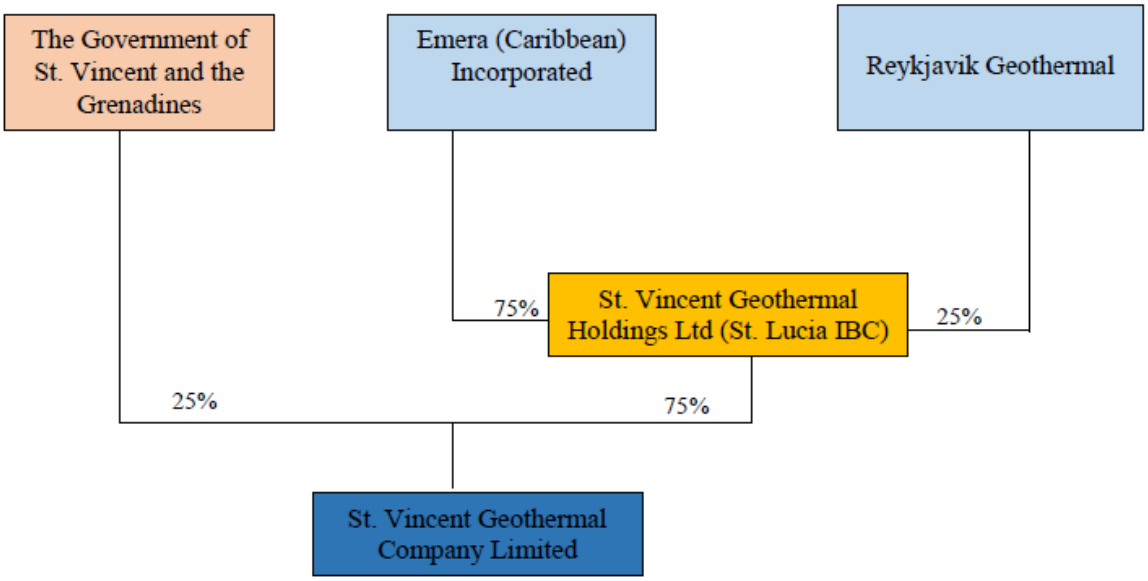
Institutional Assessment

SVGCL

4.09 SVGCL is an SPV, established under a PPP between St. Vincent Geothermal Holdings Limited (TGC) and GOSVG. It was incorporated on November 26, 2015 under the laws of SVG to develop, construct, own, operate and maintain a geothermal power plant. TGC is an international business company formed under the laws of Saint Lucia and is owned by ECI (75%), which is a wholly-owned subsidiary of Emera Inc., and RG (25%). GOSVG is expected to hold a 25% equity interest in SVGCL. The remaining 75% equity interest will be held by TGC which is equivalent to ECI (56.25%) and RG (18.75%). The ownership structure is illustrated in Diagram 4.1. A forecasted Balance Sheet for SVGCL as at June 2016, December 2016 and October 2017 (estimated end of the Project), and an outline of the Source and Use of Funds for the Project period are presented at Appendices 4.1 and 4.2, respectively.

[15] Excerpts from Site Investigations at Two Potential Sites for Geothermal Development at La Soufrière Volcano, St. Vincent, WI – May 2015.
[16] "Preliminary Assessment of the Electricity System Technical and Economic Issues"
[17] Option 1 Base case – Expansion with Diesel Generation; Option 2 – Expansion with a 10MW Geothermal Power Plant, Option 3 - Expansion with a 15MW Geothermal Power Plant, Option 4 - Expansion with a 15MW Geothermal Power Plant and future Geothermal Additions.

DIAGRAM 4.1: SVGCL OWNERSHIP STRUCTURE



4.11 RG, a geothermal development company founded in 2008, is focused on the development of geothermal resources for utility scale power production. A main focus of the company is the identification of locations where quality geothermal resources can be efficiently harnessed to meet the local demand for power and clean dependable energy. RG has been involved in the development of over 3,000 MW of geothermal projects in over 30 countries and is currently active in a number of countries around the world including Ethiopia, Rwanda, Mexico, India, Saudi Arabia and the United Arab Emirates. The company is also spearheading the development of one of the world's largest geothermal power plants in Hellisheidi, Iceland.[18] RG maintains relevant associations with local power off-takers and clients who rely on the efficient and reliable delivery of clean indigenous power.

4.12 ECI, is a wholly owned subsidiary of Emera Inc. of Halifax, Nova Scotia. ECI is traded on the Barbados Stock Exchange. ECI's core business strategy involves reducing portfolio carbon intensity, connecting and integrating renewables onto the grid, investing in natural gas infrastructure and investing in utilities[19] where strategic value can be realised. Achievements of these targets include strategic acquisitions in the Caribbean region in the areas of fuel supply, geothermal, renewables, natural gas independent power producers, and equipment maintenance. ECI's financial performance data indicate that over the 2013-2015 period, the company maintained healthy profitability levels and sufficient cash reserves to meet operational investment and capital expenditure requirements.[20]

4.13 SVGCL will therefore benefit from the regional and international institutional experience of its partners as it seeks to develop the geothermal resource in SVG. SVGCL's commitment to the Project was demonstrated by its willingness to undertake the high risk early stage geothermal development work utilising its own resources. To date, a number of agreements have been signed to effect this early stage of geothermal development. These are the:

[18] www.reykjavikgeothermal.com accessed on April 11, 2016.
[19] The company has shareholdings in electric utilities in Barbados, Dominica and Saint Lucia.
[20] ECI's 2013, 2014 and 2015 Audited Financial Statements

(a) Shareholders' Agreement;

(b) Geothermal Exploration Agreement and Resource Concession;

(c) Option Agreement;

(d) Expense Recovery Agreement; and

(e) Tax Letter.

4.14 The above noted documents have been reviewed by CDB and for this phase of the project CDB has no objection. A Heads of Agreement for the proposed Power Purchase Agreement has been drafted and is being considered between VINLEC and SVGCL and this is expected to be finalised following completion of this Project. It shall be a condition precedent to first disbursement of the Grant that the Heads of Agreement be executed by VINLEC and SVGCL.

Organisational Structure

4.15 There are four members of the Board of Directors representing the three shareholders. Although the geothermal development is in its early stages, SVGCL has considered the operational requirements for the power plant stage. This includes the organisational structure of the company and the skills and manpower levels required for the safe and proper operation of the power plant. Definition of such a structure will enable SVGCL to refine its preliminary projections for human resource requirements. This will allow ample time to recruit and train personnel to maintain and operate the plant and also allow for the appropriate office and other facilities to be built.

Financial and Economic Benefits – Exploratory Drilling Phase

4.16 The Project is expected to determine the geothermal energy potential at La Soufrière which would facilitate an investment decision in production facilities. This is the second phase in a multiple-stage development process that has the potential to transform the energy matrix in SVG. Should this phase be successful and a geothermal power plant constructed, this would result in substantial substitution of electricity production from imported fossil fuel with one that is based on an indigenous stable and affordable source. The ultimate benefit would be to place SVG on a sustainable energy path.

4.17 Historically, geothermal exploratory drilling reflects a significant degree of resource risk, i.e. the risk that the geothermal resource will either not exist or be inadequate either in composition or in sufficient quantity to be considered a "proven" resource, and therefore considered for further economic investment. CDB's intervention at this stage is therefore significant as it seeks to offset these costs by making appropriate concessional funding available through a CRG of $9.5 mn to SVGCL. CRG will convert to a concessionary loan once the adequacy of the resource is determined in relation to the capacity targets established, i.e. "technical success" is independently certified. In addition, CDB's intervention at this stage will be supplemented by co-financing from UK-DFID of GBP4 mn (approximately $5.7 mn). The DFID funding will be provided as a grant through CDB to GOSVG for use by SVGCL.

4.18 The availability of grant and quasi-grant financing for the early stage surface exploration and exploratory drilling has addressed a substantial barrier to the development of geothermal energy in the islands of the Eastern Caribbean. Given the small and isolated nature of domestic electricity markets, and the inadequacy of an appropriate legislative and regulatory context, it has been difficult for sub-regional governments to attract credible investors. The CDB GeoSmart initiative, with initial funding from SEF resources provided by IDB, is a mechanism to address the perceived risk of exploration (proving the

resources) without great injection of developer equity, which has not been forthcoming. Commercial bank financing is not readily available for this stage of development given the high risk profile of exploratory drilling, generally.

4.19 The exploratory drilling phase is intended to prove the existence of an adequate geothermal resource, however, revenue streams associated with exploitation of the resource are dependent on successful Financial Close for the construction of the plant and its operationalisation. A detailed analysis identifying financial returns and economic benefits would be undertaken once an adequate resource is confirmed and a formal power purchase agreement is executed between SVGCL and VINLEC, the off-taker. Additionally, a Cost of Service and Tariff Study will be commissioned by VINLEC that will define end user costs, subsequent to the exploratory drilling phase.

4.20 Using assumptions obtained from the Business Plan and utilising a financial model from IDB consultants, the likely impact of using grant and concessionary funds was estimated. The main assumptions being made include:

(a) 70% Debt: 30% Equity;

(b) a blended interest rate on all concessionary loans of 2.33%;

(c) comparison of concessional financing with commercial loan financing of $55 mn at 7.5% made available to SVGCL;

(d) a plant size of 11 MW; and

(e) a pre-geothermal production mix of 80% diesel: 20% hydropower and post-geothermal mix of 50% geothermal: 30% diesel: 20% hydropower.

4.21 According to the results of the model, the Project reduces generation cost when either funding source is utilised as relatively cheaper geothermal inputs are substituted for more expensive diesel inputs in the analysis and will positively impact generation costs. However, applying concessionary funds is expected to yield a greater reduction on generation costs of 21% compared to the scenario where commercial funds are utilised and generation costs decline by an estimated 14%.

4.22 Over the period 2012 to 2014, VINLEC's cost per imperial gallon of diesel averaged $3.90. In this period SVG tariff rates averaged $0.39/kWh and generation costs $0.26/kWh and this was indicative of the relatively high cost of diesel input. With the decline in global crude oil commodity prices, average cost per imperial gallon of diesel declined in 2015 to $2.35 with the resulting correlated reductions in Generations costs/kwh to $0.18 and the average tariff to $0.30. This data is reflected in Table 4.2. However, given the volatility in this commodity market, it is anticipated that by displacing diesel fuel generation cost, the company will in effect hedge this variability and share any savings with the consumer.

TABLE 4.2: VINLEC FINANCIAL DATA

Items	**2012**	**2013**	**2014**	**2015**
Cost per Imperial Gallon of Diesel	3.98	3.94	3.78	2.35
Generation Costs/Kwh	0.26	0.26	0.26	0.18
Average Tariff/Kwh	0.39	0.39	0.39	0.30

Source: VINLEC

4.23 SVGCL's business plan references a geothermal target cost of generation at a ceiling of $0.18/per kWh[21] which approximates to VINLEC's cost of generation in 2015. Given the historical correlation it can reasonably be expected that reductions in tariff will result if cheaper geothermal is substituted for more expensive diesel should costs per imperial gallon of diesel return to pre-2015 levels.

4.24 Upon completion of the programme, the economic benefits are expected to include, but are not limited to, (i) energy security and electricity price stability; (ii) reduced carbon emissions compared to diesel; (iii) foreign exchange savings; and (iv) job creation and other economic benefits.

ENVIRONMENTAL, SOCIAL AND GENDER ASSESSMENT

General

4.25 In compliance with CDB's Environment and Social Review Procedures, the Project is categorised 'B' because of the limited number of specific adverse social and environmental impacts which may result from the proposed activities and which can be avoided or mitigated by adhering to national regulations and generally recognised performance standards[22], guidelines or design criteria. An ESIA and associated Environmental and Social Management Plan (ESMP), was prepared by independent consultants for the Project[23]. An Environment and Social Action Plan (ESAP) has been developed, to ensure that any outstanding issues[24] at the time of project approval, are addressed in a timely and appropriate manner. A summary of the ESIA and the ESAP is attached at Appendix 4.3. The ESIA was disclosed in country on April 12, 2016 and was also presented at public meetings.

4.26 The potential geothermal field is located on the southern slopes of the La Soufrière Volcano and is bordered by the Mount Pleasant Forest Reserve and the St. Vincent Parrot Reserve. Two other proposed protected areas lie within the immediate vicinity of the project area. The forest reserves are critical natural habitats particularly because of the presence of the International Union for Conservation of Nature (IUCN) red listed species and other threatened endemic/restricted range species protected by the SVG Wildlife Protection Act 1991 or included in the SVG List of Species of National Concern[25].

Impacts

4.27 The primary footprint for project activities is associated with (a) two exploration drill pad sites (W1 and W3); (b) a water system (including a water intake, pipeline, and storage pond); (c) mud pond and geothermal fluid pond; (d) reinjection well pads (one for each site); and (e) upgrading of access roads.

---

[21] $0.18 per kWh is premised on commercial debt financing at 7.5%. Concessional financing will account for a greater reduction in generation cost.

[22] IDB and CDB agreed that for this the SEF and all sub-projects under it, IFC Performance Standards and World Bank Environmental, Health and Safety (EHS) Guidelines will be the applicable standards in screening and managing E&S risks and impacts. The IFC EHS Guidelines are technical reference documents that present general and specific examples of Good International Industry Practices. The ones most relevant to the Project are: *General EHS Guidelines* (2007)10 and *Environmental, Health, and Safety Guidelines for Geothermal Power Generation* (2007)10.

[23] A separate ESIA will be prepared for a production and transmission project, if the geothermal characteristics are determined suitable for power production.

[24] For example, the ESAP identifies and prioritizes actions needed by SVGCL to address gaps in the project design, environmental and social management plans, and stakeholder engagement process.

[25] Two species on the IUCN Red List that are known to appear in or near the project area are the St. Vincent Parrot (vulnerable) and the St. Vincent Whistling Frog (endangered). The primary species of interest in the Rabacca River is the Sirajo goby because it is fished locally and is a migratory species which rely on increased fresh inputs from the river as a cue to begin migrating upstream to spawn.

Vegetation clearing will be required for the Project, however, this area is not a critical habitat and is common within the immediate area.

4.28 The key environmental issues of relevance to the Project, identified for detailed analysis and addressed in the ESMP relate to: (a) soil erosion and landslips from land clearing and levelling activities associated with construction of drill pads and reinjection well pads and water ponds on steep slopes in a relatively wet environment; (b) disposal of liquid waste and excess material from drill muds and cuttings and other earth works; (c) reliability of water extraction from the Rabacca River to meet the drilling water demands particularly during the dry season; (d) potential loss/degradation of some aquatic habitat; (e) increased noise during continuous 24-hour drilling and blow testing, resulting in exceedances of IFC night-time noise standards; and (f) temporary degradation of habitat quality of the St. Vincent Parrot and the St. Vincent Whistling Frog as a result of noise, light, and increased human activity within the nearby La Soufrière National Park and Mount Pleasant Forest Reserve. Other project impacts include dust nuisances; and geothermal gas emissions which could be generated during drilling and testing; and risks to workers' health and safety. In the event that testing results indicate that the exploration wells are not suitable for production, the sites will be decommissioned.

4.29 SVG is highly exposed to meteorological and geophysical threats such as seismic events, landslides, flash flooding, hurricanes, and volcanic eruptions. These natural hazards risks could affect construction, drilling, and testing. An emergency management plan is included in the ESMP to manage these risks to the project.

Social and Gender Impact Assessment

4.30 The Project area is located within the Georgetown and Sandy Bay census districts. The Project will affect 1,209 households within these districts[26] and has the potential to intermittently affect settlements, businesses and commuters along the Windward Highway from the Kingstown Port to the feeder roads to the drilling sites. The primary impacts of concern of the project will include:

(a) The construction activities for sites W1 and W3 will occur on crown lands utilised by small farmers on lease to own arrangements with the State. Physical resettlement will however be required for one farming household resident of the land. In addition to land a house was constructed at the site. Relocation of the household is in advance stages as plans are on the way for the construction of a new home for the family. Farmers affected by the Project will be compensated for the loss of crop and where necessary relocated to alternative crown lands under the same arrangements. A draft Resettlement Action Plan (RAP) has been prepared for finalisation with the identification of people to be affected with the requisite compensation programme;

(b) Tourists and other recreational users will be impacted by increasing noise levels and the changing visual landscape near site W1 - located along the access road to the Bamboo Range Hiking Base Station, where hikers ascend the La Soufrière Volcano, one of the most popular tourist attractions in SVG;

(c) Temporary traffic disruption for commuters along the windward highway and the project access roads during transport of project equipment and materials from Kingstown Port to sites W1 and W3;

[26] Comprising 2,073 males and 1,957 females.

