CARIBBEAN DEVELOPMENT BANK

TWO HUNDRED AND NINETY-SECOND MEETING OF THE BOARD OF DIRECTORS

TO BE HELD VIRTUALLY

DECEMBER 10, 2020

PAPER BD 122/20
PAPER BD 122/20 Corr.1

ST VINCENT ELECTRICITY SERVICES LIMITED UTILITY BATTERY STORAGE AND GRID-CONNECTED SOLAR PV PROJECT – ST. VINCENT AND THE GRENADINES (President's Recommendation No. 1008)

The attached Report appraises a project to finance the supply and installation of roof mounted solar photovoltaic (PV) systems at buildings owned by St. Vincent Electricity Services Ltd. (VINLEC) and a ground mounted PV system at Argyle, in the vicinity of the Argyle International Airport and for the supply and installation of a battery energy storage system (BESS) to be installed at the Cane Hall sub-station (the Project). The Project proposes a loan to VINLEC for: (a) infrastructure works; (b) engineering and construction related services; and (c) project management. The expected outcome of the Project will be the sustainable reduction in greenhouse gas emissions through the substitution of 2GWh of fossil fuel generation with solar energy.

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

(a) a loan to VINLEC under the guarantee of the Government of St Vincent and the Grenadines (GOSVG) of an amount not exceeding the equivalent of five million, four hundred and fifty-three thousand three hundred United States dollars (USD5,453,300) from the Ordinary Capital Resources (OCR) of the Caribbean Development Bank (CDB) comprising:

(i) an amount not exceeding the equivalent of three million, four hundred and fifteen thousand United States dollars (USD3,415,000) from CDB's Equity and Market resources (the Equity and Market Resources);

(ii) an amount not exceeding the equivalent of two million, thirty-eight thousand three hundred United States dollars (USD2,038,300) from resources provided by the European Investment Bank to CDB under the Second Climate Action Line of Credit; and

(b) a grant to GOSVG from CDB's Special Funds Resources (SFR) comprising:

(i) an amount not exceeding one million, six hundred and fifty eight thousand Euros (EUR1,658,000) allocated from resources provided by the European Union (EU) Caribbean Investment Facility (CIF) to CDB under the EU Contribution Agreement for the implementation of the action entitled: "Sustainable Energy for the Eastern Caribbean (SEEC) Programme (EU-CIF SEEC Resources); and

(ii) an amount not exceeding nine hundred and two thousand Pounds Sterling (GBP902,000) allocated from resources provided by the Government of the United Kingdom of Great Britain and Northern Ireland through its Foreign Commonwealth

and Development Office under the Memorandum of Understanding for the implementation of the action entitled: “Increasing renewable energy and energy efficiency in the Eastern Caribbean”;

on CDB’s standard terms and conditions and on the terms and conditions set out and referred to in Chapter 7 of the attached Report.

3. In addition, I also recommend a waiver of the Procurement Policy for Projects Financed by CDB (November 2019) to extend eligibility for procurement to countries eligible for procurement under EU-funded projects, which are not CDB Member Countries, where EU-CIF SEEC Resources are being used together with CDB’s Equity and Market Resources for the design, supply and installation of the BESS. The total value of this waiver is estimated at USD3.4 mn.

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

CARIBBEAN DEVELOPMENT BANK

APPRAISAL REPORT

ON

ST. VINCENT ELECTRICITY SERVICES LIMITED UTILITY BATTERY STORAGE AND GRID-CONNECTED SOLAR PV PROJECT – ST. VINCENT AND THE GRENADINES

Considered at the Two Hundred and Ninety-Second Meeting of the Board of Directors held virtually on December 10, 2020.

(BD 122/20 and BD 122/20 Corr.1)
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Director
Projects Department
Mr. Daniel Best

Division Chief
Economic Infrastructure Division
Mr. L. O'Reilly Lewis

DECEMBER 2020

This Report was prepared by an Appraisal Team comprising:

Leighton Waterman (Project Coordinator), Alana Goodman Smith (Legal Counsel), Peter Manning (Financial Analyst), Elbert Ellis (Social Analyst), Ken Aldonza (Energy Specialist), Oliver Sieg (Risk Management Officer), Julian McBarnette (Environmental Specialist), Dana Williams (Coordinating Administrative Assistant), Kimberly Waithe (Country Economist)

Any designation or demarcation of, or reference to, a particular territory or geographic area in this Document is not intended to imply any opinion or judgment on the part of the Bank as to the legal or other status of any territory or area or as to the delimitation of frontiers or boundaries.

CURRENCY EQUIVALENT

Dollars ($) throughout refer to Eastern Caribbean Dollars (XCD) unless otherwise stated.