(d) Potential damage to culturally important sites along the transport route - particularly at the Byera Tunnel and the Orange Hill Aqueduct. There is also the potential that unanticipated discoveries may occur during construction, given the number of other archaeological sites known to occur in the project area;

(e) Change in the quantity and quality of water in the Rabacca River which will affect recreational activity; and

(f) Potential for conflict between foreign workers and local communities and for an increased incidence of negative or harmful practices such as prostitution, gender-based violence and the use of illegal drugs. A CLO (see TOR in Appendix 2.2) will conduct awareness raising with community stakeholders on the issue.

4.31 A RAP has been prepared and once the detailed design of the civil works is completed, the RAP will be updated to include identification of all persons who affected by physical and/or economic displacement and the provision of requisite compensation. The abovementioned social impacts can be mitigated through adherence to existing national policies and procedures, as well as implementation of measures outlined in the previously referenced ESMP and ESAP.

4.32 A SEP, inclusive of a grievance redress mechanism (GRM), was developed to support participation and to keep all those affected by t or with a stake/interest in the project, informed during project preparation and implementation. The GRM will strategically and effectively facilitate the resolution of any community and stakeholder concerns that maybe raised during project preparation and implementation. The implementation of the SEP will be supported by a CLO. The SEP will facilitate processes that support and encourage inclusive participation. Equal participation of all groups of men and women (boys and girls where applicable) is expected to occur. The voices of women and other vulnerable groups such as the residents from the nearby Garfuana territory will therefore be included.

4.33 It is expected that hiring for construction and drilling works will generate more jobs for men than for women[27]. However, given the trends in the country's labour force, there may be opportunities for women as unskilled and semi-skilled labourers. Women are also likely to benefit from income earning activities in the provision of support services to the Project as there will be demands for housing and food to support project implementation. The Project is assessed as marginally mainstreamed, based on CDB's Gender Marker. The results of the Gender Analysis is shown at Appendix 4.4. The Gender Action Plan is shown at Appendix 4.5.

Environmental Mitigation and Monitoring

4.34 Recommended and well-known effective environmental and social mitigation measures and monitoring requirements to avoid, mitigate and compensate for the adverse impacts of the Project is consolidated in the ESMP and ESAP. A summary of the environmental and social management plans required under the Project is presented at Appendix 4.6.

4.35 SVGCL, as the developer, has from the outset of project design, demonstrated its commitment to adhere to environmental and social performance requirements and best industry practices, to manage the Project's environmental and social impacts. SVGCL will be responsible for overall project monitoring,

[27] The CDB-supported Country Gender Assessment (CGA) for Saint Vincent and the Grenadines from 2016 indicates that higher proportion of men is involved in construction activities. According to the Census from 2012 those were 93% in the construction sector compared to 7% women.

ensuring compliance with environmental and social policies and obligations in the ESMP, and ensuring that its commitments, are incorporated as contractual specifications.

4.36 As a condition precedent to disbursement for the construction works at sites W1 and W3, respectively, SVGCL is required to provide evidence acceptable to CDB that the actions outlined in Section A and C of ESAP Table 1 in Appendix 4.3 have been satisfied.

4.37 As a condition of the CRG, SVGCL will submit monitoring reports in accordance with the frequencies identified in the ESMP for: air emissions, ambient air quality, noise and vibrations, effluent quality, groundwater quality, and solid waste, to the appropriate authorities in SVG[28].

4.38 It will be a condition of the CRG that if Site W1 is determined to be unsuitable for production that the site will be decommissioned.

4.39 The Engineering Consultants will monitor the contractors' environmental performance and compliance with the mitigation measures stipulated in the contract documents and provide routine reports to CDB. CDB staff will carry out at least two supervision visits in collaboration with IDB and may also utilise services of independent consultants if deemed necessary.

5. RISK ASSESSMENT AND MITIGATION

5.01 The risks for the Project can be categorised into implementation and financial and are outlined in the table below along with the mitigants for same. The resource risk is assessed as major and cannot be totally eliminated and so the mitigation measures that have been undertaken are to minimise these.

TABLE 5.1: SUMMARY OF MAJOR RISKS AND MITIGATION MEASURES

Risk Type	Description of Risk	Mitigation Measures
Implementation	**Resource Risk:** Risk that the geothermal resource will be inadequate[29] to support the proposed size of power plant	Extensive preliminary studies and surface exploration were undertaken by internationally renowned industry leaders to identify the drilling sites and minimise this risk.
	Drilling Risk: Financial risk relating to the probability of realising dry wells during exploration.	Utilisation of CDB's CRG and other concessionary resources to provide an adequate level of project de-risking.
	Cost overrun Risk: Risk of longer than anticipated drilling times per well and/or the need to drill more wells resulting in implementation delays and increased costs.	A sensitivity test undertaken by CDB consultants stressed the capital cost variable at this stage of the development and it was determined that the Project could withstand a 15% increase in capital cost before it significantly impacts the target cost of power.

[28] The Physical Planning Board
[29] Inadequate in terms of existence, resource size, suitability and sustainability.

Risk Type	Description of Risk	Mitigation Measures
	Weak capacity on part of GOSVG to satisfactorily oversee and monitor all on-site and off-site aspects of the Project.	CDB to provide TA to support GOSVG in capacity building.
	Environmental and Social Risk: Residual adverse environmental and social impacts associated with noise; economic displacement; water resources quality and abstraction; and disturbance of terrestrial and aquatic biodiversity.	Identified adverse environmental and social impacts are addressed in the ESMP. The ESMP references conformance to IFC performance standards and details environmental monitoring requirements.
	Natural hazard risks to the Project e.g. seismic events, storms and extreme weather events.	Emergency Response plan is included in the ESMP. The contractor will be required to take out the necessary insurance to offset losses from such an occurrence.
Operational	GOSVG not yet implemented SETA recommendations regarding the revision to the general electricity legislation.	CDB to provide further TA to support GOSVG in resolving these issues and building capacity.

6. IMPLEMENTATION AND PROJECT MANAGEMENT

6.01 The Beneficiaries of the Grant are GOSVG and SVGCL. Details of the Beneficiaries are given at Appendix 6.1.

PROJECT MANAGEMENT AND IMPLEMENTATION

6.02 Implementation of the Project will be the responsibility of a PC, referred to as the Project Manager (PM) by SVGCL. The services of the PC/PM will be paid for by SVGCL. As a condition precedent to first disbursement of the CRG, SVGCL shall have assigned a PC/PM, a person whose qualifications and experience are acceptable to CDB. No change shall be made to the appointment of PC/PM without the prior approval, in writing, of CDB. The PC will be responsible for coordinating and monitoring all aspects of the Project, in accordance with the TOR at Appendix 6.2.

6.03 At present a project team has been established for the Project and the organisational structure is shown at Appendix 6.3. The Project will be being managed by a suitably qualified and experienced team, drawn from the sponsors as well as recruited on the open market. High-level technical expertise will be provided by ECI and RG on a part-time basis, to back up on-site management and keep overhead costs within manageable levels. The following primary resource allocations have been highlighted:

(a) **PM:** During the exploratory drilling phase PM will be on site on a frequent basis (at least monthly) to monitor progress and ensure proper oversight. PM would be on site full time towards the end of the exploratory drilling phase.

(b) **Drilling Supervisor:** A Drilling Supervisor with requisite geothermal experience will be on site full time throughout the entire exploratory drilling phase to monitor the work of the drilling contractor. The Drilling Supervisor will report to the Engineering Lead – Geothermal.

(c) **Engineering Lead – Geothermal:** Engineering Lead – Geothermal from RG, will visit the site periodically and at critical junctures during the exploratory drilling phase to monitor progress on the drilling of the wells and participate in well testing.

(d) **Environmental Lead:** The lead, from RG, has already been on site for extended periods and will be assigned to the Project as needed to fulfil all environmental and social aspects of the Project in collaboration with the ESIA consultant. He is being supported by the Manager Government Relations (noted below) as well as a local consultant.

(e) **Manager, Government Relations (GR), Environmental and Social and Project Facilitation:** The Manager GR is already on site and will spend extensive periods in St. Vincent to support the Project. He will work closely with the Director, EU, who will be assigned full time to the Project.

(f) **Health and Safety (HS) Officer:** ECI's Manager, HS, will visit the site on a regular basis to monitor all health and safety aspects of the Project and ensure compliance by all contractors.

All of these functions fall under the purview of the PC who reports to a Management Committee representing the owners of SVGCL.

6.04 To enable success, proactive communications will continue throughout the Project facilitated by CLO. Several stakeholder sessions have been held over the past two years, including community meetings that took place in late 2013 and a presentation to the Cabinet of the GOSVG in February 2015. The objectives of these sessions will continue to be:

(a) building broad support for the Project and understanding of geothermal energy;

(b) increasing public awareness and acceptance of the potential for geothermal energy;

(c) managing public expectations;

(d) creating confidence that an experienced team is committed to the Project;

(e) enabling GOSVG to assume the role of champion for the Project; and

(f) building an understanding of community and stakeholder issues.

6.05 Engineering consultants will be engaged by SVGCL to provide the services set out at Appendix 6.4. The cost of these services will be financed by SVGCL. It will be a condition precedent to first disbursement that SVGCL engages consultants whose qualifications and experience are acceptable to CDB.

IMPLEMENTATION SCHEDULE

6.06 The Project will be implemented by SVGCL over a sixteen-month period commencing with approval of the Board of Directors (BOD). The proposed Implementation Schedule is presented at Appendix 6.5 and an Implementation Support Plan is at Appendix 6.6.

PROCUREMENT

6.07 Procurement shall be in accordance with the CDB's Guidelines for Procurement (2006), for goods, works and non-consultancy services, and Guidelines for the Selection and Engagement of Consultants (2011).

6.08 Given the limited number of appropriately qualified and experienced drilling contractors for geothermal development, the procurement method of limited international bidding shall be employed. Additionally, there are a number of auxiliary services required to support the exploratory drilling and testing phase of geothermal development and because of the small size of the Project, an integrated services approach with a single contract has been recommended.

6.09 A waiver of CDB's Guidelines for the Selection and Engagement of Consultants (2011) for the CLO contract is sought to extend eligibility to IDB member countries, in accordance with the SEF Finance Agreement signed with IDB (Board Paper BD 100/15). [redacted] In addition, a further waiver of CDB's Guidelines for Procurement (2006) is sought to extend eligibility for the Integrated Drilling Services contract to all countries, given the specialist nature of the services to be provided and the countries in which companies providing them are established. [redacted] The Procurement Plan is provided at Appendix 6.7.

DISBURSEMENT

6.10 Disbursement of the Equity Component and SVGCL Grant will be in accordance with conditions set out at paragraphs 7.02 (1) and 7.03 (1), respectively. It is expected that first disbursement of the grants will be made by December 31, 2016 and final disbursement by October 30, 2017. An estimated Quarterly Disbursement Schedule is at Appendix 6.8.

MONITORING AND REPORTING

6.11 Details of the reporting requirements for the Project during implementation are given at Appendix 6.9. It will be a condition of the loan that PC/PM furnish or cause to be furnished to CDB, the reports listed in Appendix 6.9 in such form or forms as CDB may require, not later than the times specified therein for so doing.

PERFORMANCE EVALUATION RATING

6.12 Under CDB's Project Performance Evaluation System (PPES), not all criteria are relevant given the nature of the Project. The composite performance score for the Project is estimated at 5.3. The score is satisfactory and suggests that the Project will, on successful implementation, adequately meet its stated objective. Details of PPES rating are provided at Appendix 6.10. PPES and the Design and Monitoring Framework will be the tools utilised to monitor and evaluate the performance of the Project.

7. TERMS AND CONDITIONS

7.01 The proposed funding for the Project is as follows:

(a) a grant to GOSVG, for use by SVGCL, comprising:

(i) an amount of four million Pounds Sterling (GBP4,000,000) to assist in financing a portion of the integrated drilling services; and

(ii) an amount not exceeding the equivalent of one hundred and sixty-one thousand United States dollars (USD161,000), to assist in financing the CLO consultancy.

(b) a contingently recoverable grant to SVGCL of an amount not exceeding the equivalent of nine million five hundred thousand United States dollars (USD9,500,000), to assist in financing a portion of the integrated drilling services,

(together the Project).

7.02 It is recommended that CDB makes a grant to GOSVG from CDB's SFR comprising:

(a) an amount of four million Pounds Sterling (GBP4,000,000), allocated from resources provided to CDB by DFID to support geothermal development in the Eastern Caribbean, to be used by GOSVG to contribute to the capital of SVGCL, for the purpose of assisting SVGCL in financing a portion of the integrated drilling services (the Equity Component); and

(b) an amount not exceeding the equivalent of one hundred and sixty-one thousand United States dollars (USD161,000) allocated from resources provided to CDB by IDB (acting as an administrator of the IDB/GEF Fund) under SEF, to assist in financing the CLO consultancy (the TA Component),

(together the GOSVG Grant);

on CDB's standard terms and conditions, and on the following terms and conditions:

(1) **Disbursement**

(a) Except as CDB may otherwise agree, and subject to paragraph (b) below, disbursement of the TA Component shall be made periodically on receipt of:

(i) a request in writing from GOSVG for the funds; and

(ii) documentation, satisfactory to CDB, with respect to the TA Component.

(b) Provided, however, that CDB shall not be under any obligation to make:

(i) the first payment pursuant to paragraph (1)(a) above until:

(aa) CDB has received a copy of the signed CLO consultancy contract; and

(bb) CDB has been provided with evidence, acceptable to CDB, that the condition precedent to first disbursement of the GOSVG Grant set out in paragraph (3) below shall have been satisfied

(ii) any other payment pursuant to paragraph (1)(a) above CDB shall have received:

(aa) the requisite number of copies of the reports or other deliverables, in form and substance acceptable to CDB, to be furnished for the time being by CLO to CDB in accordance with the TOR at Appendix 2.2; and

(bb) an account and documentation satisfactory to CDB in support of expenditures financed by GOSVG for the resources of the immediately preceding payment.

(c) Except as CDB may otherwise agree, disbursement of the Equity Component shall be as follows:

(i) the Equity Component shall be used to finance the components of the Project allocated for financing by CDB as shown in the Project Cost and Financing Plan for the Project at Appendix 3.1 (the Financing Plan) up to the respective limits specified therein; and

(ii) total disbursements shall not exceed in the aggregate eighteen decimal five percent (18.5%) of the cost of the Project.

(d) The Equity Component shall not be used to meet any part of the cost of the Project which consist of identifiable taxes and duties.

(e) The first disbursement of the GOSVG Grant shall be made by December 31, 2016 and the GOSVG Grant shall be fully disbursed by October 30, 2017, or such later dates as CDB may from time to time specify in writing.

(2) **Procurement**

(a) Except as provided in sub-paragraphs (b) and (c) below, procurement shall be in accordance with the procedures set out and/or referred to in the Agreement between CDB and GOSVG providing for the GOSVG Grant, or such other procedures as CDB may from time to time specify in writing. The Procurement Plan approved by CDB is set out at Appendix 6.7. Any revisions to the Procurement Plan shall require CDB's prior approval in writing.

(b) Procurement of the CLO consultancy shall be extended to IDB member countries.

(c) Procurement of goods, works and services in respect of the integrated drilling services shall be without restriction as to country eligibility.

(3) **Condition Precedent to First Disbursement of the GOSVG Grant:**

PM/PC referred to in sub-paragraph 7(e) below shall have been assigned.

(4) **Conditions Precedent to Disbursement in respect of the Works at each Site:**

CDB shall not be obliged to disburse any amount in respect of the works at each Site until GOSVG shall have submitted to CDB, through SVGCL evidence, satisfactory to CDB, that the lands required for that Site have been vested in SVGCL, free of encumbrances, covenants, conditions and stipulations, or alternatively, arrangements acceptable to CDB have been made for the entry by SVGCL into possession of such lands for the purposes of the Project.

(5) **Conditions Precedent to Disbursement in respect of the Works at Site W1:**

CDB shall not be obliged to disburse any amount in respect of Site W1 until GOSVG shall have provided to CDB, through SVGCL evidence, acceptable to CDB, that the actions outlined in Section A of the ESAP Table 1 in Appendix 4.3 have been satisfied.

(6) **Conditions Precedent to Disbursement in respect of the Works at Site W3:**

CDB shall not be obliged to disburse any amount in respect of Site W3 until GOSVG shall have provided to CDB, through SVGCL evidence, acceptable to CBD, that the actions outlined in Section C of the ESAP Table 1 in Appendix 4.3 have been satisfied.

(7) **Other Conditions:**

(a) Except as CDB may otherwise agree, GOSVG shall execute the TA and Equity Components through SVGCL.

(b) The proceeds of the Equity Component shall be recognised as, and appropriately accounted for, as a portion of GOSVG's equity contribution to SVGCL. CDB shall be provided with evidence acceptable to CDB that GOSVG is the legal and beneficial owner of shares in the capital of SVGCL.

(c) GOSVG shall make the proceeds of the GOSVG Grant available to SVGCL for the financing of the TA Component and shall take all necessary steps to facilitate and ensure the performance by SVGCL of its obligations herein.

(d) As a condition of GOSVG making the Grant available to SVGCL, SVGCL shall undertake to observe and perform the obligations on its part to be observed and performed, as set out and required herein.

(e) SVGCL shall ensure that, for the duration of the Project, a person with qualifications and experience acceptable to CDB has been appointed as Project Manager, SVGCL. The PM, SVGCL, shall also function as PC for the Project, and shall be assigned accordingly. PM/PC shall be responsible for coordinating and monitoring all aspects of the Project, with the duties and responsibilities set out in

Appendix 6.2. The PM/PC shall report to the Management Committee of SVGCL. The qualifications and experience of any person subsequently assigned to the position of PM/PC, SVGCL, shall be acceptable to CDB.

(f) GOSVG shall, in accordance with the procurement procedures applicable to the GOSVG Grant, select and engage a consultant to carry out the services of CLO set out in the TOR at Appendix 2.2.

(g) Except as CDB may otherwise agree, GOSVG shall, by December 31, 2016, have submitted to CDB a copy of the gazetted Proclamation of the appointed day notice of the Geothermal Resources Development Act, 2015.

(h) GOSVG and SVGCL shall insert, as applicable, the CDB, UKaid and GEF logos on all documents and publications and on all equipment financed with the GOSVG Grant; and make reference to CDB, UKaid and GEF, as applicable, as the source of financing in any event, meeting, press conference or communication or website in which reference is made to the Project.

(i) SVGCL shall:

(i) maintain the project management and organisation structure outlined in paragraph 6.03 above, the positions shall be held by persons whose qualifications and experience are acceptable to CDB;

(ii) except as CDB may otherwise agree, furnish or cause to be furnished to CDB the reports listed in Appendix 6.9 in the forms specified, or in such form or forms as CDB may require, not later than the times/periods specified therein for so doing;

(iii) collect and maintain available information, indicators and parameters needed to carry out the final evaluation of the Project for the purposes of preparing a report of the final evaluation of the Program referred to in the Operations Manual of SEF;

(iv) preserve the original records of the Project for a minimum period of three (3) years after the expiration date of the period of disbursement referred to in sub-paragraph 1(e) or any extension thereof. Such documents and records shall be maintained adequately in order to:

(aa) substantiate Project-related activities, decisions and transactions, including all expenditures incurred; and

(bb) show the correlation of the expenditures incurred under the Project to the respective disbursements made by CDB;

(v) include in all bidding documents, requests for proposals and contracts financed with the proceeds of the GOSVG Grant that they enter into, respectively, a provision requiring that providers of goods or services, contractors, subcontractors, consultants and their agents, personnel, sub-consultants, sub-contractors or concessionaires contracted by them, keep all documents and records related to activities financed with the proceeds

of the GOSVG Grant for a period of seven (7) years after completion of the work contemplated in the relevant contract;

(vi) permit CDB, its investigators, agents, auditors and experts it engages, to inspect, at any time, the Project and the facilities, equipment and materials involved therein, and to examine such systems, records and documents as CDB may deem pertinent. In addition, GOSVG and SVGCL shall ensure that their agents fully cooperate with the personnel which CDB sends or designates for this purpose. All the costs relating to transportation, salaries, and other expenses of such personnel shall be borne by CDB; and

(vii) include a provision in bidding documents, requests for proposals and contracts entered into by them relating to the execution of the Project in order to:

(aa) allow CDB, its investigators, agents, auditors or experts, to inspect accounts, records and other documents relating to the submission of bids and to the performance of the corresponding contract or agreement; and

(bb) provide that such accounts, records, and documents may be submitted to the auditors designated by CDB for an opinion.

(j) Except as CDB may otherwise agree, GOSVG and SVGCL shall meet or cause to be met:

(i) any amount by which the cost of the TA Component exceeds the estimated cost shown; and

(ii) the cost of any other items needed for the purpose of, or in connection with, the TA Component;

and shall provide, or cause to be provided, all other inputs required for the punctual and efficient carrying out of the TA Component not being financed by the GOSVG Grant.

(k) CDB shall be entitled to suspend, cancel or require a refund of the GOSVG Grant, or any part thereof, if the DFID funding or the GEF funding, allocated for the GOSVG Grant, or the SVGCL Grant, or any part thereof is suspended, cancelled or required to be refunded, and if at any time CDB determines that any representative of GOSVG or SVGCL has engaged in Prohibited Practices in connection with the use of the GOSVG Grant without GOSVG or SVGCL having taken timely and appropriate action satisfactory to CDB to address such practices when they occur, except that GOSVG and SVGCL shall not be required to refund any amount of the GOSVG Grant already expended in connection with the Project and not recoverable by GOSVG or SVGCL.

7.03 It is recommended that CDB makes a CRG to SVGCL from CDB's SFR of an amount not exceeding the equivalent of nine million five hundred thousand United States dollars (USD9,500,000) (the SVGCL Grant), allocated from resources provided to CDB by IDB (acting as the implementing entity of IDB/CTF) under SEF, to assist in financing a portion of the integrated drilling services (the CGR

Component), on CDB's standard terms and conditions, on the following terms and conditions, and on such other terms and conditions as CDB's Management may consider to be appropriate, should the contingency referred to below occur:

(1) **Disbursement:**

(a) Except as CDB may otherwise agree, disbursement of the SVGCL Grant shall be:

(i) used to finance the components of the Project allocated for financing by CDB under the CGR Component as shown in the Project Cost Phasing and Financing Plan for the Project at Appendix 3.1 (the Financing Plan) up to the respective limits specified therein; and

(ii) total disbursements shall not exceed in the aggregate thirty-one percent (31%) of the cost of the Project.

(b) The first payment of the SVGCL Grant shall be made by December 31, 2016, and the CRG shall be fully disbursed by October 30, 2017, or such later dates as CDB may specify in writing.

(c) The SVGCL Grant shall not be used to meet any part of the cost of the Project which consist of identifiable taxes and duties.

(2) **Contingent Conditions:**

(a) Except as CDB may otherwise agree, and contingent upon the success of the Project outlined in paragraph 3.04 above, the SVGCL Grant shall convert to a loan to SVGCL (the Contingent Loan).

(b) The Contingent Loan shall be of an amount not exceeding the equivalent of nine million five hundred thousand United States dollars (USD9,500,000) which shall be re-payable over a period of up to twelve (12) years following a grace period of two (2) years at an interest rate of 1.75% per annum.

(c) In the event that the construction of a geothermal plant is pursued, SVGCL shall apply for, and shall use its best efforts to secure, funds from CDB to assist in financing the construction phase of the geothermal plant.

(d) Except as CDB shall otherwise agree, in the event that SVGCL obtains funds to assist in financing the construction of a geothermal plant resulting from the Project from sources to the exclusion of CDB, the full amount of the SVGCL Grant shall, at financial close for the construction phase of the geothermal plant, be converted to a loan to SVGCL in an amount not exceeding eleven million four hundred thousand United States dollars (USD11,400,000), representing the amount of the SVGCL Grant plus a twenty percent (20%) premium and shall be repayable immediately in a single payment.

(3) **Procurement**

(a) Except as provided in sub-paragraph (b) below, procurement shall be in accordance with the procedures set out and/or referred to in the SVGCL Grant, or

such other procedures as CDB may from time to time specify in writing. The Procurement Plan approved by CDB is set out at Appendix 6.7. Any revisions to the Procurement Plan shall require CDB's prior approval in writing.

(b) The procurement of goods, works and services in respect of the integrated drilling services shall be without restriction as to country eligibility.

(4) **Conditions Precedent to First Disbursement of the SVGCL Grant:**

(a) The PM/PC referred to in sub-paragraph 8(b)(x) shall have been appointed.

(b) The Heads of Agreement for the proposed Power Purchase Agreement between SVGCL and VINLEC shall have been executed.

(c) The engineering consultants referred to in sub-paragraph 8(b)(xi) shall have been engaged.

(d) SVGCL shall have furnished or caused to be furnished to CDB a legal opinion, in form and substance acceptable to CDB, showing that:

(i) SVGCL is in good standing under the laws of St. Vincent and the Grenadines; and

(ii) the execution and delivery of the agreement on behalf of SVGCL have been duly authorised by all necessary corporate actions and the grant agreement constitutes a valid and legally binding obligation of SVGCL enforceable in accordance with its terms.

(5) **Condition Precedent to Disbursement in respect of the Works at each Site:**

CDB shall not be obliged to disburse any amount in respect of the works at each Site until SVGCL shall have submitted to CDB, evidence satisfactory to CDB that the lands required for the Site have been vested in SVGCL, free of encumbrances, covenants, conditions and stipulations, or alternatively, arrangements acceptable to CDB have been made for the entry by SVGCL into possession of such lands for the purposes of the Project.

(6) **Condition Precedent to Disbursement in respect of the Works at Site W1:**

CDB shall not be obliged to disburse any amount in respect of Site W1 until SVGCL shall have provided CDB, evidence acceptable to CDB that the actions outlined in Section A of the ESAP Table 1 in Appendix 4.3 have been satisfied.

(7) **Condition Precedent to Disbursement in respect of the Works at Site W3:**

CDB shall not be obliged to disburse any amount in respect of Site W3 until SVGCL shall have provided CDB, evidence acceptable to CDB that the actions outlined in Section C of the ESAP Table 1 in Appendix 4.3 have been satisfied.

(8) **Other Conditions:**

(a) Except as CDB may otherwise agree, the CRG Component shall be executed through SVGCL.

(b) SVGCL shall:

(i) contribute to the Project an amount of not less than the equivalent of fifteen million one hundred and thirty-six thousand United States dollars (USD15,136,000) which shall be expended in a timely manner on the components of the Project designated for financing by SVGCL as shown in the Financing Plan for the Project, unless CDB shall otherwise specify in writing;

(ii) carry out the Project at all times:

(aa) with due diligence and efficiency, with management personnel whose qualifications and experience are acceptable to CDB, and in accordance with sound technical, environmental, financial and managerial standards and practices;

(bb) in accordance with the Operations Manual under the SEF approved by CDB from time to time; and

(cc) in accordance with the ESAP and the ESMP set out in Appendix 4.3 and Appendix 4.6, respectively;

(iii) institute and maintain organisational, administrative, accounting and auditing arrangements acceptable to CDB;

(iv) comply with any applicable law, rule or regulation of the laws of St. Vincent and the Grenadines, which is binding upon SVGCL;

(v) have received all requisite statutory, planning, building and environmental permits, licences and/or other approvals in respect of the Project;

(vi) not engage in any business unrelated to the carrying out of the Project without the prior written consent of CDB;

(vii) not change its corporate structure or ownership without the prior written consent of CDB, if such amendment has or is reasonably likely to have a material adverse effect on the ability of SVGCL to carry out its operations, or any interests of CDB or of contributors to the Project;

(viii) not amend or restate its articles of incorporation or by-laws, if such amendment or restatement has or is reasonably likely to have a material adverse effect on the ability of SVGCL to carry out its operations, or any interests of CDB or of contributors to the Project;

(ix) promptly notify CDB in the event that the legal instruments establishing, and/or granting the concession to, SVGCL have been amended,

suspended, terminated, supplemented, replaced, abrogated, repealed or waived, if such amendment, suspension, termination, supplement, replacement, abrogation, repeal or waiver has or is reasonably likely to have a material adverse effect on, the ability of SVGCL to carry out its operations, or any interests of CDB or contributors to the Project;

(x) ensure that, for the duration of the Project, a person with qualifications and experience acceptable to CDB has been appointed as Project Manager, SVGCL. The PM, SVGCL, shall also function as the PC for the Project, and shall be assigned accordingly. PM/PC shall be responsible for coordinating and monitoring all aspects of the Project, with the duties and responsibilities set out in Appendix 6.2. The PM/PC shall report to the Management Committee of SVGCL. The qualifications and experience of any person subsequently assigned to the position of PM/PC, SVGCL shall be acceptable to CDB;

(xi) engage competent and experienced engineering consultants to provide the services set out in Appendix 6.4;

(xii) at the request of CDB, ensure that its management meet with CDB representatives at a mutually acceptable time and place as often as determined by CDB to be necessary, but at least annually, and exchange views with regard to the progress of the Project, the performance by SVGCL of its obligations relating to the Project and any other matters relating to the Project;

(xiii) maintain the project management and organisation structure outlined in paragraph 6.03 above, the positions shall be held by persons whose qualifications and experience are acceptable to CDB;

(xiv) except as CDB may otherwise agree, furnish or cause to be furnished to CDB the reports listed in Appendix 6.9 in the forms specified or in such form or forms as CDB may require, not later than the times/periods specified therein for so doing;

(xv) collect and maintain available information, indicators and parameters needed to carry out the final evaluation of the Project for the purposes of preparing a report of the final evaluation of the Project referred to in the Operations Manual of SEF;

(xvi) preserve the original records of the Project for a minimum period of three (3) years after the expiration date of the period of disbursement referred to in sub-paragraph 1(b) or any extension thereof. Such documents and records shall be maintained adequately in order to:

(aa) substantiate Project-related activities, decisions and transactions, including all expenditures incurred; and

(bb) show the correlation of the expenditures incurred under the Project to the respective disbursement made by CDB;

(xvii) include in all bidding documents, requests for proposals and contracts financed with the SVGCL Grant that they enter into, respectively, a provision requiring that providers of goods or services, contractors, subcontractors, consultants and their agents, personnel, sub-consultants, sub-contractors or concessionaires contracted by them, keep all documents and records related to activities financed with the SVGCL Grant for a period of seven (7) years after completion of the work contemplated in the relevant contract;

(xviii) permit CDB, its investigators, agents, auditors and experts it engages, to inspect, at any time, the Project and the facilities, equipment and materials involved therein, and to examine such systems, records, and documents as CDB may deem pertinent. In addition, SVGCL shall ensure that their agents fully cooperate with the personnel which CDB sends or designates for this purpose. All the costs relating to transportation, salaries and other expenses of such personnel shall be borne by CDB; and

(xix) include a provision in bidding documents, requests for proposals and contracts entered into by them relating to the execution of the Project in order to:

(aa) allow CDB, its investigators, agents, auditors or experts, to inspect accounts, records and other documents relating to the submission of bids and to the performance of the corresponding contract or agreement; and

(bb) provide that such accounts, records, and documents may be submitted to the auditors designated by CDB for an opinion.

(c) SVGCL shall and in accordance with IFC guidelines, decommission Site W1, if Site W1 is determined to be unsuitable for production.

(d) SVGCL shall submit monitoring reports to the appropriate GOSVG authorities, on, but not limited to, air emissions, ambient air quality, noise and vibrations, effluent quality, groundwater quality and solid waste, in accordance with the frequency identified in the ESMP set out at Appendix 4.6

(e) SVGCL shall insert the CDB and the CTF logos on all documents and publications and on all equipment financed with the SVGCL Grant; and make reference to CDB and CTF as the source of financing in any event, meeting, press conference or communication or website in which reference is made to the Project.

(f) CDB shall be entitled to suspend, cancel or require a refund of the SVGCL Grant, or any part thereof, if the CTF funds allocated for the SVGCL Grant, or the GOSVG Grant or any part thereof are suspended, cancelled or required to be refunded, and if at any time CDB determines that any representative of SVGCL has engaged in Prohibited Practices in connection with the use of the SVGCL Grant without SVGCL having taken timely and appropriate action satisfactory to CDB to address such practices when they occur, except that SVGCL shall not be required to refund any amount of the SVGCL Grant already expended in connection with the Project and not recoverable by SVGCL.

APPENDIX 1.1

SOCIAL AND GENDER CONTEXT

1. NATIONAL CONTEXT

1.01 The 2015 mid-year population estimate of SVG was 109,557[1] (55,739 males and 53,818 females). Annual population growth has been steady at approximately 0.1 percent in the last ten years (World Bank 2016). The Human Development Report (2015) classifies SVG as a country of high human development with a HDI value of 0.720. Despite the country's human development progress, the latest poverty study shows that 30.2% of the population was poor, and 18% vulnerable to poverty in 2008. Development disparities are evident with poverty disproportionately represented in geographic pockets, and by gender. Other social vulnerabilities are also emerging. The 2012 Population and Housing Census revealed unemployment at a national average of 21.5%, with levels significantly higher in Colonaire (27.5%) and Georgetown (26.6%) on the windward side of the mainland.