USD1.00 = XCD2.70
XCD1.00 = USD0.37

ABBREVIATIONS

BESS	-	Battery Energy Storage System
BMC	-	Borrowing Member Countries
BOD	-	Board of Directors
CALC	-	Climate Action Line of Credit
CDB	-	Caribbean Development Bank
CO_2	-	Carbon Dioxide
CRS	-	Climate Risk Screening
CVA	-	Climate Vulnerability Assessment
DFID	-	Department for International Development
DSCR	-	Debt Service Coverage Ratio
E&M	-	Equity and Market
ECCB	-	Eastern Caribbean Central Bank
EE	-	Energy Efficiency
EIB	-	European Investment Bank
ERR	-	Economic Rate of Return
ESA	-	Electricity Supply Act
ESC	-	Engineering Services Consultant
ESIA	-	Environmental and Social Impact Assessment
ESMP	-	Environmental and Social Management Plan
EU	-	European Union
EU-CIF	-	European Union Caribbean Investment Facility
FCDO	-	Foreign Commonwealth and Development Office
FIT	-	Feed-in-Tariff
GBP	-	Great Britain Pound
GDP	-	Gross Domestic Product
GHG	-	Greenhouse Gas
GM	-	Gender Marker
GOSVG	-	Government of St. Vincent and the Grenadines
GRM	-	Grievance Redress Mechanism
HDI	-	Human Development Index
IG	-	Imperial Gallons
IMF	-	International Monetary Fund
IPCC	-	Inter-Governmental Panel of Climate Change
IT	-	Information Technology
kW	-	Kilowatt
kWh	-	Kilowatt Hour
LFS	-	Labour Force Survey
mn	-	million
MW	-	Megawatt

MWh	-	Megawatt hours
Mt.	-	Mount
NDC	-	Nationally Determined Contribution
NEAP	-	National Energy Action Plan
NEP	-	National Energy Policy
OCR	-	Ordinary Capital Resources
ODAS	-	Optimised Dispatch Advisory System
OHS	-	Occupational Health and Safety
p.a.	-	per annum
PAP	-	Project Affected People
PAS	-	Performance Assessment System
PC	-	Project Coordinator
PV	-	Photovoltaic
RE	-	Renewable Energy
RMF	-	Results Monitoring Framework
SCADA	-	Supervisory Control and Data Acquisition
SCC	-	Social Cost of Carbon
SDG	-	Sustainable Development Goals
SEEC	-	Sustainable Energy for the Eastern Caribbean
SFR	-	Special Fund Resources
SSIP	-	Site Specific Investigation for PV site
SVG	-	St. Vincent and the Grenadines
T&D	-	Transmission and Distribution
TOR	-	Terms of Reference
USD	-	United States dollar
VAT	-	Value Added Tax
VINLEC	-	St. Vincent Electricity Company Limited
XCD	-	Eastern Caribbean Dollar

MEASURES AND EQUIVALENTS

1 hectare (ha)	=	2.47 acres
1 kilometre (km)	=	0.621 mile (mi)
1 square kilometre (km^2)	=	0.386 square mile (mi^2)
1 metre (m)	=	3.281 feet (ft)
1 millimetre (mm)	=	0.039 inch (in)
1 square metre (m^2)	=	10.756 square feet (ft^2)
1 imperial gallon	=	4.546 litres (l)

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APPENDICES

COUNTRY DATA: ST VINCENT AND THE GRENADINES

Item	2014	2015	2016	2017	2018	2019e
PER CAPITA GDP (Current Market Prices; $)	17,835	18,499	18,950	19,368	19,820	20,132
GROSS DOMESTIC PRODUCT (GDP)						
GDP at Current Market Prices ($ mn)	1,964.8	2,039.6	2,091.0	2,138.9	2,190.5	2,226.7
Demand Components:						
Total Consumption Expenditure	2,063.1	2,087.2	2,119.9	2,147.9	…	…
Gross Capital Formation	491.2	516.6	553.3	570.0	…	…
Goods and Non-Factor Services	(610.1)	(532.5)	(528.3)	(528.7)	…	…
Gross Domestic Savings Ratio (%)	(6.4)	1.7	0.5	0.7	…	…
Sectoral Distribution of Current GDP (%)						
Agriculture, Livestock and Forestry	7.3	6.9	7.7	7.8	7.8	7.8
Fishing	0.5	0.5	0.5	0.6	0.9	0.9
Mining and Quarrying	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing	5.8	5.8	5.9	6.1	6.0	4.8
Electricity and Water	3.8	4.2	3.8	3.8	4.0	4.1
Construction	7.7	8.0	7.8	8.0	7.8	7.7
Wholesale and Retail Trade	14.5	13.4	13.3	13.1	13.6	13.0
Hotels and Restaurants	2.7	2.1	1.9	2.3	2.4	2.6
Transport, Storage and Communications	13.3	13.6	14.2	13.9	13.5	14.4
Financial Intermediation	6.1	7.2	6.8	6.7	6.6	6.8
Real Estate, Renting and Business Activities	15.1	14.7	15.0	15.0	14.8	14.9
Public Administration, Defense and Compulsory Social Security	13.1	13.1	12.9	12.7	12.2	12.3
Education	5.7	5.9	5.9	6.0	5.9	5.9
Health and Social Work	3.2	3.2	3.2	3.0	3.2	3.5
Other Community, Social and Personal Services	1.9	2.0	1.8	1.8	1.9	1.9
Activities of Private Households as Employers	0.3	0.3	0.3	0.3	0.3	0.3
Gross Value Added at Constant 2006 Prices ($ mn)	1,446.6	1,458.5	1,470.9	1,481.3	1,511.2	1,514.9
GDP at Constant 2006 Prices ($ mn)	1,704.9	1,727.6	1,760.4	1,778.0	1,816.4	1,825.4
Annual Rate of Growth in GDP (%)	1.2	1.3	1.9	1.0	2.2	0.5
MONEY AND PRICES ($ mn)						
Consumer Prices (Average Annual % Change)	0.2	(1.7)	(0.1)	2.2	2.3	0.9
Money Supply (M1; Annual % Change)	13.9	2.7	9.6	(0.8)	8.4	12.5
Total Domestic Credit (Net)	1,020.2	1,069.4	1,045.4	1,091	1,107.3	1,033.2
Private Sector Credit	1,045.3	1,069.9	1,084.1	1,101	1,102.8	1,099.8
Estimated Tourism Expenditure (USD mn)	92.4	95.7	100.1	95.1	104.4	117.5