1.02 Although performing better in education, women face labour market challenges that place them at significant economic disadvantages to men; including disparities in access to credit, land ownership and other assets. Although women's participation in the labour force increased from 45.2% in 2001 to 56.1% in 2012, the gender gap remains high. The labour force participation rate for men was 70.2% in 2012. The unemployment rate was 24.3% among women and 19.4% among men. According to the CDB-supported Country Gender Assessment (CGA 2016), occupational segregation is prevalent in agriculture, fisheries and construction - which are male dominated areas. These are also dominant economic sectors in SVG. Furthermore, women are concentrated in lower-waged positions in hotels and restaurants in the tourism sector. Female entrepreneurs face limited access to credit and land ownership, poor business skills and time poverty due to family responsibilities (CGA 2016). However, women represented the majority of persons temporarily employed as casual labourers in road cleaning gangs in post-disaster situations (e.g. Hurricane Tomas and more recently the December 2014 trough). This suggests there may be scope for employment of women as unskilled labour in non-traditional sectors.

2. PROJECT-AFFECTED COMMUNITIES

2.01 The Project will affect different segments of the population at various stages of implementation, but will particularly affect the resident and commuter population along the Windward corridor of the mainland, from Kingstown to Sandy Bay, approximately 75% of the country's population. This includes population groups for which the highest concentrations and most severe states of poverty were recorded during the 2008 Country Poverty Assessment[2] and for which the highest levels of unemployment (26%) were also recorded during the 2012 population census. It can therefore be postulated that some of the most vulnerable women in St. Vincent live within the direct footprint of the Project.

2.02 The project area (including drill pad, injection pads at two sites, feeder roads and other support infrastructure) is located within the Georgetown and Sandy Bay census districts on the mainland island. Project-affected communities within the 2 census districts consist of 1,209 households and a population of 4,300 people, 2,207 males and 2,093 females, as shown in Table 1. The communities consist of residents and farmers located in settlements near the exploration drill pads and injection pads at sites W1 and W3, as well as others residing and working along feeder roads leading from the Windward Highway to the sites. The settlements are located along the coastline some 3 to 4 km from the project area.

[1] Population and Vital Statistics Report 2013 – St. Vincent and the Grenadines. Ministry of Finance, GOSVG http://www.stats.gov.vc

[2] Colonaire 40.2% and Georgetown and Sandy Bay 55.6%.

TABLE 1: POPULATION OF PROJECT AREA BY SEX (2012)

District	Households	Males	Females	Total
Georgetown	314	465	427	892
Sandy Bay	231	484	461	945
Overland Hill and Big level	342	734	706	1,440
Waterloo, Orange Hill and Tourama	106	180	146	326
Chapman's and Langley	216	344	353	697
TOTAL	1,209	2,206	2,093	4,300

Source: St. Vincent and the Grenadines National Population and Housing Census, 2012

2.03 Other affected local populations outside of project-affected communities include landowners, users of the Windward Highway from Kingstown to Sandy Bay, and people occasionally using areas within the project area for traditional or recreational activities (e.g., fishing, hunting, or hiking the popular trail to the volcano).

2.04 The land within and close to the project area is a mixture of agricultural land, virgin forest, and settlements, including homes, roads, paths, and commercial buildings. Small-scale subsistence farming is the primary economic activity (except for Georgetown) although residents often do not perceive it as employment. The main crops produced include banana, cassava, pigeon peas, sweet potatoes, yams, and arrowroot. Some residents have between one and five animals. Only 45% of the population completed elementary school. Waterfalls, beaches, recreational parks, and nature trails in the northern part of the island attract tourists and provide additional employment through support services such as construction, activity in community tourism such as tour guides, and fishing. Others in the project areas are employed via local enterprises, such as shopkeepers and vendors, or as salaried employees, such as in public service, police service, medical services and, the education system.

2.05 Some 82.6% of households in Georgetown and Sandy Bay are connected to VINLEC's power supply. Sixty-eight percent of homes are modern concrete block structures with potable water indoors, and water closets. The GOSVG contributed to the housing stock in the area and built 90 houses over the past 10 years, some of them as relief houses after hurricanes and natural disasters as the area is very susceptible to natural disasters and the housing stock in the communities often suffers from the impact of events. For example, after the December 2014 trough system, a number of homes were constructed in the Langley Park area. Lifestyle diseases such as hypertension and diabetes are the major types of illness in Georgetown and Sandy Bay. This mirrors national patterns for health indicators. Within the project area, the nearest health facility is the Georgetown Hospital. The Sandy Bay Clinic is also available but serious injuries are referred to the Kingstown Hospital. Citizen security is affected primarily by petty theft, according to police staff at the Georgetown and Sandy Bay Police Stations.

2.06 Approximately 85% of persons interviewed had some knowledge of the plans for geothermal exploration (as shown by SVGCL scoping consultations). The ESIA showed that the identified social and gender impacts may be addressed through implementation of appropriate mitigation measures (see Social and Gender Impact Assessment in Chapter 4).

MACROECONOMIC REVIEW

1. REAL SECTOR OUTPUT

1.01 SVG is a small open economy, with limited diversification of its economic structure**.** While SVG has achieved middle income status, the economy is heavily dependent on and vulnerable to events affecting tourism[1], remittances, and foreign direct investment (FDI) from advanced countries. Tourism constitutes approximately 70% of exports and 30% of output, with just over half of tourist arrivals originating from the United States and from Europe. Agriculture also makes an important, albeit lesser, contribution to GDP but is strategically important for food security, employment and economic buoyancy particularly in the rural economy where unemployment is estimated to be as high as 30%. It is estimated that in 2014 agriculture contributed 6.3% of GDP, compared to 78.2% from services.

1.02 Global economic shifts, along with damage caused from natural disasters have significantly impacted macroeconomic conditions in SVG in recent years. Damages sustained from extreme weather have translated into significant market impacts, with output losses through effects on climate-vulnerable sectors and infrastructure including tourism, agriculture, forestry, transportation networks and coastal real estate. These impacts have occasioned severe income volatility, low growth, shrinking GDP levels, rising unemployment and poverty, while a sharp rise in fiscal expenditures and imports for disaster reconstruction have led to widening macroeconomic imbalances.

1.03 Despite recovering global economic activity since the 2008 global recession, Saint Vincent's recovery has been weak and uneven, hindered by its high vulnerability. With the onset of the 2008 crisis, the SVG economy contracted for three consecutive years in 2008-10 by an average annual 1.6% compared with an average expansion of 5% prior to the crisis during 2002-07. Economic growth was curbed to a mere 0.2% in 2011 by the impact of widespread floods and destruction sustained from the impact of Hurricane Tomas in October 2010 and torrential rains in April 2011 that together have hindered a stronger economic rebound. Following a modest pick-up in 2012 and 2013 led by reconstruction activity and recovery in agricultural output, recovery was again halted in 2014 (declining by 0.2%) due to the impacts of both drought and flooding (see Table 1.1).

1.04 Economic growth resumed in 2015, albeit the pace of growth was sluggish. Preliminary estimates indicate real GDP growth of 1.3%. Agriculture output increased associated with an expansion in banana exports and other crops as the sector continued to recover from the adverse effects of natural disasters and plant diseases. Indications are that manufacturing growth moderated reflecting lower output of flour, animal feed and rice in particular, as a result of lower consumer demand and weakening competitiveness in the regional market. Output of the beverage segment of the industry, however, increased pushed up by higher beer production. Meanwhile, the value added in the financial sector is estimated to have also improved linked to an expansion in private sector credit.

[1/] World Travel and Tourism Council (WTTC), 2015. The GOSVG's GDP accounting methodology quantifies only "Hotels and Restaurants" as a proxy for tourism's contribution to gross value added. Tourism's contribution as measured by the WTTC methodology, captures its wider impacts, indirect and induced.

TABLE 1.1: MACROECONOMIC INDICATORS
(2012-16)

Item	2012	2013	2014	2015p	2016p
Output and Prices					
Real GDP Growth (%)	1.3	2.3	(0.2)	1.3	2.1
Consumer Prices (average %)	2.6	0.8	0.2	(1.7)	0.5
Central Government Finances (% GDP)					
Primary Balance	0.3	(3.7)	(0.7)	0.1	(2.0)
Overall Balance	(1.9)	(6.2)	(3.0)	(2.1)	(4.4)
Total Public Sector Debt (%GDP)	**72.3**	**74.3**	**78.8**	**75.6**	**78.5**

Source: CDB, East Caribbean Central Bank (ECCB), GOSVG. p=Projection.

1.05 Construction activity, while positive, slowed in 2015 due, in part to the sluggish implementation of reconstruction projects and declining activity at the Argyle International Airport. Leading construction indicators including sales of building materials (up 0.8%), and commercial bank loans for residential construction and renovation (up 6.3%) moved upwards relative to the corresponding period of 2014. In the tourism sector, preliminary data show that total visitor arrivals dipped by 0.1% to 146,188. This reflected declines in the number of cruiseship passengers and excursionists, despite an increase in the frequency of port calls by cruise ships. The decline in excursionists, or same-day visitors (representing the smallest category of visitors) continued on its historical downward trend. In contrast, yacht passengers and stay-over arrivals increased in the first nine months of 2015. Stayover visitor arrivals rebounded and rose by 4.0% to 54,759, in contrast to a decline of 1.7% in the corresponding period last year, led by visitors from the regional market (up 3.7%) and from the United States of America (up 7.6%).

2. PRICES AND UNEMPLOYMENT

2.01 Inflation declined in 2015 with falling fuel and food prices. Consumer prices fell by an average 1.7%, following annual average inflation of 0.2% and 0.8% in 2014 and 2013, respectively. The downward movement in consumer prices was driven by declines in the indices for transport, housing, water electricity, gas and other fuels, primarily reflecting falling global energy prices. Sluggish economic activity has negatively affected employment generation with one in every five Vincentian unemployed.

3. CENTRAL GOVERNMENT FISCAL OPERATIONS AND DEBT

3.01 GOSVG has been running fiscal deficits. These have reflected, in large part, weaker than expected revenues and large expenditures to rebuild damaged infrastructure in the aftermath of recent shocks, as well to construct the international airport. GOSVG had contained the extent of fiscal imbalance through the introduction of fiscal measures that included cuts to capital spending as well as initiatives to enhance tax enforcement and compliance and to raise tax rates. Primary deficits have, as a result, generally remained under 1% of GDP while government generated a small primary surplus in 2012. In 2013, higher capital spending to effect rehabilitation following the December 2013 trough event and to complete outstanding airport works, however, raised the primary deficit to a peak of 3.7% of GDP before it subsequently narrowed in 2014 (see Table 3.1).

3.02 A small primary surplus was registered in 2015 due largely to a compression of investment outlays owing to the delayed completion of the airport and post-floods rehabilitation. The rate of execution of capital spending during 2015 was one third of its budgeted amount, and 20.2% below actual expenditure in 2014. Current revenue declined by 3.2% due to a fall-off in non-tax revenues although tax revenues increased. Over the past few years, the government has been increasing its reliance on its commercial

overdraft facility and accounts payable. The stock of domestic budgetary arrears was, however, reduced from $89 mn (4.5% of GDP) at end-2014 to $60 mn at end-2015, (2.9% of GDP). The stock of central government external debt fell in line with lower official external loan disbursements**.** Central Government's debt servicing as a share of current revenue stood at 24% in 2015.

TABLE 3.1: SUMMARY OF FISCAL PERFORMANCE
(% of GDP)

Item	2012	2013	2014	2015	2016
Total Revenue and Grants	**26.1**	**26.9**	**29.2**	**27.9**	**29.7**
Current Revenue	25.2	23.8	27.2	25.4	26.6
Tax Revenue	23.0	21.6	23.9	23.6	24.7
Non-Tax Revenue	2.2	2.2	3.3	1.8	1.9
Grants	0.7	1.3	2.0	1.2	3.1
Total Expenditure	**28.0**	**33.0**	**32.2**	**30.0**	**34.2**
Current Expenditure	26.2	25.2	25.8	25.1	27.2
Wages and Salaries	13.0	12.9	12.6	12.6	13.3
Goods and Services	3.7	3.4	3.8	3.6	3.5
Subsidies and Current Transfers	7.2	6.5	7.1	6.7	8.0
Interest Charges	2.4	2.5	2.3	2.2	2.4
Capital Expenditure	1.8	7.8	6.4	4.9	7.0
Primary Balance	**0.4**	**(3.7)**	**(0.7)**	**0.1**	**(2.0)**
Overall Balance	**(1.9)**	**(6.2)**	**(3.0)**	**(2.1)**	**(4.4)**

Source: GOSVG, ECCB, CDB

3.03 Deficits have contributed to increasing public indebtedness that is now constraining Government. Notwithstanding the efforts to consolidate, fiscal deficits combined with weak growth have resulted in an increase in the public sector debt to GDP ratio by about 20 percentage points since 2008. These borrowings have included balance of payments support from the Rapid Financing Instrument of the International Monetary Fund (IMF) in 2014, to help reduce external imbalances that resulted from the 2013 disaster. SVG's external borrowing (57% of total) has been confined predominantly to concessional bilateral and multilateral creditors which have helped to keep the average maturity of external debt long and interest costs low (weighted average of 3.6% on the total stock). The largest multilateral creditors are CDB, the International Development Association, and the IMF which together account for 62% of the total external debt stock. The Bolivarian Alliance for the People of our America from Venezuela is the major bilateral creditor, accounting for 23% of the total external debt. On the domestic front, the government issues treasury bills and bonds on a regular basis and has established a sinking fund for the bonds with bullet repayment maturity.

4. FINANCIAL SECTOR

4.01 The banking sector in SVG is dominated by foreign banks, with only one domestic bank. Commercial banks' financial soundness indicators remained relatively stable, pointing to a good performance relative to the other jurisdictions in the Eastern Caribbean Currency Union, with improving profitability, decreasing levels of reported non-performing loans (NPLs) and capital adequacy ratio above the regulatory requirement (see Table 4.1). A New Banking Act 2015 was passed in Parliament to strengthen the regulatory and supervisory framework within the Eastern Caribbean Currency Union,

strengthen the resilience of the banking sector and to provide for the establishment of a single banking space.

4.02 NPLs, while trending downward, remain above the regulatory benchmark of 5%. A modest uptick in credit to the private sector (up 2.5% to $1,071 mn)) led by a rise in personal loans, coupled with a lowering of the regulated savings deposit interest floor from 3 to 2% in May would have contributed to improving banks' profitability. Notwithstanding, the return on assets remains low dampened by significant excess liquidity, as growth in private deposits outpace that of credit to the private sector. The uptick in domestic credit was also associated with increased commercial bank lending to the central government and a modest increase in corporate lending.

TABLE 4.1: FINANCIAL SOUNDNESS INDICATORS, 2012 – 2015

	2012	2013	2014	2015(Q3)
Non-performing Loans to Total Loans	7.4	8.3	10.0	9.0
Provisions for Loan Losses to NPLs	31.9	34.8	31.0	34.5
Liquid Assets to Current Liabilities	38.4	41.7	42.2	41.3
Tier 1 Capital to Risk Weighted Assets	18.4	17.9	19.6	24.6
Return on Average Equity	-3.1	-2.4	-4.2	2.7
Return on Average Assets	1.0	0.5	-0.2	0.3

Source: ECCB

5. EXTERNAL SECTOR

5.01 The external current account deficit is likely to have narrowed during 2015, reflecting lower oil prices, a recovery of tourism and increased agriculture exports. Imports have contracted by over 11% in the nine months to September 2015, due to sizeable savings in the oil bill while total visitor expenditure is estimated to have increased by 1.5% to S189.1 mn. The current account deficit had widened over the past decades, (averaging 30.0% of GDP since 2008), influenced by a deterioration in the competitiveness of tourism and exports and increased imports for reconstruction. The deficits have been mostly financed by non-debt creating flow, mainly FDIs and official capital flows (capital grants and disbursements).

6. OUTLOOK

6.01 The near to medium-term economic outlook for SVG is one of cautious optimism. Growth is projected to increase to 2.1% in 2016, with a pickup in construction and tourism and should accelerate to in 2017 and 2018. Medium to long-term prospects face upside risks as a number of large projects[2] when completed will potentially improve growth, employment prospects and the fiscal position. The new airport, now foreseen for completion in 2016[3], is expected to sustain higher growth if the new airport spurs substantial investments in tourism infrastructure and arrivals are boosted by greater airlift capacity. Meanwhile, structural measures that are ongoing to improve agricultural productivity and food production should complement and support greater buoyancy of the tourism, agriculture and construction sectors and, in turn, greater credit growth and employment. The geothermal energy project[4] offers good transformational potential for robust long-term growth. However, while the enhanced economic activity from these projects

[2]/ Airport, geothermal electricity generation (envisaged for end-2018), and large hotel projects.
[3]/ The new airport will allow direct flights from the main tourism source markets; the US, the UK and Canada. Its overall construction cost is estimated at about $600 mn.
[4]/ The government plans to build a 12 Megawatt geothermal plant using the geothermal reservoir at the La Soufrière volcano. The Geothermal Development Act was passed in August 2015, a $15 mn loan has been secured from the Abu Dhabi Fund for Development while Government has engaged private sector entities to be part of a Public Private Partnership to undertake the Project.

would boost tax collections, these investments are likely to entail additional current primary budgetary outlays and could present possible contingent fiscal liabilities.