COUNTRY DATA: ST VINCENT AND THE GRENADINES

Item	2014	2015	2016	2017	2018	2019e
CENTRAL GOVERNMENT FINANCES ($ mn) /1						
Current Revenue	535.2	519.2	592.6	592.2	596.4	600.5
Current Expenditure	508.9	512.9	518.1	564.7	573.0	602.6
Current Account Surplus/(Deficit)	26.3	6.3	74.5	27.5	23.4	(2.0)
Capital Revenue and Grants	40.2	54.1	27.2	50.5	40.6	65.5
Capital Expenditure	125.2	99.2	78.2	87.6	84.0	117.0
Primary Surplus/(Deficit)	(13.0)	6.0	66.2	40.2	32.1	1.2
Primary Balance as a % of GDP	(0.7)	0.3	3.2	1.9	1.5	0.1
Overall Surplus/(Deficit)	(58.7)	(38.8)	23.5	(9.6)	(20.0)	(53.0)
Overall Balance as a % of GDP	(3.0)	(1.9)	1.1	(0.4)	(0.9)	(2.4)
INTERNATIONAL TRADE ($ mn)						
Merchandise Total Exports (f.o.b)	129.7	123.6	126.2	114.7	117.9`	103.2
Merchandise Total Imports (c.i.f)	976.0	901.0	903.8	890.9	954.9	905.1
Trade Surplus/(Deficit)	(846.3)	(777.4)	(777.6)	(776.2)	(836.9)	(802.0)
PUBLIC DEBT ($ mn)						
Public debt	1,563.5	1,594.4	1,746.5	1,572.0	1,657.0	1,674.0
Public Domestic debt	674.8	671.8	544.7	568.4	576.5	493.2
Public External debt	888.7	922.5	1,201.8	1,003.6	1,080.4	1,180.8
Central Government Debt	1,353.5	1,379.8	1,429.3	1,322.2	1,404.8	1,505.7
Public Debt to GDP (%)	79.6	78.2	83.5	73.5	75.6	75.2
Central Government Debt Service, % Current Revenue	26.2	27.6	27.0	30.2	34.3	39.6
AVERAGE EXCHANGE RATE						
Dollar(s) per US dollar	2.7	2.7	2.7	2.7	2.7	2.7
POPULATION						
Mid-Year Population (‘000)	110,167	110,255	110,343	110,431	110,520	110,608
Population Growth Rate (%)	0.08	0.08	0.08	0.08	0.08	0.08
Crude Birth Rate	16.7	16.4	15.7	13.9	13.8	…
Crude Death Rate	9.1	8.3	8.4	8.2	…	…
Infant Mortality Rate	15.8	14.3	14.5	11.0	…	…
EDUCATION						
Net School Enrollment Rate (%)						
Primary	97.0	96.2	95.9	94.0	95.4	94.5
Secondary	96.0	90.1	88.9	94.4	85.4	82.8
Pupil-Teacher Ratio						
Primary	16.0	15.0	15.0	14.0	14.0	14.0
Secondary	15.0	15.0	14.0	14.0	14.0	13.0

COUNTRY DATA: ST VINCENT AND THE GRENADINES

Item	2014	2015	2016	2017	2018	2019e
LABOUR FORCE						
Unemployment Rate		24.9		25.8	…	…
Male		20.7		21.5	…	…
Female		30.1		30.6	…	…
Participation Rate		67.9		67.8	…	…
Male		73.7		72.4	…	…
Female		61.8		63.3	…	…
INDICATORS OF HUMAN DEVELOPMENT						
HEALTH						
Life Expectancy at Birth (years)	71.4	73.1	72.4	73.0	…	…
Male	68.6	70.6	70.4	71.1	…	…
Female	74.6	76.3	74.8	75.1	…	…
Dependency Ratio	…	…	…	…	…	…
Male	…	…	…	…	…	…
Female	…	…	…	…	…	…
HUMAN DEVELOPMENT INDEX	0.715	0.721	0.725	0.726	0.728	…
HOUSING AND ENVIRONMENT						
Households with piped water (%)	…	…	…	…	…	…
Households with access to flush toilets (%)	…	…	…	…	…	…
Households with electricity (%)	…	…	…	…	…	…
Environmental strategy or action plan (year prepared): 2004						

Source(s): ECCB, GOSVG, CDB, UN
/1: Fiscal data as at August 2020. Public finance data classified according to the Government Finance Statistics Manual 2014.
… not available
Data as at August 2020