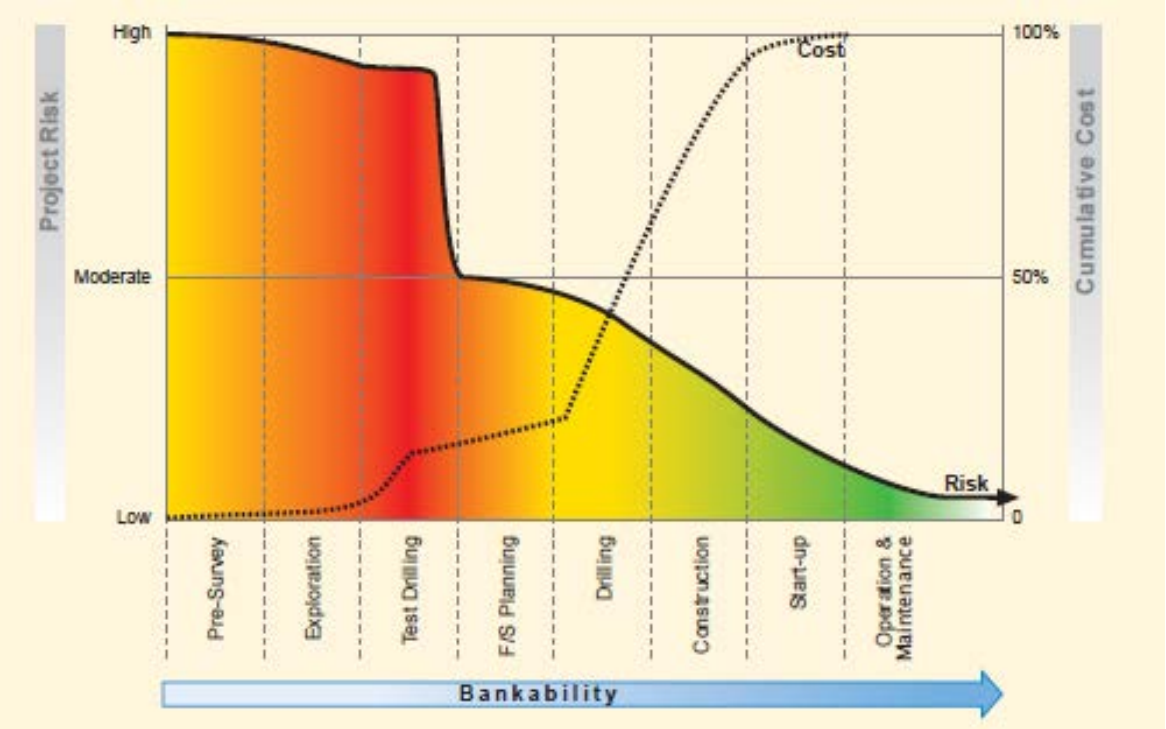
6.02 A key downside risk includes the threat of external shocks including recurring natural disasters. Natural disasters have a strong macroeconomic impact, including strong pressures for public spending and large effects on fiscal and debt sustainability. This points to the important role for adaptation and other precautionary measures with a view to bringing greater economic and output stability. Debt sustainability analyses for SVG reveals a moderate risk for public debt distress but highlights a strong vulnerability to growth shocks. This underlines the importance of preserving fiscal space in the event of potential shocks such as natural disasters by actively building fiscal buffers to mitigate unexpected fiscal imbalances resulting from adverse shocks.

6.03 Downside risks to the outlook could be realised if the government fails to adopt a credible medium-term fiscal framework which embeds the risks of natural disasters. To improve medium term debt dynamics, the GOSVG is identifying measures to consolidate on fiscal operations towards achieving a primary surplus averaging 2.5% of GDP over the medium-term to restrict the total size of the total public debt and eventually lower the debt to GDP ratio in line with regional targets. GOSVG's current Medium Term Debt Strategy gives priority to the use of multilateral and bilateral debt on concessional terms and, inter alia, establishing strict limits on the contracting of new debt.

APPENDIX 1.3

GEOTHERMAL DEVELOPMENT RISK MAP

PROJECT COST AND RISK PROFILE AT VARIOUS STAGES OF DEVELOPMENT



Source: Energy Sector Management Assistance Program, Technical Report 002/12 - *Geothermal Handbook: Planning and Financing Power Generation*

APPENDIX 2.1

THE GEOTHERMAL DEVELOPMENT PROGRAMME AND COSTS ST. VINCENT AND THE GRENADINES

PROGRAMME DESCRIPTION

1. The Programme of Geothermal Development (the Programme) being pursued by SVGCL, of which the Project is a part, comprises preliminary studies and surveys, surface exploration, exploratory drilling to confirm and quantify the resource, field development, design, construction, commissioning and operation of a 10-15MW geothermal power plant together with the design and construction of approximately 40 kilometers of the transmission line to export the power to the national electricity grid. The electricity produced by the geothermal power plant, which will be owned and operated by SVGCL, will meet part of the base load requirement of St. Vincent.

CAPITAL COSTS AND FUNDING

2. The preliminary estimate of capital costs for the Programme is approximately $87mn. The Programme will be funded by a minimum of 30% equity and the remainder debt financing. Several financing sources are assumed, including commercial loans and concessional loans from possibly CDB, IDB, DFID, Japan International Cooperation Agency and GCF. SVGCL is already in discussions with the prospective financiers for the remaining works to be completed under the Programme

FINANCIAL PROJECTIONS

3. A "Base Case" was developed using the following key assumptions:

(a) an 11MW geothermal power plant with two (2) 5.5 MW turbines, a parasitic load of 10.0%, operating at a 90% capacity factor and an availability factor of 96%. The net output of the plant is about 10 MW;

(b) operating costs estimated at 2.5% of the total capital cost;

(c) an average annual gross output of 88.9 GWh and a net output of 80.0 GWh;

(d) a take-or-pay price under a Power Purchase Agreement of not more than 18 US cents per kWh; and

(e) a construction period of 24 months.

4. Different assumptions were made in relation to the Programme funding, to determine the beneficial impact of concessionary financing on generation costs and possibly tariffs. Using the same projected oil price for both funding scenarios, the net impact of concessionary funding on generation costs are as follows:

(a) with commercial funding: 14% reduction

(b) with concessionary funding: 21% reduction

5. Table 1 shows the ten-year cash flow projection, assuming concessionary financing, while Table 2 shows the same projections with commercial financing. Not only does concessionary financing reduce the cost of electricity production, it also makes the cash flow more robust, with a higher Debt Service Coverage Ratio than under the commercial financing scenario.

TABLE 1: TEN-YEAR CASH FLOW - CONCESSIONAL FINANCING

Cash Flow Statement	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenue										
Operating Revenue	10,030	10,063	10,098	10,132	13,057	11,376	11,413	11,451	11,489	13,424
Total Operating Revenue	**10,030**	**10,063**	**10,098**	**10,132**	**13,057**	**11,376**	**11,413**	**11,451**	**11,489**	**13,424**
Operating Expenses										
Variable Expenses	-	-	-	-	-	-	-	-	-	-
Fixed Expenses	(1,672)	(1,705)	(1,739)	(1,774)	(1,809)	(1,846)	(1,883)	(1,920)	(1,959)	(1,998)
Make-Up Wells	-	-	-	-	(1,717)	-	-	-	-	(1,896)
Total Operating Expenses	**(1,672)**	**(1,705)**	**(1,739)**	**(1,774)**	**(3,527)**	**(1,846)**	**(1,883)**	**(1,920)**	**(1,959)**	**(3,894)**
Operating Margin	**8,358**	**8,358**	**8,358**	**8,358**	**9,530**	**9,530**	**9,530**	**9,530**	**9,530**	**9,530**
Non Operating Cash Flow										
Change in Working Capital	(1,248)	(3)	(3)	(3)	(341)	140	(3)	(3)	(3)	(161)
Make-Up Well Reserve	(343)	(343)	(343)	(343)	1,374	(379)	(379)	(379)	(379)	1,517
Interest Income	5	151	16	21	1	6	12	18	24	2
Non-Operating Cash Flow	**(1,586)**	**(196)**	**(331)**	**(325)**	**1,033**	**(233)**	**(370)**	**(364)**	**(358)**	**1,357**
Total Cash Flow	6,772	8,163	8,028	8,033	10,563	9,298	9,160	9,166	9,172	10,887
Cash Income Tax	-	-	-	-	-	-	-	-	-	-
Cash Flow Available for Debt Serv	**6,772**	**8,163**	**8,028**	**8,033**	**10,563**	**9,298**	**9,160**	**9,166**	**9,172**	**10,887**
Term Loan Debt Service										
Interest	(766)	(981)	(934)	(885)	(1,073)	(1,085)	(1,014)	(941)	(867)	(790)
Principal	(1,330)	(1,813)	(1,860)	(1,908)	(2,600)	(2,880)	(2,951)	(3,024)	(3,098)	(3,175)
Total Debt Service	**(2,095)**	**(2,794)**	**(2,794)**	**(2,794)**	**(3,673)**	**(3,966)**	**(3,966)**	**(3,966)**	**(3,966)**	**(3,966)**
Cash on Hand After Taxes/Fees	**4,677**	**5,369**	**5,234**	**5,240**	**6,891**	**5,332**	**5,195**	**5,201**	**5,207**	**6,922**
Debt Service Coverage Ratio	**3.23**	**2.92**	**2.87**	**2.88**	**2.88**	**2.34**	**2.31**	**2.31**	**2.31**	**2.75**

TABLE 2: TEN-YEAR CASH FLOW - COMMERCIAL FINANCING

Cash Flow Statement	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenue										
Operating Revenue	12,671	12,706	12,742	12,779	15,705	14,026	14,065	14,104	14,144	16,081
Total Operating Revenue	**12,671**	**12,706**	**12,742**	**12,779**	**15,705**	**14,026**	**14,065**	**14,104**	**14,144**	**16,081**
Operating Expenses										
Variable Expenses	-	-	-	-	-	-	-	-	-	-
Fixed Expenses	(1,755)	(1,790)	(1,826)	(1,862)	(1,900)	(1,938)	(1,976)	(2,016)	(2,056)	(2,097)
Make-Up Wells	-	-	-	-	(1,717)	-	-	-	-	(1,896)
Total Operating Expenses	**(1,755)**	**(1,790)**	**(1,826)**	**(1,862)**	**(3,617)**	**(1,938)**	**(1,976)**	**(2,016)**	**(2,056)**	**(3,993)**
Operating Margin	**10,916**	**10,916**	**10,916**	**10,916**	**12,088**	**12,088**	**12,088**	**12,088**	**12,088**	**12,088**
Non Operating Cash Flow										
Change in Working Capital	(1,667)	(3)	(3)	(3)	(342)	140	(3)	(3)	(3)	(161)
DSRA release	-	-	-	-	-	-	-	-	-	-
Make-Up Well Reserve	(343)	(343)	(343)	(343)	1,374	(379)	(379)	(379)	(379)	1,517
Interest Income	5	178	16	21	1	6	12	18	24	2
Non-Operating Cash Flow	**(2,006)**	**(169)**	**(331)**	**(325)**	**1,033**	**(233)**	**(370)**	**(364)**	**(358)**	**1,357**
Total Cash Flow	8,911	10,748	10,585	10,591	13,121	11,855	11,718	11,724	11,730	13,445
Cash Income Tax	-	-	-	-	-	-	-	-	-	-
Cash Flow Available for Debt Service	**8,911**	**10,748**	**10,585**	**10,591**	**13,121**	**11,855**	**11,718**	**11,724**	**11,730**	**13,445**
Term Loan Debt Service										
Interest	(2,515)	(3,274)	(3,178)	(3,074)	(3,198)	(3,139)	(2,988)	(2,826)	(2,652)	(2,464)
Principal	(816)	(1,166)	(1,262)	(1,366)	(2,121)	(2,473)	(2,624)	(2,786)	(2,960)	(3,147)
Total Debt Service	**(3,330)**	**(4,441)**	**(4,441)**	**(4,441)**	**(5,320)**	**(5,613)**	**(5,613)**	**(5,613)**	**(5,613)**	**(5,613)**
Cash on Hand After Taxes/Fees	**5,580**	**6,307**	**6,145**	**6,150**	**7,802**	**6,243**	**6,106**	**6,111**	**6,117**	**7,833**
Debt Service Coverage Ratio	**2.68**	**2.42**	**2.38**	**2.39**	**2.47**	**2.11**	**2.09**	**2.09**	**2.09**	**2.40**

APPENDIX 2.2

DRAFT TERMS OF REFERENCE

TECHNICAL ADVISORY SERVICES - COMMUNITY LIAISON OFFICER ST. VINCENT GEOTHERMAL DEVELOPMENT PROJECT

1. BACKGROUND

1.01 The Government of St. Vincent and the Grenadines (GOSVG) has prioritised the diversification of its energy supply, including a larger proportion of renewable sources for the generation of electricity. The St. Vincent Geothermal Company Limited (SVGCL) has been formed to develop about 10-15 megawatt (MW) of geothermal power in northern St. Vincent, on the southern slopes of the La Soufrière Volcano. The Project would be the first of its kind in SVG and consists of the exploratory drilling and testing of three geothermal wells on 1-2 well pads and associated project facilities (e.g., water system, road improvements).

1.02 The Project's objective is to determine whether the geothermal reservoir characteristics of the La Soufrière Volcano are suitable for production through exploratory drilling. Should this be confirmed, SVGCL intends to continue to power production. If the Project is commercially viable, then it would support renewable energy in the national energy mix; stabilise energy prices to the electricity sector; reduce reliance on imported fossil fuels; reduce carbon emissions; and increase energy independence.

1.03 Project preparation, auxiliary, and exploratory activities will cause both negative and positive environmental and social impacts. A Stakeholder Engagement Plan (SEP) has been developed in order to assist SVGCL in maintaining good relationships with affected persons and other stakeholders over the life of the Project and to provide a mechanism for addressing grievances or other issues that may arise. SVGCL proposes to engage the services of a Community Liaison Officer (CLO), as an individual consultant, to assist in the implementation of and monitoring of activities under the SEP.

2. OBJECTIVES

2.01 The main purpose of the CLO is to engage with communities on a continuous basis in an effort to strengthen relationships between SVGCL and affected communities.

3. SCOPE OF SERVICES

2.01 The CLO will promote constructive partnerships and communication between SVGCL and the communities on issues relating to project implementation and will be responsible for implementing community engagement activities as set out in the SEP. Among other things, the CLO will:

(a) Review SEP with a view to identifying and documenting any gaps in the (i) stakeholder identification and analysis that was undertaken; (ii) stakeholder engagement program (e.g., information to be disclosed, format and communication methods; stakeholder consultation methods); and (iii) schedule for the various stakeholder engagement activities. Information in the Environmental and Social Impact Assessment and the Resettlement Action Plan should be used to support SEP review and implementation. The SEP must be updated to address any gaps identified.

(b) Maintain updates to the SEP as necessary based on issues arising during implementation. Any major changes to the Project activities and/or schedule will be duly reflected in the updated SEP.

(c) Provide timely feedback to SVGCL on concerns raised by community members.

(d) Provide timely feedback to the community members on project implementation, concerns raised or important decisions taken by the SVGCL in accordance with agreed protocols.

(e) Identify potential grievances or project risks /opportunities.

(f) Assist SVGCL with management of grievances lodged through the Grievance Response Mechanism of the SEP.

(g) Assist other SVGCL managers as needed (e.g. during the local labour recruitment process by assisting with drafting gender–responsive local hiring policies and procedures) especially where community requirements are being solicited.

(h) Manage stakeholder engagement logistics such as collecting suggestions /grievances from suggestion boxes, placing communication materials on notice boards, and arranging community meetings.

(i) Facilitate stakeholder participation at all relevant levels in accordance with the identified needs of the different categories of stakeholders (particularly women). This may include among other things - participatory assessments and problem solving of issues, concerns and opportunities; focus group discussions; information sharing; and community meetings.

(j) promote awareness of health and safety risk directly associated with the Project.

4. DURATION

4.01 The consultancy is expected to last not more than sixteen (16) months from the date of contract signing.

5. REPORTS / DELIVERABLES

5.01 CLO will have an office on site and shall report to SVGCL's Social Manager. CLO will furnish reports/deliverables on the assignment as set out below:

(a) Prior to construction and in conjunction with SVGCL, develop and implement a results-based, gender-sensitive Monitoring and Evaluation (M&E) framework/plan for the SEP, that monitors the implementation of the SEP and includes the following indicators:

(i) Number of consultation meetings and other public discussions (forums, focus groups, etc.) conducted within a reporting period. The reporting period will be defined in the framework (e.g. monthly, quarterly, or annually).