PROJECT SUMMARY

Financial Terms and Conditions					
Borrower		St Vincent Electricity Services Ltd. (VINLEC)			
Implementing Agency		VINLEC			
Guarantor		Government of St. Vincent and the Grenadines (GOSVG)			
Fund	**Fund Source**	**Amount (000's)**	**Amortisation Period (years)**	**Grace Period (years)**	**Interest Rate (%)**
OCR-USD	EIB CALC Resources	2,038	10	2	2.68 per annum (p.a.) variable
OCR-USD	Equity and Market Resources	3,415	10	2	3.75 p.a. variable
Loan Total:		5,453			
OSF-EUR	EU-CIF SEEC Resources	1,969[1]			
OSF-GBP	FCDO SEEC Resources	1,196[2]			
Grant Total:		3,164			
Counterpart Total:		1,585			
Total Project Cost		10,202			

[1] EU-CIF SEEC grant amount is EUR 1,658,000 converted to USD as at November 17, 2020

[2] FCDO SEEC grant amount is GBP 902,000 converted to USD as at November 17, 2020

Office of Risk Management (ORM) 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 expected outcome is the increased supply of sustainable, low-carbon energy to the national grid in St. Vincent and the Grenadines (SVG). The details of the Project and a Results Monitoring Plan are provided at Appendices 2.1 and 2.3, respectively.

The Project is categorised "B" based on the CDB Environmental and Social Review Procedures. There is the potential for limited adverse environmental or social impacts/risks for which mitigation and management measures are known and available.

The proposed project consists of the following components:

(a) Project Preparation Assistance

(b) Land

(c) Infrastructure Works

(d) Engineering and Construction-related Services

(e) Project Management

Exceptions to CDB Policies:

A waiver of the Procurement Policy for Projects Financed by CDB (November 2019) is sought to extend eligibility for procurement to countries eligible for procurement under EU-funded projects, which are not CDB Member Countries, where EU-CIF SEEC resources are being used together with CDB's E&M resources for the design, supply and installation of the battery energy storage system (BESS). The total value of this waiver is estimated at USD3.4 mn.

Gender Marker Summary

Analysis	Design	Implementation	Monitoring and Evaluation	Score	Code
0.5	0.0	0.0	0.0	0.5	No

1. STRATEGIC CONTEXT AND RATIONALE

REQUEST

1.01 By letter dated April 3, 2020, VINLEC, a publicly owned company, requested financing from CDB for the supply and installation of roof mounted solar photovoltaic (PV) systems at buildings owned by VINLEC and a ground mounted PV system at Argyle, in the vicinity of the Argyle International Airport. VINLEC also requested financing for the supply and installation of a BESS to be installed at the Cane Hall sub-station.

MACROECONOMIC CONTEXT

1.02 The COVID-19 global pandemic has adversely impacted SVG. As at November 24, 2020, the number of confirmed cases reached 84 persons. Pre-COVID-19, real GDP growth was projected to rebound to 2.3% for 2020, predicated on a pick-up in construction activity, higher tourism arrivals and a rise in exports of non-traditional crops. Growth slowed to 0.5% in 2019, following higher growth of 2.2% (2018), buttressed by the opening of a new airport in 2017. The pandemic has taken a heavy toll on economic activity, particularly within the tourism, transportation and wholesale and retail trade sectors. The suspension in worldwide cruise operations and global travel restrictions have led to a sharp contraction in tourist arrivals, widespread hotel booking cancellations, and substantial worker lay-offs.

1.03 The GOSVG has been increasing capital spending in RE, disaster mitigation and upgrading key infrastructure. This higher expenditure in part, resulted in a smaller primary surplus (0.1% of GDP) for 2019, following surpluses averaging around 2% of GDP (2016-2018). Public debt remains elevated at 75.2% of GDP (2019). However, debt has declined from 83.5% of GDP (2016), reflecting primary surplus positions and debt forgiveness. The GOSVG remains committed to enhancing long-term fiscal resilience and sustainability, establishing a contingency fund for natural disasters in 2017 as well as the adoption of a Fiscal Responsibility Framework in January 2020.

TABLE 1.1. SELECTED ECONOMIC INDICATORS

	2015	2016	2017	2018	2019(e)
Real GDP Growth (%)	1.3	1.9	1.0	2.2	0.5
Average Inflation (%)	-1.7	-0.1	2.2	2.3	0.9
Primary Balance (% of GDP)	0.3	3.2	1.9	1.5	0.1
Public Sector Debt (% of GDP)	78.2	83.5	73.5	75.6	75.2

Source: GOSVG and ECCB

1.04 A weak economic outlook is expected for the rest of 2020, with real GDP growth projected to contract by 5 – 6%. Inflation is likely to remain subdued, given low demand pressures and a moderation in global oil prices. Increased pandemic-related health expenditure and social protection support coupled with an expected fall-off in revenue in line with reduced economic activity is projected to weaken the fiscal position with risks to debt sustainability. The primary deficit is estimated to widen to 3 – 4% of GDP. Over the medium term, growth recovery is predicated on the GOSVG's capital investments. In addition to construction activity, recovery would be supported by increases in agriculture and fisheries. Going forward, it will be important for the GOSVG to continue investing in RE and resilient infrastructure which is aligned with key objectives in the National Economic and Social Development Plan 2013-2025 which include: (i) reducing the dependence on imported fuels; (ii) upgrading critical infrastructure; and (iii) reducing the adverse impact of climate change.