(ii) % of women participating in consultations by reporting period.

(iii) Number of grievances received within a reporting period, number of those resolved within the prescribed timeline, disaggregated by sex of the complainer.

(iv) Number of project-related press materials published /broadcasted in the national media.

(b) Other information to be collected shall include:

(i) Geographic origin and type of grievances received, and reasons for non-resolution within the prescribed timeline including an analysis of trends.

(ii) Analysis of project-related press releases content: proportion that is favourable, unfavourable, neutral, and trends.

(c) Provide a weekly (structured) field report to SVGCL including consultations undertaken, attendance registers (where applicable), concerns raised, requests raised, concerns resolved, potential risks, grievances or opportunities identified.

(d) Assist in compiling a quarterly report for external stakeholders on stakeholder engagement activities undertaken during the previous quarter including the current status of M&E actions. The quarterly report shall include summarised information on participatory methods employed, grievances received from stakeholders (including information on incidents and events that resulted in grievances) and will be collated by the responsible staff and referred to the Project Coordinator (PC). These summaries will be accompanied by information on the implementation status of associated corrective and preventative actions and recommendations. This report shall form part of the quarterly status reporting (provided by the PC) for the Project.

(e) Assist in the compilation of relevant sections of the Project Completion Report.

6. QUALIFICATIONS AND EXPERIENCE

6.01 The consultant(s) should possess the following minimum qualifications:

(a) A post-graduate degree or equivalent qualification in the sociology, anthropology, community development or other relevant discipline.

(b) A minimum of ten (10) years relevant practical experience encompassing stakeholder engagement practice, community development, and/or social research using participatory approaches.

(c) Fluency in English.

BUDGET

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

APPENDIX 2.3

THE SUSTAINABLE ENERGY FACILITY

1. In October 2015, CDB's BOD agreed that CDB accept Financing from IDB of up to the equivalent of forty-two million and sixty-three thousand, six hundred and ninety-eight United States dollars ($42,063,698) consisting of a Global Credit Loan, a Clean Technology Fund Grant and a Global Environment Facility Trust Fund Grant, for the purpose of contributing to the diversification of the energy matrix in Eastern Caribbean countries (ECC), through the SEF for the Eastern Caribbean (the Programme). A counterpart contribution of $29,435,000 is available within CDB's existing resources for the relevant disbursement period to finance projects which meet SEF objectives, including for private sector electric utilities and at least one energy sector/policy loan for at least one of the beneficiary countries.

2. Of CDB's Borrowing Member Countries, the six independent countries of the OECS – Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines – are island states with small and isolated electricity markets. They lack the scale necessary to import cheaper fossil fuels, such as natural gas, and inadequate development of RE potential. The Programme has the potential to change the energy matrix of the beneficiary countries and increase energy security, which is critical for these economies that are tourism-dependent if they are to improve their competitiveness and fiscal and macroeconomic stability.

3. Component 3 of the SEF programme provides for utilisation of funds for Concessional loans to governments and SPVs established under public/private partnerships (PPPs) for development of baseload RE, such as geothermal energy (GE). Funds for GE projects will be made available through a CDB initiative called the GeoSmart which will provide a range of financial instruments to the public sector and/or SPVs. The activities to be financed are: (a) pre-investment activities, for which grants are best suited to unlock investments, including surface studies (geology, geophysics and geochemistry), environmental and social impact assessments; and drilling of early exploration wells (slim holes); (b) exploration activities, for which risk mitigation instruments are suited, such as contingent recovery grants, concessional loans and/or guarantees; and (c) field and power plant development activities.

APPENDIX 3.1

PROJECT COSTS, PHASING AND FINANCING PLAN
($'000)

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

APPENDIX 4.1

BUDGETED BALANCE SHEET
AS AT JUNE 30, 2016, DECMBER 31, 2016 AND OCTOBER 31, 2017
FROM MOBILISATION TO THE END OF THE EXPLORATORY DRILLING PHASE
('000)

Item	As at June 30, 2016	As at December 31, 2016	As at October 2016 (estimated project end)
Non-Current Assets:			
Work in Progress	300	1,300	30,002
Current Assets:			
Cash	700	3,218	2,204
Inventory	-	750	130
Prepaid Expenses	-	500	120
Total Assets	**1,000**	**5,768**	**32,456**
Shareholders Equity and Liabilities:			
Share Capital - SVGCL	1,000	5,000	15,297
Share Capital - GOSVG	-	699	4,959
Retained Deficit	-	(20)	(35)
Long-Term Liabilities:			
CRG - CDB	-	-	9,500
GOSVG	-	-	2,720
Current Liabilities:			
Accrued Expenses	-	89	15
Total Shareholders and Liabilities	**1,000**	**5,768**	**32,456**

APPENDIX 4.2

EXPECTED ANNUAL SPEND AND SOURCE OF FUNDS
FROM MOBILISATION TO END OF THE EXPLORATORY DRILLING PHASE
('000)

Item	2016	2017
Expected Expenditure:		
Project Preparation (Preliminary Surface Studies and other Preparatory Works)	2,420	-
Resettlement Action Plan Compensation	842	-
Integrated Drilling Services	635	19,854
Off-site Infrastructure	508	-
Project Management	985	3,940
Engineering Services	208	840
Contingencies	174	2,224
Sub-Total	**5,598**	**26,858**
Sources of Funds:		
DFID Grant	699	4,959
SVGCL	4,899	9,879
CRG - CDB	-	9,500
GOSVG	-	2,520
Sub-Total	**5,598**	**26,858**

APPENDIX 4.3

SUMMARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

BACKGROUND

1. SVGCL is proposing about 10-15 megawatt (MW) geothermal power development in northern St. Vincent, on the southern slopes of the La Soufrière Volcano. The Project would be the first of its kind in SVG and consists of the exploratory drilling and testing of three geothermal wells on 1-2 well pads and associated project facilities (e.g., water system, road improvements).

2. The Project's objective is to confirm La Soufrière Volcano geothermal reservoir characteristics and suitability for production thorough exploratory drilling. After confirmation, SVGCL intends to continue to power production.[1]

3. The Project must adhere to National guidelines as well as IFC's PS on Environmental and Social Sustainability (2012) and applicable IFC Environmental, Health, and Safety (EHS) Guidelines. An ESIA of the Project, covering only drilling exploration/production wells was prepared by consultants. An ESAP also prepared by the consultants identifying and prioritising actions needed to address gaps in the project design to bring a project in line with IFC's PS is at Table 1 below.

PROJECT DESCRIPTION

4. The Project consists of the exploratory drilling and testing of three geothermal wells on 1-2 well pads and associated project facilities (e.g., water system, road improvements). Activities involve drilling deep wells (between 1,000 to 3,000 meters [m] deep) in the earth's crust to characterise the thermal heat resource contained in underground reservoirs of geothermal water or steam. The wells are drilled in clusters within drill pads or platforms. Exploratory drill wells bring to the surface a mixture of steam, gas, and water, known as brine. Drilling wells are allowed to let brine out (i.e., blow testing) to confirm the well production capacity. Injection wells return the brine and other geothermal fluids from the exploratory wells back underground.

5. SVGCL has requested approval for two exploratory drill pads, referred to as W1 and W3. SVGCL has indicated that they will construct the drill pads in sequence: first W1 and, if exploratory blow testing does not result in favourable results, then W3. If W1 blow testing results in favourable results, W3 will not be required. The main project components include the exploratory drill pads (W1 and W3), a water system (including a water intake, water supply pipeline, and a water storage pond), and injection well pads (one for each site).

KEY PROJECT IMPACTS AND MITIGATION MEASURES

(a) ***Soil Erosion:*** The Project will disturb steep slopes in a relatively wet climate, and so has the potential for significant soil erosion. A Soil and Erosion Control Plan will be developed and implemented to adequately manage this potential risk.

(b) ***Noise:*** Drilling and blow testing could generate noise levels of up to 120 dBA. This intensity of noise, combined with 24-hour drilling, although temporary, results in exceedances of international night-time noise standards (45 dBA) at distances of approximately 200 m (steam blow testing) to 500 m (drilling). As drilling noise can vary by drill rig, noise levels will be monitored immediately upon the initiation of drilling and

[1] A separate ESIA will be prepared if the geothermal characteristics are determined suitable for power production.

a Corrective Action Plan implemented (e.g., additional noise mitigation or physical resettlement) if noise levels exceed standards. Necessary personal protective equipment will be provided for employees and possibly ear protection for nearby farmers. Implementation of these measures, and at the worst case limited additional physical resettlement, should adequately manage these risks.

(c) ***Water Resources:*** - SVGCL proposes to withdraw water from the Rabacca River to meet the Project's exploratory drilling water demands which primarily involves mixing water with bentonite (a clay) to serve as a lubricant. For the initial stages of drilling, there should be sufficient water in the Rabacca River to meet the Project's estimated water needs (0.2 L/s) and still leave sufficient water to support aquatic life in the river. During the final stage of drilling, however, the Project's water demand increases to 40 L/s for approximately 20 days. Construction will be scheduled to avoid the final stage of drilling coinciding with the end of the dry season (January – March) to adequately manage these risks.

(d) ***Aquatic Biodiversity:*** - The proposed water withdrawals from the Rabacca River, depending on the time of year, could result in the loss of some aquatic habitat. Migratory shrimps and the Sirajo goby fish rely on increased freshwater inputs from the river as a cue to begin migrating upstream. Proposed water withdrawals will decrease the volume of freshwater thereby reducing the strength of this migratory cue. These species also require a connected river system in order to reach upstream spawning habitat and for larvae to descend to the coast. Some of these species could be entrained at the Project water intake or be susceptible to unplanned hazardous material spills. Avoiding/minimising large water withdrawals during the end of the dry season, minimise the water intake velocity to the extent possible, and install wedge wire screens on the water intake to minimise entrainment, and implement spill control plans. These measures should adequately manage these risks to aquatic biodiversity.

(e) ***Terrestrial Biodiversity:*** - The Project will only directly impact a small area of modified habitat (e.g., banana plantation). The Project will also not directly impact any protected areas, but will result in the temporary degradation of habitat quality as a result of noise, light, and increased human activity within the nearby La Soufrière National Park and Mount Pleasant Forest Reserve. Two of the species are expected to occur in the project area are listed on the IUCN Red List of Endangered Species: the St. Vincent Parrot (listed as Vulnerable) and the St. Vincent Whistling Frog (listed as Endangered). Pre-clearing surveys will be conducted immediately prior to construction to flush wildlife from areas to be disturbed, relocate sessile/limited mobility species to undisturbed sites to the extent practicable, and enforce a strict no hunting/collecting policy for Project workers. As operationally possible construction will be avoided during the St. Vincent Parrot breeding season to avoid disturbing nesting birds. Minimise noise from drilling and steam blow testing as described below. Implementation of these measures should adequately manage these risks.

(f) ***Waste Management:*** - The Project will generate drill muds, drill cuttings, domestic wastewater, and small quantities of other miscellaneous solid wastes. Neither the drill muds nor cuttings are hazardous, and will be stored in a lined mud pond, where the muds will be reused as a drilling lubricant and the cuttings (mostly rock) will settle to the bottom of the pond. After drilling is completed, the mud pond will be properly closed. The Project will also generate geothermal liquids, which are typically composed of various dissolved minerals. SVGCL proposes to collect and inject these liquids back underground. A latrine

with a septic system will be provided to handle worker domestic wastewater. Miscellaneous solid waste will be disposed of in accordance with SVG waste management regulations.

(g) ***Land Acquisition and Economic Displacement:*** - The Project design has not advanced sufficiently at this time to completely assess the Project's land acquisition, physical resettlement, and economic displacement requirements. A draft RAP which identifies people subject to physical or economic displacement. Once the project design is finalised (at least for Site W1), and all people identified SVGCL will complete a compensation program and continue to implement the RAP. Based on field review of the general locations for the project components, physical resettlement is expected to be limited to one family. However, there are small farmers who farm lands in the project area that may lose some crops. Implementing the RAP and negotiating with the affected people regarding compensation in accordance with the IFC Performance Standards should adequately address these issues.

(h) ***Worker Code of Conduct and Grievance Mechanism:*** - The Project will require up to 40 workers, about 70 percent (approximately 28 workers) will be foreign labor. These workers will most likely be housed in nearby communities and will be working at the project site for several months (more if drilling at Site W3 is required). There is always the potential for conflict between foreign workers and local communities and for an increased incidence of negative or harmful practices such as prostitution, gender-based violence. A Worker Code of Conduct will be developed to help manage these potential conflicts and made a contract requirement. In addition, SVGCL will implement the Grievance Mechanism that provides a process to review and address any community complaints (e.g., worker conduct, noise, traffic). Implementation of these measures should adequately manage these risks.

(i) ***Recreation and Tourism:*** - The preferred drill pad site, W1, is located along the feeder road to the Bamboo Range Hiking Base Station, where hikers ascend the La Soufrière Volcano, one of the most popular tourist attractions in SVG. The Project will affect these recreational users by increasing noise levels and changing the visual landscape as they pass Site W1. These impacts are considered minor as the noise and visual effects are quickly reduced to negligible levels as hikers leave the Base Station and ascend the volcano.

(j) ***Cultural Heritage:*** - The Project has the potential to affect the Byera Tunnel, the Orange Hill Aqueduct, and potentially other culturally important sites along the transport route to the pad sites. A Journey Management Plan will be developed to help ensure measures are in place to protect these historic resources. There is also the potential that unanticipated discoveries may occur during construction, given the number of other archaeological sites known to occur in the project area. A Chance Finds Plan will be adopted and implemented. Implementation of these plans should adequately manage these risks.

CONCLUSIONS

6. The ESIA concludes that the proposed St. Vincent Geothermal Project will result in environmental and social impacts, but these impacts can be readily mitigated and managed. The Project should comply with the requirements of the IFC Performance Standards as long as actions identified in the Environmental and Social Action Plan (ESAP) and the measures included in ESMP are implemented.

7. As a condition precedent to disbursement for the construction works at site W1, SVGCL is required to provide evidence acceptable to CDB that the key actions from the ESAP such as stakeholder engagement, GRM; RAP update and disclosure; erosion and sediment control measures; worker code of conduct; and CLO have been satisfied.

8. As a condition of the CRG, SVGCL will submit monitoring reports in accordance with the frequencies identified in the ESMP for: air emissions, ambient air quality, noise and vibrations, effluent quality, groundwater quality, and solid waste, to the appropriate authority in SVG[2].

9. It will be a condition of the CRG that if Site W1 is determined to be unsuitable for production that SVGCL decommission the Site in accordance with IFC guidelines.

10. The Engineering Consultants will monitor the contractors' environmental performance and compliance with the mitigation measures stipulated in the contract documents and provide routine reports to CDB. CDB staff will carry out at least two supervision visits in collaboration with IDB and may also utilise services of independent consultants if deemed necessary.

[2] The Physical Planning Board.

TABLE 1: PROJECT ENVIRONMENTAL AND SOCIAL ACTION PLAN[1]

No.	Action Plan Item	Objectives/Comments	Responsible Party	Timetable for Action to be Completed
Section A: ***Prior to Construction at Site W1***				
1	Stakeholder Engagement	Complete, disclose, and implement a Stakeholder Engagement Plan (SEP) to ensure a) consultation and disclosure of ESIA/ESMP documentation, and b) ongoing community engagement during Construction, Drilling, and Testing.	SVGCL	Prior to Construction at Site W1
2	Grievance Mechanism	Establish an understandable and transparent grievance mechanism that is culturally appropriate and readily accessible, and at no cost and without retribution for Project Affected Communities, and people who would be physically or economically displaced by the Project.	SVGCL	Prior to CDB Board Approval
3	GOSVG approval.	Secure Government of SVG approval of the Project.	SVGCL	Prior to CDB Board Approval
4	Environmental and Social Management System (ESMS)	Prepare, for lender review and approval, an ESMS for the Project to ensure ongoing compliance with requisite environmental, health and safety and social standards (i.e., adopted environmental, social, health and safety standards, Company commitments as outlined in ESIA) and to meet SVG legal requirements, IFC Performance Standards, and EHS Guidelines.	SVGCL	30 days prior to start of construction
5	RAP	Finalise Project land acquisition and economic displacement requirements, finalise RAP consistent with IFC Performance Standards, develop a compensation strategy, and implement the RAP.	SVGCL	Prior to land acquisition and construction
6	Erosion and Sediment Control Plan	Prepare detailed Erosion and Sediment Control Plan for all construction at Site W1, including the water system, drill pad, and injection pad.	SVGCL	Prior to construction at Site W1
7	Worker Code of Conduct	Prepare a Worker Code of Conduct to minimise conflicts with local communities.	SVGCL	Prior to construction at Site W1
8	Journey Management Plan	Prepare Journey Management Plan to minimise traffic and safety issues associated with transported construction equipment and materials to Site W1 for review and approval by the SVG.	SVGCL	Prior to the transport of equipment or materials to Site W1
9	CLO	Hire a CLO to help keep the community informed about the Project and to manage the Grievance Mechanism.	SVGCL	Prior to construction at Site W1
Section B: ***During Project Construction, Drilling, and Testing at Site W1***				
10	Environmental and Social Management Plan (ESMP)	Implement the ESMP.	SVGCL	Throughout Phase I

No.	Action Plan Item	Objectives/Comments	Responsible Party	Timetable for Action to be Completed
11	Construction Timing	To the extent possible, avoid starting construction during the St. Vincent Parrot breeding season (from January to June) and avoid Stage 4 large water withdrawals from the Rabacca River during the low flow period (from January to March).	SVGCL	During construction at Site W1
12	Noise Monitoring	Install noise meters and confirm actual noise levels at nearby residences comply with IFC Performance Standards and EHS Guidelines. If not, development an Action Plan to address this non-compliance.	SVGCL	Immediately upon commencement of well drilling. Provide monitoring report to lenders within 2 weeks.
13	Construction Monitoring and Reporting	Submit monitoring reports relating to compliance with applicable standards and monitoring requirements including air emissions, ambient air quality, noise and vibrations, effluent quality, groundwater quality, and solid wastes.	SVGCL	Quarterly reporting during Construction and Testing
Section C: ***Prior to Construction at Site W3***				
14	ESIA and RAP Addenda	Finalise design (e.g., land acquisition needs and provision of process water) and prepare addenda to the ESIA and RAP (if necessary) to identify and evaluate impacts associated with land acquisition and water supply. This ESIA Addendum should demonstrate Project conformance with the IFC Performance Standards and amend any SVG permits if necessary.	SVGCL	Prior to construction at Site W3
15	Erosion and Sediment Control Plan	Prepare Erosion and Sediment Control Plan for all construction at Site W3, including the water system, drill pad, and injection pad.	SVGCL	Prior to construction at Site W3
Section D: Concurrent with Construction at Site W3				
16	Site 1 Decommissioning	Decommission Site W1 if it is determined to be unsuitable for production.	SVGCL	During drilling at Site W3

[1] An ESAP identifies and prioritises actions needed to address gaps in the Project design, ESIA, management plans, management systems, or stakeholder engagement process to bring a Project in line with international standards.

APPENDIX 4.4

GENDER MARKER ANALYSIS

Project Cycle Stage	Criteria	Score
Analysis: Introduction/ Background/ Preparation	Consultations with women/girls/men/boys and relevant gender-related or sector-related public or private organisations have taken place.	5
	Social analysis identifies gender issues and priorities.	0.25
	Macroeconomic analysis identifies gender issues and priorities.	0
Design: Project Proposal/ Definition/ Objective/ Description	To address the needs of women/girls and men/boys concrete interventions to reduce existing gender disparities have been designed. Effect on project outcome is direct.	0.5
	Project objective / outcome includes gender equality.	0
Implementation: Execution	Implementation arrangements (gender mainstreaming capacity building or gender expertise in implementing agency) to enhance the gender capacity of the implementing agency. Effect on project outcome is indirect.	0
	Terms of Reference of project coordinating unit / project management unit include responsibilities of gender mainstreaming, especially at the levels of the PC/director and the Monitoring and Evaluation (M&E) officer.	0.5
M&E: Results Monitoring Framework (RMF)	Collection of sex-disaggregated data required for M&E (stated and budgeted in the Project)	0
	At least one gender-specific indicator at the outcome and/or output level in the RMF.	0
Scoring Code		**1.75**

Scoring Code
Gender specific (GS): if 3.75 points to 4 points **Gender mainstreamed (GM):** if 3 points to 3.5 points **Marginally mainstreamed (MM):** if 1.5 to 2.75 points. **NO:** if projects score zero or 1; if NO please give a justification why

Marginally Mainstreamed (NO): The Project has limited potential to contribute significantly to gender equality.

APPENDIX 4.5

GENDER/SOCIAL SAFEGUARD ACTION PLAN

Project Outputs	**Activity Planned**	**Responsibility**
Overall	Consultation and other mechanisms to enhance participation of all categories of stakeholders, with equity in representation by men and women, are held at relevant times to support component initiation, implementation and completion. Stakeholders (different groups of men and women) are integrated into design and M&E of project. Data is disaggregated by sex, for social/gender M&E where appropriate across all project and programming components.	Consultant CLO Support CDB Consultant CLO Supervisory support CDB Consultant CLO
Output 1: Three Exploratory/Production Wells.	Skilled and unskilled work related to the project preparation: • Encourage not just men from affected districts/communities, but both women and men from around SVG. • Sensitise contractors to available skills of women and men in the community The same as above should be applied where opportunities for training may occur Equal pay for men and women for work of equal type.	Promotion, advocacy, M&E by Consultant CLO and PC. Contractor with sensitisation. Encouragement by Consultant CLO

APPENDIX 4.6

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

1.01 The ESMP of the Project will be implemented to prevent, minimise, and offset loss or damage from the proposed project. The ESMP addresses the project activities and issues identified in the ESIA, and set out management strategies in accordance with proposed performance criteria for specified acceptable levels of environmental and social performance. The plans identify:

(a) Potential impacts on environmental receptors and social values;

(b) Mitigation strategies;

(c) Performance monitoring;

(d) Key Performance Indicators; and

(e) Appropriate corrective actions should an undesirable impact or unforeseen level of impact occur.

1.02 SVGCL is committed to providing resources essential to the implementation and control of the ESMP. This ESMP is comprised of the following plans:

(a) Drill Mud and Cuttings Management;

(b) Noise Management;

(c) Soil and Erosion Control;

(d) Water Resources Management;

(e) Spill Prevention Control and Countermeasures;

(f) Decommissioning and Restoration;

(g) Biodiversity;

(h) Socioeconomic and Health Management;

(i) Cultural Heritage Resources;

(j) Transportation and Traffic Management; and

(k) Environmental and Social Monitoring Plan.

1.03 In addition, SVGCL will develop and ensure implementation of the following plans:

(a) Emergency Response Plan – defines the procedures to be implemented in a forecasted event (e.g., hurricane or tropical storm) or an unanticipated event (e.g., earthquake, volcano eruptions).

(b) Journey Management Plan - defines the process all project staff and contractors will follow for planning and undertaking road transport journeys to ensure compliance with community and worker health and safety requirements; and

(c) Local Employment and Supplier Development Plan - outlines the local employment strategies and opportunities for workers and suppliers, and the process by which locals can participate in the bidding and application process.

APPENDIX 6.1

THE BENEFICIARY AND THE EXECUTING AGENCY

1. THE BENEFICIARY OF THE GRANTS

1.01 The Beneficiaries of the Grants are GOSVG and SVGCL, with the capacity to carry out the Project and accept the Grant.

2. THE EXECUTING AGENCY OF THE GRANTS

Legal Status

2.01 The Executing Agency is SVGCL, a limited company duly incorporated on November 25, 2015 under the Companies Act, CAP. 143 of the Laws of St Vincent & the Grenadines. SVGCL has separate and distinct legal personality from those of its directors and shareholders. As an incorporated company, it has the rights, capacity, powers and privileges of an individual and is empowered to carry on business and conduct its affairs as such. SVGCL has been established for the purpose of developing and constructing, owning and operating and maintaining a geothermal plant.

Management and Shareholding

2.02 As provided for in the by-laws of SVGCL, the directors shall exercise the powers of the company directly or indirectly through the employees and agents of the SVGCL and direct the management and affairs of the company. There shall be a maximum of four and a minimum of one director at least two of whom are not officers or employees. SVGCL currently has four (4) directors. The directors may from time to time by resolution delegate to any officer of the company all or any of the powers conferred on the directors by the Articles to full extent thereof or such lesser extent as the directors may in any such resolution provide.

2.03 The composition of the directorship is representative of the shareholding, pursuant to the Unanimous Shareholders' Agreement (the Agreement, dated November 30, 2015), namely the GOSVG and TGC, an international business company formed under the laws of Saint Lucia, owned by ECI, a subsidiary of Emera Inc. and Reykjavik Geothermal Limited. Subject to the Companies Act, and the Articles and without prejudice to any special right previously conferred on the holders of any shares or class of shares for the time being, issued shares in the capital of SVGCL may be allotted and issued by resolution of the directors at such times and on such terms and conditions and to such persons or class of persons as the directors determine. Further and more specifically, Section 3.01 of the Agreement provides that the authorised capital of SVGCL consists of an unlimited number of Class - A Common Shares, without nominal or par value, of which 7500 and 2500 (representing a 75/25 % split) have been issued to TGC and GOSVG respectively are outstanding. It should be noted that pursuant to the Agreement, if the GOSVG, as part and parcel of its authorised capital requirements, obtains concessional financing, then the option exists for SVGCL to create new and additional shares in favour of the GOSVG.

3. THE BENEFICIARY OF THE CONTIGENTLY RECOVERABLE GRANT

3.01 The Beneficiary of the CRG is also SVGCL.

APPENDIX 6.2

DRAFT TERMS OF REFERENCE
PROJECT COORDINATOR

1. SCOPE OF WORKS

1.01 The Project Coordinator (PC) shall report to a Management Committee of SVGCL and will be accountable for the effective implementation of the Project. PC's primary functions during project implementation will include overall planning, scheduling and monitoring of project activities, cost control, supervising procurement procedures and construction and coordinating the work of the consultants and other parties involved in the execution of the Project. PC's duties will also include the following:

(a) representation of SVGCL in all its dealings with consultants, suppliers and contractors;

(b) management and administration of the integrated drilling services contract;

(c) ensuring that stakeholders are kept informed about the progress of the Project, including work schedules of contractors and consultants in all components, traffic management plans, diversions, closures, and all aspects of the performance of the ESMP;

(d) ensuring that the Workers Code of Conduct to prevent Gender-based Violence and HIV/AIDS/STI transmission is implemented and that hiring requirements of contractors are based on gender equality;

(e) monitoring and evaluating of the Project, in a manner consistent with the Project's Monitoring and Evaluation (M&E) Framework;

(f) developing close working relationships with all project participants and stakeholders (including, but not limited to, government agencies, private sector entities, and Local Government officials) with a view of minimising implementation delays due to anticipated issues;

(g) ensuring that, where appropriate, public notices regarding project implementation matters are disseminated in the media and distribution of notices in the communities, etc.

(h) preparation and expedition of submission to the Caribbean Development Bank (CDB) of claims for disbursement/reimbursement with regard to all components financed from the Contingently Recoverable Grant in accordance with CDB's policies and procedures;

(i) ensuring that all contractual obligation are adhered to and make all necessary arrangements to ensure implementation meets projected targets;

(j) liaising with CDB on all technical and administrative aspects of the Project;

(k) maintenance of separate accounts for project-related expenditures and disbursement activities;

(l) recording in a register of contracts, the activities related to the contract (start date, reports presented, reimbursements requested, payments made, etc.);

(m) submission to CDB of the consultants' monthly progress reports referred to at Appendix 6.9 within two weeks of the end of each month;

(n) preparation and submission to CDB of monthly progress reports including a report on the investment cost of the Project in the form shown at Annex 1 to Appendix 6.9 or in such other forms as may be specified by CDB within two weeks of the end of each month, commencing with the month following start of the assignment;

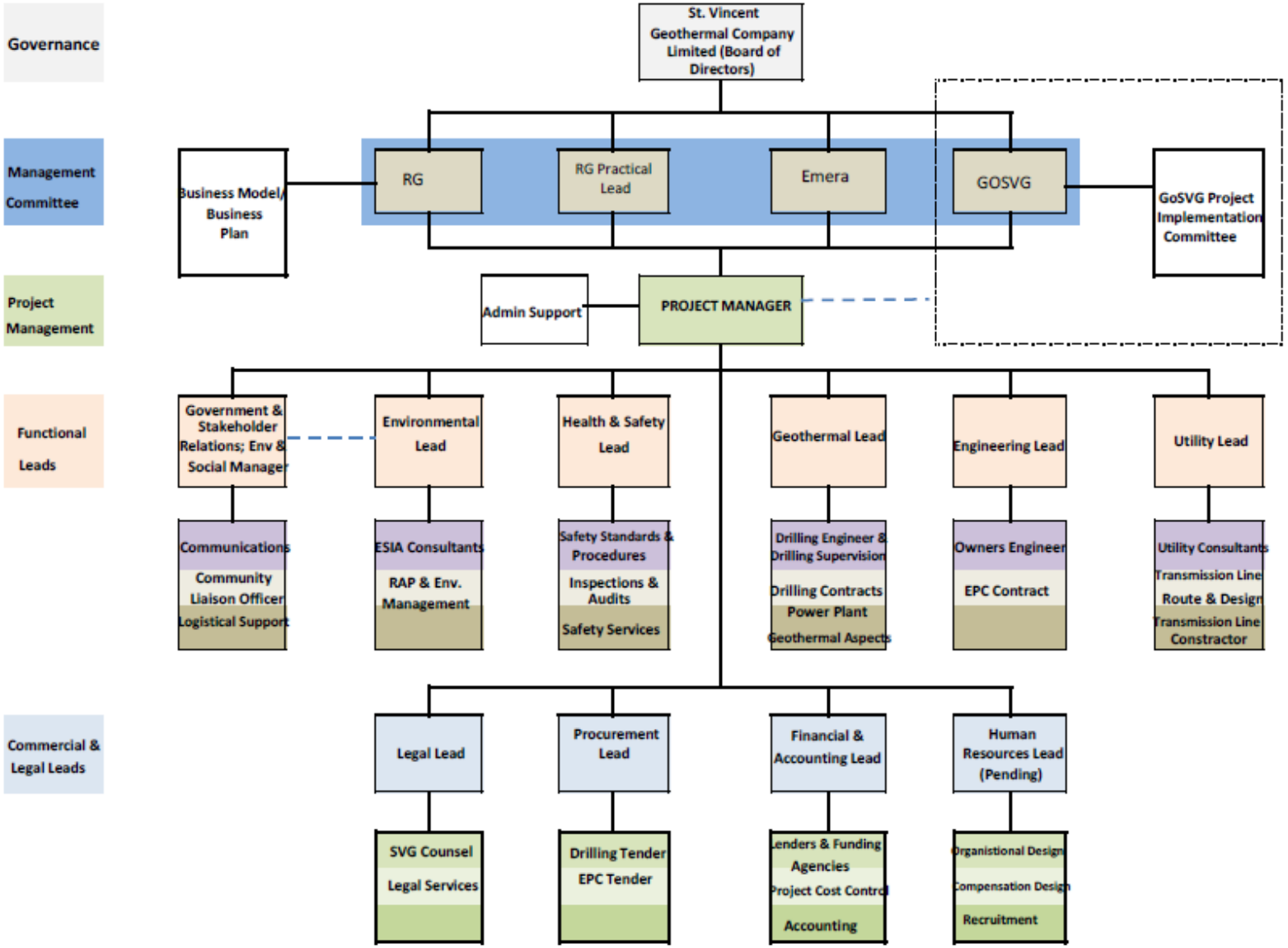
(o) submission to CDB of the consultants' completion report within six weeks of the issue of the certificate of practical completion of the Project; and

(p) preparation and submission to CDB of a Project Completion Report not later than six weeks after final disbursement on the integrated drilling services contract or date of issue of the certificate of practical completion, whichever is later.

2. QUALIFICATIONS AND EXPERIENCE

2.01 The selected candidate should ideally be an electrical or mechanical engineer with knowledge of geothermal development and experience in electric power systems and project management. Relevant experience must include the preparation of project schedules and budgets, monitoring of project execution, and project reporting. Experience with funding institutions and stakeholder engagement would be an asset. Excellent oral and written communication skills are necessary.