SOCIAL CONTEXT

1.05 Poverty, Human Development and Well-Being: The Human Development Report (2019) classified SVG within the high human development category with a Human Development Index (HDI) of 0.728. Human development progress is evident in areas of health, education and life expectancy. Average life expectancy is 72.4 and 69.2 years for females and males, respectively. Despite these improvements as evidenced by the upward trajectory of the HDI rank over time, SVG is challenged to address factors that threaten to plunge vulnerable cohorts of the population into poverty in the event of an economic shock or natural hazard event. These vulnerabilities were sharply manifested through increased unemployment and hardship following the onset of the COVID-19 pandemic which continues to pose unparalleled challenges to SVG's socio-economic development. Those disproportionately affected include workers in hospitality and services sector (where women are overly represented), informal/casual labour, the self-employed and petty traders at the individual, household and community levels. The knock-on effects of the pandemic increased the level of poverty and vulnerability among population cohorts represented in the lower quintiles. They led to the horizontal and vertical expansion of public assistance programmes. These programmes are designed to address the increased and expressed need of beneficiaries listed within the central public assistance registries as well as the recently unemployed, who have entered the ranks of the newly poor and are in need of targeted short term income support and other associated assistance.

1.06 Even before the onset of COVID-19, unemployment levels were on an upward trajectory and increased from 21.5% at the time of the census (2012) to 25.8%, as captured by the 2017 Labour Force Survey (LFS). According to the LFS (2017), 30.6% of women in the labour force were unemployed, compared to 21.5% of men. Men's labour force participation rate was 72.4% compared to 63.3% for females. Women in age cohorts of 15-24 and 25-54 years were more likely to be unemployed than their male counterparts given that their access to the labour market is limited *inter alia,* by cultural barriers and labour market segmentation which exclude them for certain occupations. Women's unequal access to opportunities in the labour market has contributed to the poverty experienced by female-headed households. Youth unemployment exceeded the national rate and recorded 52.1% for young men and 48.3% for young women. Along with all other demographic groups, these statistics are expected to worsen over the short term.

1.07 Project Sites: VINLEC selected the sites based on their full ownership of the respective properties and infrastructure. The Project will be implemented at three sites on mainland SVG – (i) Johnson Hill in Argyle; (ii) Cane Hall; and (iii) VINLEC's Corporate Headquarters located in the capital, Kingstown. Johnson Hill is located in the well-established Mount Pleasant community in Argyle on the north eastern coast of SVG. This rural coastal community of middle and upper-income dwellers stretches across three census divisions – Calliaqua, Marriaqua, and Bridgetown. The Cane Hall site was officially commissioned in 1976 as a diesel power station. This site is at the centre of the Cane Hall community, north of the Belair community, west of the Cane Hall and Queens Drive communities, and south of Arnos Vale. All communities in this project area are residential with a few commercial establishments. VINLEC's Corporate Headquarters was opened in 1995 and is located in central Kingstown. The site is north of the Kingstown Vegetable Market and the House of Assembly. It is flanked on the east by Her Majesty's Prison and the community of McKies Hill and on the west by Kingstown Park and Level Gardens. (See Appendix 1.1.1 for the Macro Social Context and details of the Project Sites).

SECTOR ISSUES

1.08 Like most borrowing member countries (BMCs), SVG is largely dependent on imported fossil fuel for its electricity supply. Again, like other BMCs, SVG has realised the need to transition from diesel fuel to renewable, on-island resources to generate electricity. As part of this transition to renewable power generation, VINLEC acknowledges that it will also be necessary to include energy storage on the grid.

1.09 **Regulation:** The Ministry of National Security, Air and Sea Port Development has overall responsibility for the energy sector. The Energy Unit within the Ministry coordinates the formulation and implementation of energy policy as well as initiatives related to RE and energy efficiency (EE).

1.10 The National Energy Policy (NEP) of SVG was approved in March 2009 and is further detailed in the National Energy Action Plan (NEAP) which was published in January 2010. The Policy speaks to increasing the utilisation of RE technologies which are technically and commercially proven, financially and economically viable, and environmentally friendly on all islands of SVG and has set a target of 60% of electricity generated from RE sources.

1.11 There is no independent utility regulator and the Electricity Supply Act (1973) (ESA) which governs the management of the electricity sector provides for VINLEC, with the Minister's approval, the right to grant sub-licenses to generate, transmit, distribute, and sell electricity under certain terms and conditions and within a specified area. There is no tariff differentiation to account for the differences in generation marginal costs which would assist customers in managing their energy usage and expenditure.

1.12 In accordance with ESA, the electricity sector is regulated by the Minister with responsibility for Energy. The ESA was last revised in 1987 and the tariff base is referenced to the price of fuel in 1973. Consequently, the base rate is quite low, and the price of electricity varies due to the fuel surcharge which is revised monthly. VINLEC has implemented a solar energy tariff of XCD0.45/kWh for distributed generators but there is currently no tariff review mechanism or Feed-in-Tariff (FIT) for other forms of RE. To better enable management of the sector, the NEAP has recommended that GOSVG undertake a review of ESA and its regulations. This is particularly important if independent power producers are to invest in the sector to enable the country to achieve the 60% RE generation.

1.13 **Energy and Electricity Supply:** SVG, exhibits a high dependence on imported petroleum product, representing 96% of the total national energy use, including energy for electricity generation. In 2018 oil imports stood at 1,743 barrels of oil equivalent per day, and approximately one-third was used to generate electricity. This utilises significant foreign exchange earnings and increases the vulnerability of the economy to external shocks. In 2018, the national fuel bill in SVG represented 6.21% of GDP, with electricity-related fuel imports equivalent to about 5.2% of GDP.

1.14 GOSVG in its 2015 nationally determined contribution (NDC) submission to the UNFCCC committed to the reduction of Greenhouse Gas (GHG) emissions by 22% compared to its business as usual scenario by 2025. SVG's geothermal resource potential is estimated at 15MW and in 2019, three wells were drilled as part of the government's attempt to make an evidence-based decision of the feasibility of continuing geothermal resources development in the La Soufriere region for electricity production. Analysis of the data collected to date indicates that conventional geothermal technologies may not be optimally suited for commercial exploitation of the resource and as such, consideration is being given to alternative technology options that may enable the use of this resource. In 2018, VINLEC's net electricity generation was 145,385 megawatt hours (MWh) with around 17% coming from renewable sources. The annual generation growth is forecasted at 2% per annum (p.a.), which is likely to be optimistic, considering the relatively moderate growth of 1% p.a. between 2016 and 2019. To meet the national RE generation target, this project and many others will be necessary.

1.15 **RE and EE Deployment:** The Caribbean Sustainable Energy Road Map and Strategy Baseline Report and Assessment (2015) noted that, "…technical, financial, institutional and capacity barriers will continue to impede the shift to sustainable energy production, consumption and trade in the Caribbean." SVG's NEAP, which was approved in 2010, established a goal of generating 60% of all electricity output from RE sources by 2020. The RE penetration level stands at 17% to date with the majority supplied by hydropower, thus emphasising that there is still a substantial effort needed to achieve the target. CDB directly, and in

partnership with other donors, is working with the GOSVG to build technical and institutional capacity in RE and EE as well as providing financing for projects.

1.16 CDB is currently assisting GOSVG in financing the implementation of a 600kW ground mounted PV system in the Argyle area in addition to conducting EE retrofits on 12 government buildings and retrofitting 7,200 streetlights with LED bulbs. That project will be completed by December 2021 and will also add to the national RE generation capacity and assist in achieving the reduction in GHG emissions.

COUNTRY SECTOR STRATEGY

1.17 Two of the guiding principles of the NEP and NEAP are strengthening of the national economy by reducing dependence on imported fossil fuel and continued/further exploitation of indigenous energy resources. These policy documents identified specifically the use of geothermal, hydropower, wind, biomass and waste-to-energy, solar electricity and solar thermal as the featured RE technologies.

1.18 The SVG Country Strategy 2014-2018 included as Outcome 6, Improved Management of Alternate Energy Development, the goal of "Reduced dependence on imported energy". The expected sector outcome being, "Increased use of alternative energy as a percentage of national energy consumption." This goal is considered to be valid in 2020.

1.19 In relation to climate change mitigation, GOSVG's NDC under the United Nations Framework Convention for Climate Change Paris Agreement, set a target to reduce GHG emissions by 22% by 2025 in comparison to the business as usual scenario. This is to be achieved in part by encouraging the installation of small-scale PV in the private and public sectors.

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

1.20 CDB's commitment to Climate Change and Sustainable Energy agendas, as elaborated in its Climate Resilience Strategy 2019 – 2024, and Energy Sector Policy and Strategy (ESPS) (2015), highlights promotion of EE and RE as priority areas for support by CDB, ultimately contributing to the climate change mitigation focus. Energy security is also a cross-cutting theme in the Bank's work. Providing appropriate financing to incentivise investment in both EE and RE has been a focus of the Bank. CDB is therefore keen to support this initiative, where RE in particular will aid towards achievement of the Caribbean Community (CARICOM) Regional RE target of 48% of installed power capacity from renewable sources by 2027.

1.21 This project is consistent with the following of CDB's strategic objectives:

Building Environmental Resilience.

1.22 This project is consistent with the following of CDB's corporate priorities:

Promoting Universal Access to Reliable, Affordable and Modern Energy.

1.23 This project is expected to contribute to the following Sustainable Development Goals:

SDG 7. Affordable and Clean Energy.

1.24 This Project is consistent with the following of CDB's Sector and Thematic Policies:

(a) Energy Sector Policy and Strategy

(b) Climate Resilience Strategy

RATIONALE

1.25 SVG has a high level of dependence on imported fossil fuels to meet its energy needs, thus leaving the country and the economy vulnerable to fluctuation in fuel prices and the resulting negative economic and social impacts. The nation has significant RE potential (geothermal, hydro, wind, solar and biomass) which can be developed to increase national energy security and reduce overall energy costs.

1.26 SVG has used RE in the form of hydropower for decades and GOSVG in the NEP is keen to expand the use of other renewable resources. The theme of VINLEC's 2018 Annual Report was, "Renewable Energy: Power for Sustainable Development". The report detailed the company's commitment to the production of cleaner and more sustainable energy to power national development. This project is a further step by VINLEC to expand the use of RE technologies and move the country closer to the 60% RE target. By including battery storage in this project, VINLEC will improve solar EE on the grid network and provide spinning reserve which will reduce the amount of diesel fuel used for energy production thus reducing operation costs.