PROJECT ORGANISATIONAL STRUCTURE



APPENDIX 6.3

APPENDIX 6.4

SERVICES TO BE PROVIDED BY THE ENGINEERING CONSULTANTS

Engineering consultants are to be engaged by SVGCL to provide the following services:

1. technical inspection of all the drilling and construction works to ensure compliance with contract provisions;

2. monitoring of contractors' performance, certification of work and issue of payment certificates;

3. monitoring of contractor's compliance with the Environmental and Social Management Plan;

4. preparation of reports on the progress of the drilling and construction works indicating any difficulties affecting its efficient and timely execution commencing one month after the engagement of the consultants;

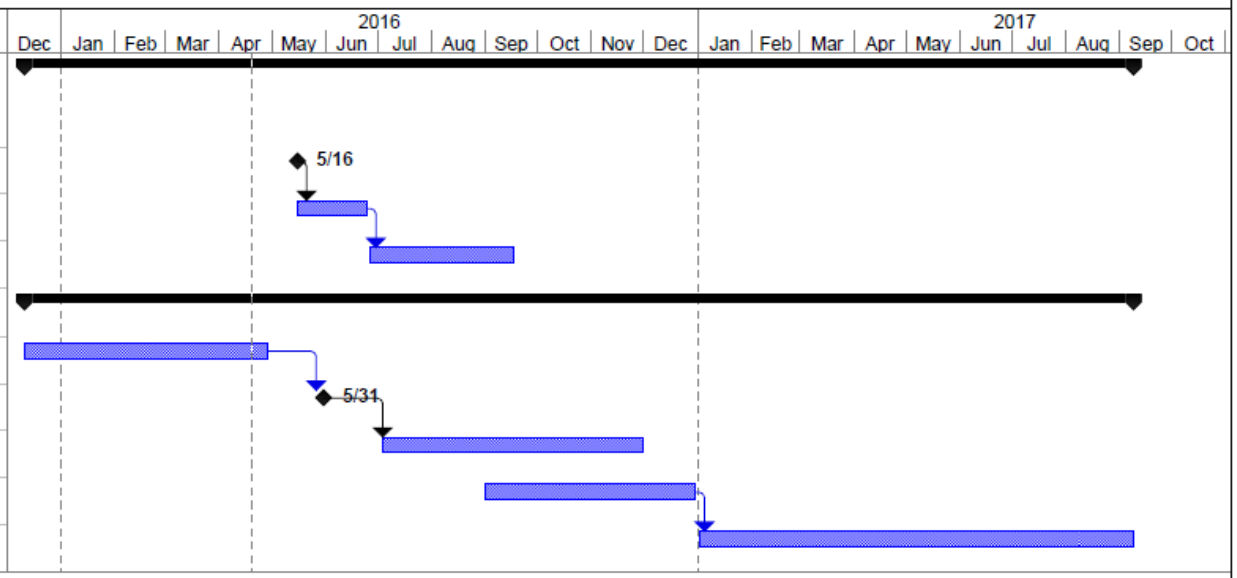
5. witnessing of testing of all the works;

6. issue of certificates of completion to the contractors upon completion of services and works; and

7. preparation of a completion report within two months after the date of the issue of a certificate of practical completion.

PROJECT IMPLEMENTATION SCHEDULE

ID	Task Name
1	**GEOTHERMAL DRILLING PROJECT - ST. VINCENT AND THE GRENADINES**
2	CDB Board Approval
3	Sign Grant Agreement
4	Satisfy Conditions Precedent
5	**PROJECT IMPLEMENTATION**
6	Tendering Process
7	Award of Contract
8	Site Preparation and Access Roads
9	Drill Rig Mobilisation
10	Drilling Services and Testing



Task Milestone Summary Finish-only

Geothermal Drilling Project - St. Vincent and the Grenadines

APPENDIX 6.5

APPENDIX 6.6

IMPLEMENTATION SUPPORT PLAN

1. The implementation support will be provided as part of CDB's project supervision functions, and will include, among other things:

(a) reviewing implementation progress and achievement of project outcomes;

(b) addressing implementation issues;

(c) monitoring systems to ensure their continued adequacy through monitoring reports; audit reports and field visits; and

(d) monitoring changes in risks and compliance with legal agreements as needed.

Implementation support team will include consultants with specific related expertise. Given the short implementation period of the Project, this Implementation Support Plan (ISP) will remain in effect until its completion. ISP aims at providing technical support to SVGCL in the achievement of the results and has been developed based on the design of the Project, its risk profile and an assessment of the Beneficiary's capacity to implement the Project

Strategy and Approach for Implementation Support

2. Supervision of the Project will be undertaken by a team comprising the lead supervisor (Portfolio Manager), supported by consultants provided under SEF, legal counsel and specialists in the areas of geothermal exploration development, environment/disaster risk management; procurement; financial analysis; and social analysis. Formal supervision and field visits will be undertaken four times during project implementation.

3. The first formal supervision activity will be the Project Launch Workshop (PLW). The objective of PLW is to review the implementation arrangements, familiarise the project management in the use of CDB's fiduciary management and procurement systems and discuss project supervision issues. PLW is scheduled for September 2016 and arrangements will be finalised in consultation with SVGCL when necessary conditions have been satisfied, including the assignment the Project Management Team (PMT). PLW participants will include all the assigned PMT and other relevant SVGCL staff/representatives who will be integrally involved in the administration and implementation of the Project. Consultants whose services have been engaged by that time will also be required to participate. Interested SVGCL Board members may wish to participate.

4. The training provided during PLW on the Bank's financial management and procurement procedures and guidelines will be augmented during the supervision visits and support will be provided on a timely basis to respond to client's needs.

5. The Supervision Coordinator will coordinate CDB's team to ensure that project implementation is consistent with the requirements as specified in the Procurement Plan, Terms and Conditions and other legal documents. The supervision team will prepare Project Supervision Reports identifying the status of project implementation and any issue requiring the resolution of management. On the completion of the Project or after 90% of the funds have been disbursed, Staff will conduct an Exit Workshop to assess project results, discuss implementation issues and identify lessons. A draft Project Completion Report will be prepared and discussed with the client during the Exit Workshop. The final PCR will be validated by the Office of Independent Evaluation (OIE). Staff will prepare a Management response to the OIE's validation

report. The validation report and management's response will be presented to the Audit and Post-Evaluation Committee.

TABLE 1: STAFF SKILLS REQUIRED

Period	Focus	Skills and Resources Estimate	
June – December 2015	Specific (1) Project Launch Workshop. (2) Support in satisfying Conditions Precedent. General (1) Monitor Project Budgeting and Allocations. (2) Monitor Project Physical Works progress and quality, including field trips. (3) Monitor Project Results Framework. (4) Provide technical support to PC and Borrower. (5) Preparation of Project Supervision Report. (6) Review and certification of requests for disbursement. (7) Review of Monthly and Quarterly Reports. (8) Review of bidding documents, evaluation reports, and draft contracts. (9) Provide procurement support relating to draft procurement notices, resolving procurement bottlenecks, etc. Specific (1) Review PC and consultants final reports. (2) Conduct Exit Workshop and complete PCR.	Lead Project Supervisor Legal Counsel Financial Analyst Environmental Specialist Social Specialist Procurement Specialist Administrative Assistant Divisional Secretary	10 weeks 1 week 1 week 2 weeks 1 week 0.5 week 1 week 0.5 week

APPENDIX 6.7

PROCUREMENT PLAN

A. General

1. Project information:

Country:	St. Vincent and the Grenadines
Project Name:	Geothermal Project – St. Vincent and the Grenadines
Beneficiary:	SVGCL
Project Executing Agency:	SVGCL

2. Bank's Approval Date of the Procurement Plan: May 16, 2016

3. Period covered by this Procurement Plan: January 1, 2016 to June 30, 2017

B. Goods and Works

1. Prior Review Threshold: Procurement Decisions subject to Prior Review by the Bank as stated in Appendix 2 to the Guidelines for Procurement.

	Procurement Method	Prior Review Threshold	Comment
1.	Limited International Bidding (LIB)	[redacted]	Tender Documents will be subject to prior review.
2.	Non-Bank Funded	No review	Procurement procedures of SVGCL apply.

2. Prequalification: Yes – for integrated drilling services contract

3. Reference to Project Operational/Procurement Manual: CDB's Guidelines for Procurement (2006).

4. Any Other Special Procurement Arrangements:

(i) Given the limited number of appropriately qualified and experienced drilling contractors the procurement method of limited international bidding shall be employed.

(ii) A waiver of CDB's Guidelines for the Selection and Engagement of Consultants (2011) for the CLO contract is sought to extend eligibility to IDB member countries, in accordance with the SEF Finance Agreement signed with IDB (Board Paper BD 100/15). [redacted] In addition, a further waiver of CDB's Guidelines for Procurement (2006) is sought to extend eligibility for the Integrated Drilling Services contract to all countries, given the specialist nature of the services to be provided and the countries in which companies providing them are established. [redacted]

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

5. Procurement Packages with Methods and Time Schedule:

1	2	3	4	5	6	7	8
Ref No.	**Contract (Description)**	**Estimated Cost**	**Procurement Method**	**Prequalification (Yes/No)**	**Bank Review (Prior/Post)**	**Expected Bid-Opening Date**	**Comments**
1.	Integrated Drilling Services		LIB	Yes	Prior	February 12, 2016	SVGCL will provide counterpart of
2.	Off Site Infrastructure		NBF	No	N/A	N/A	

C. Consultancy Services

1. **Prior Review Threshold:** Procurement decision subject to prior review by the Bank as stated in Appendix 1 to the Guidelines for the Selection and Engagement of Consultants:

	Selection Method	Prior Review Threshold	Comments
1.	ICS		

2. **Shortlist comprising entirely of national consultants:** N/A

3. **Reference to (if any) Project Operational/Procurement Manual**: CDB Guidelines for Selection and Engagement of Consultants 2011

4. **Any Other Special Procurement Arrangements**: a waiver of the CDB Guidelines for Selection and Engagement of Consultants (2011) is sought to extend eligibility to CDB and IDB member countries in accordance with the Finance Agreement signed with IDB.

5. Procurement Packages with Selection Methods and Time Schedule:

Ref No.	Contract (Description)	Estimated Cost	Selection Method	Review by Bank (Prior/Post)	Expected Bid-Opening Date	Comments
1.	Engineering Services - Supervision		NBF	N/A	N/A	
2.	Project Management		NBF	N/A	N/A	
3.	Technical Assistance - CLO		ICS	Prior	July 29, 2016	

D. Implementing Agency Capacity Building Activities with Time Schedule

Project Launch Workshop: Schedule to be coordinated with SVGCL.

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

E. Summary of Proposed Procurement Arrangement

Project Component	CDB ($'000)									NBF ($'000)			Total Cost ($'000)
	LCB	LIB	RCB	NCB	DC	ICS	SSS	QCBS	QBS	Country	DFID	SVGCL	
1. Integrated Drilling Services													
2. Off Site Infrastructure													
3. TA - CLO													
4. Engineering Services													
5. Project Management													
Sub-Total													
6. Contingencies													
Total													

CQS – Consultant Quality Selection
DC – Direct Contracting
FA – Force Account
FBS – Fixed Budget Selection
ICB – International Competitive Bidding
IS – Individual Selection
NBF – Non-Bank Financed
NCB – National Competitive Bidding
UCP – Unrestricted Competitive Procurement
QCBS – Quality and Cost-Based Selection
QBS – Quality Based Selection
RCB – Regional Competitive Bidding
SSS – Single Source Selection

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

APPENDIX 6.8

ESTIMATED QUARTERLY DISBURSEMENT SCHEDULE
($'000)

Year	Quarter No.	CRG	UK-DFID	GEF	Total	Cumulative
2016	4	0	699	80	779	779
Sub-total		**0**	**699**	**80**	**779**	**779**
2017	1	1,900	4,959	15	6,874	7,653
	2	3,800	0	25	3,825	11,478
	3	3,000	0	25	3,025	14,503
	4	800	0	16	816	15,319
Sub-total		**9,500**	**4,959**	**81**	**14,540**	**-**
TOTAL		**9,500**	**5,658**	**161**	**15,319**	**-**

APPENDIX 6.9

DETAILS OF REPORTING REQUIREMENTS

	REPORT	FREQUENCY
(a)	Monthly Progress Report (prepared by the Engineering Consultant) on the progress of the works**.**	No later than two weeks after the end of each month until construction is completed, commencing with the month after the engagement of the consultants.
(b)	Monthly Report (prepared by PC) containing, *inter alia*, progress of the works, results of reservoir testing investment cost of the Project using guidelines provided in Annex 1 of this Appendix.	No later than two weeks after the end of each month, commencing with the month following the assignment.
(c)	Completion Report (prepared by the engineering consultants) on the implementation of the Project and the results from the drilling services on performance of reservoirs.	No later than six weeks after the date of issue by the engineering consultants of a certificate of practical completion of the Project.
(d)	PCR (prepared by PC).	No later than six weeks after the final payment on the integrated drilling services contract or date of issue of the certificate of practical completion, whichever is later.
(e)	Submit quarterly monitoring reports during construction and testing relating to compliance with applicable standards and monitoring requirements including air emissions, ambient air quality, noise and vibrations, effluent quality, groundwater quality, and solid wastes.	No later than two weeks after the end of each month until construction is completed, commencing with the month after the start of construction.
(f)	Provide noise and air monitoring report confirming that actual noise levels and hydrogen sulphide concentrations comply with IFC Performance Standards and EHS Guidelines CDB.	Not later than two weeks after commencement of exploratory drilling.

QUARTERLY REPORT ON INVESTMENT COST OF PROJECT
($'000)

Elements of Project	Expenditure for this Quarter	Cumulative Expenditure to date	Projected Expenditure for the Quarter			Estimated Expen-diture to Complete Project	Latest Estimate of Expen-diture	Project Estimate as per Appraisal Report	Variance Favourable/ (Adverse)	Comments/ Reasons for Adverse Variance and Financing Proposal to Meet Cost Overrun
			Ending	Ending	Ending					
(1)	(2)	(3)	$(4)_1$	$(4)_2$	$(4)_3$	(5)	(6)	(7)	(8)	(9)
1. Project Preparation										
2. Land, Crop Compensation and Resettlement										
3. Integrated Drilling Services										
4. Offsite Infrastructure										
5. Project Management										
6. Engineering Services										
7. Technical Assistance										
Base Costs										
8. Physical Contingency										
Sub-total										
9. Price Contingency										
Total Financing Costs										
Financing:										
CDB: - OCR										
SVGCL										

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

ANNEX 1 TO APPENDIX 6.9

GUIDELINES FOR COMPLETION OF REPORT ON PROGRESS OF INVESTMENT COST

1. Elements of Project - The elements of the project as outlined in the Appraisal Report must be recorded in this column. If it becomes necessary to further sub-divide the main elements of the project, then the sub-elements should be grouped to facilitate the determination of the expenditure related to the main elements identified in the Appraisal Report.

2. Expenditure for this Quarter - The expenditure incurred in the quarter to which the report relates in respect of each element of the project must be recorded in this column.

3. Cumulative Expenditure to Date - The expenditure incurred in respect of each element of the project from the commencement of the project to the end of the quarter to which the report relates must be recorded in this column.

4. Projected Expenditure for Quarter - An estimate of the expenditure to be incurred in each of the next three quarters must be recorded in the columns 4_1, 4_2, and 4_3.

5. Estimate of Expenditure to complete Project - This column should be completed only in respect of those elements of the project, construction/installation of which stretches beyond three quarters from the end of the quarter to which the report relates. Where a project extends over more than one year - four quarters - an estimate of the expenditure to be incurred in the period subsequent to the year must be recorded in this column.

6. Latest Estimate of Expenditure - The amounts to be recorded in this column should be derived by adding columns 3, 4_{123}, and 5. The amounts recorded in this column should be the best estimate of expenditure to be incurred in respect of each element of the project. These amounts may be less or greater than the appraised expenditure.

7. Project Estimates as per Appraisal Report - The estimate of expenditure to be incurred in respect of each element of the project, as outlined in the Appraisal Report, must be recorded in this column.

8. Variance - The difference between columns 6 and 7 must be recorded in this column. Where the amount in column 6 is less than that in column 7, a favourable variance results. An adverse variance results where the amount in column 6 is greater than that in column 7.

9. Comments - An explanation should be given for each variance which is more than 10% of the project estimates as per Appraisal Report.

APPENDIX 6.10

PROJECT PERFORMANCE EVALUATION RATING

CRITERIA	SCORES	JUSTIFICATION
1. Strategic Relevance	7.0	The Project is a first step in supporting GOSVG's policy objectives of reducing dependence on imported fossil fuel and expanding exploitation of indigenous energy sources. If successful, the ensuing development of a geothermal power plant will be consistent with CDB's strategic objective of "supporting inclusive and sustainable growth and development", the corporate priority to "promote environmental sustainability" and the cross-cutting theme of energy security. It is therefore accorded high strategic relevance.
2. Poverty Relevance	4.0	Socio-economic benefits directly related to poverty are not immediate at this stage, apart from potential for labour during construction.
3. Efficacy	6.5	The Project is a first step in the development of a geothermal resource and, if successful, the ensuing development of a geothermal power plant will allow for a decrease in the dependence on fossil fuel based generation and an increase in energy security. The Project, if successful, will achieve its stated objective of evidenced based recommendations to allow for a determination of the feasibility of continuing geothermal resource development.
4. Cost Efficiency	N/A	N/A
5. Institutional Development Impact	5.0	Though no direct training opportunities are included in the Project, GOSVG staff will gain some knowledge and enhanced capacity to engage with future prospective developers based on their involvement with the Project development and implementation.
6. Sustainability	N/A	N/A
Composite Score	**5.3**	**Satisfactory**

FIGURE 1

MAP OF ST. VINCENT