1.27 Through savings in the amount of diesel, the project has the potential to support economic development and poverty reduction through the reduction of the fuel surcharge.

2. PROJECT DESCRIPTION

PROJECT OUTCOME

2.01 The expected outcome is the increased supply of sustainable, low-carbon energy to the national grid in SVG. The details of the Project and a Results Monitoring Plan are provided at Appendices 2.1 and 2.3 respectively.

2.02 The Project is categorised "B" based on the CDB Environmental and Social Review Procedures. There is the potential for limited adverse environmental or social impacts/risks for which mitigation and management measures are known and available.

PROJECT COMPONENTS

2.03 The Project consists of the following components:

(a) **Project Preparation Assistance:** VINLEC performed preliminary studies to determine the size of the PV system and BESS that can be economically and safely added to the network. VINLEC also performed a technical assessment of the impact of the systems on the operation of the electricity network. These evaluations informed the technical requirements for the PV and BESS project.

(b) **Land:** VINLEC has secured the 1.13 hectares of land required for the Project and has also assigned the points of connection between the PV system and the electricity network. The Project land including access roads will be financed with counterpart resources.

(c) **Infrastructure Works:** The supply and installation of ground and rooftop mounted solar PV systems, a BESS and an optimised dispatch advisory system (ODAS) inclusive of commissioning.

(d) **Engineering and Construction-related Services:** An engineering services consultant (ESC) will be contracted and financed by VINLEC to develop tender documents, an environmental and social management plan (ESMP), support the procurement process for all works contracts and issue certificates for payment of works. Consultant will be engaged to perform site-specific investigations of the PV site (SSIP) inclusive of an abbreviated environmental and social impact assessment (ESIA). TORs for ESC and SSIP consultancies are set out at Appendices 2.2.1 and 2.2.2 respectively.

(e) **Project Management:** A Project Coordinator (PC) who will also function as VINLEC's project manager, will be assigned to manage the implementation of all project components. The PC will be supported by VINLEC management and administrative resources. The services of the PC will be financed by VINLEC. In addition, the services of a consultant will be contracted to perform independent audits of the Project.

RESULTS FRAMEWORK

Project Impact
Contribute to reduced reliance on imported fossil fuels and increased energy security in SVG.

Outcome	**Indicator**	**Baseline**	**Target**	**Data Sources, Reporting Mechanisms and Report Frequency**
1 Increased supply of sustainable, low-carbon energy to the national grid in SVG	1.1 Annual fossil fuel generation replaced by solar PV (GWh)	1.96; 12/31/2018	4.03; 12/31/2022	VINLEC Reports
	1.2 Annual reduction in fossil fuel imports (Tonnes)	409; 12/31/2018	839; 12/31/2023	VINLEC Annual report
	1.3 Annual carbon dioxide emissions. (Tonnes)	209000; 7/28/2020	207500; 12/31/2022	Solar PV Energy Management System; VINLEC Reports

Assumptions for achieving outcomes
GHG emissions factor for VINLEC remains unchanged during project lifetime.

Output	Indicator	Baseline	Target	Data Sources, Reporting Mechanisms and Report Frequency
1. Optimised Dispatch Advisory System installed and Commissioned.	1.1 ODAS installed and operational (#)	0; 7/28/2020	1; 12/31/2023	ESC and VINLEC Reports
2. Solar PV installed.	2.1 Resilient renewable power generation capacity installed (kW)	1306; 7/28/2020	2512; 12/31/2023	ESC and VINLEC Reports.
3. Battery energy storage system installed and Commissioned.	3.1 Capacity installed and operational (MW)	0; 7/28/2020	5; 8/31/2022	ESC and VINLEC Reports

Assumptions for achieving outputs
Infrastructure works are not hampered by hazardous events. COVID-19 pandemic does not delay supply of imported equipment.

LESSONS LEARNT

Description	Project Response
The Project's design and implementation standards must ensure that the solar PV installation is resilient to climate change and natural hazards and appropriate for the specified needs.	The technical and commercial parameters for the Project were informed by a study undertaken to develop the required technical specifications. The procurement documents will ensure design considerations are made to account for exposure to adverse weather events.

3. FINANCING PLAN

FINANCING STRUCTURE AND COSTS

3.01 **Project costs:** The Project is estimated to cost $10.2 mn and will be financed with resources from CDB and VINLEC. Cost estimates for the PV plant were developed by VINLEC, while estimates for the BESS and ODAS were developed by external consultants, in conjunction with VINLEC staff. Estimates for engineering and construction-related services, project management and the project audit are based on typical rates for these services in St. Vincent. The cost of land is based on values provided by the Lands and Surveys department while costs for project preparation assistance reflect actual costs incurred. Physical contingencies of 15% have been applied to all components except project preparation and land where no contingency was applied, while price contingencies of 1.7% have been used, based on IMF inflation forecasts for advanced economies from which the main infrastructure components are expected to be sourced. An additional 2.5% of the European Union–Caribbean Investment Facility (EU-CIF) and Foreign and Commonwealth Development Office (FCDO) Sustainable Energy for the Eastern Caribbean programme (SEEC) base costs has been added to the price contingencies to compensate for foreign exchange risks related to these funding sources. As the European Investment Bank Climate Action Line of Credit (EIB CALC) and SEEC resources can only be applied to base costs, all contingencies have been budgeted under the Ordinary Capital Resources (OCR). CBD staff are satisfied that the estimated base costs and contingencies are sufficient to ensure completion of the Project components. A summary of the Project cost and financing plan is shown in Table 3.1 and the details of the Project cost, phasing and financing plan is given in Appendix 3.1.

3.02 **Financing:** The Project will be financed by:

(a) A Loan from CDB to VINLEC (the Loan) from CDB's OCR of an amount not exceeding USD5,453,300 comprising:

  (i) An amount not exceeding USD3,415,000 allocated from CDB's Equity and Market resources (the Equity and Market (E&M) tranche) for BESS and the project audit; and

  (ii) An amount not exceeding USD2,038,300 allocated from the EIB-CALC II tranche) for the PV system, Optimal Dispatch Advisory System and the Site-Specific Investigations; and

(b) A Grant from CDB to VINLEC (the Grant) from CDB's Special Funds Resources (SFR) under the SEEC comprising:

  (i) An amount not exceeding the equivalent of EUR1,658,000 allocated from EU-CIF SEEC resources for the PV system and BESS; and

  (ii) An amount not exceeding the equivalent of GBP902,000 allocated from SEEC FCDO resources for the PV system and BESS;

(c) Counterpart funding of XCD4,180,950 from VINLEC for engineering and construction related services, project management, project preparation assistance and land. The Project complies with the relevant eligibility criteria set out by the EIB under the EIB-CALC II finance contract and by the SEEC programme. It is therefore proposed that the allocations outlined above be made from the resources provided by EIB to CDB under the EIB CALC II Finance contract, EU-CIF and FCDO resources, respectively. The EU-CIF SEEC and FCDO SEEC grant funds noted above will be disbursed in Euros and GBP respectively at the time of disbursement. The

cost of purchasing goods and services are therefore subject to exchange rate fluctuations. The SEEC grant funds shown in Table 3.1 above have been converted to USD based on exchange rates applicable as of November 17, 2020 for consistency with the other funding sources. Consistent with the Bank's Energy Sector Policy and Strategy and its approach to lending to utilities, it is proposed to lend to VINLEC at the public sector rate, in view of the critical nature of the service it provides to the economy of SVG, and the lower risk associated with utility lending and the inclusion of a Government guarantee for this project.

3.03 Both the E&M and EIB-CALC II tranches will be repayable over a period of 10 years, following a grace period of two years. CDB's E&M has a variable rate, currently 3.75% p.a. However, in accordance with the EIB-CALC II finance contract, EIB Loan resources carry a variable interest rate subsidy of approximately 1.07% p.a. yielding an effective interest rate of 2.68% p.a. A commitment charge of 1% p.a. is payable on the undisbursed portion of the Loan, commencing from the sixtieth day after the date of the Loan agreement.

3.04 The Loan will be secured by the guarantee of GOSVG. It shall be a condition precedent to first disbursement of the Loan that CDB is provided with a guarantee agreement by GOSVG, in form and substance acceptable to CDB guaranteeing the repayment of the Loan together with interest and charges. This Project meets the International Development Association's concessionality criteria.

TABLE 3.1: SUMMARY OF PROJECT COSTS AND FINANCING

Components	TOTALS							
	OCR-USD		OSF-EUR	OSF-GBP		COUNTERPART		
	EIB CALC Resources	Equity and Market Resources	EU-CIF SEEC Resources	FCDO SEEC Resources	Total	VINLEC	Executing Agency Counterpart Forecast	Total
1. Project Preparation							-	
2. Land							-	
3. Infrastructure Works	2,038,300	1,844,135	1,968,600	1,195,800	7,046,835	1,215,014	-	8,261,849
4. Engineering and Construction-related Services							-	
5. Project Management							-	
Base Cost	**2,038,300**	**1,844,135**	**1,968,600**	**1,195,800**	**7,046,835**	**1,215,014**	**-**	**8,261,849**
6. Physical Contingency	-	1,063,148	-	-	1,063,148	135,752	-	1,198,900
7. Price Contingency	-	507,717	-	-	507,717	26,690	-	534,407
Total Project Cost	**2,038,300**	**3,415,000**	**1,968,600**	**1,195,800**	**8,617,700**	**1,377,456**	**-**	**9,995,156**
8. Interest During Implementation	-	-	-	-	-	129,941	-	129,941
9. Commitment Fees	-	-	-	-	-	77,103	-	77,103
Total Financing	**2,038,300**	**3,415,000**	**1,968,600**	**1,195,800**	**8,617,700**	**1,584,500**	**-**	**10,202,200**
Percentage Financing	**20%**	**33%**	**19%**	**12%**	**84%**	**16%**	**0%**	**100%**

4. PROJECT VIABILITY

TECHNICAL ANALYSIS

4.01 The use of solar PV generation coupled with battery energy storage was identified by VINLEC with the assistance of consultants as an effective, affordable and easy to implement option for increasing the use of RE on the VINLEC electricity grid. The technical and financial impact of various sizes of battery storage were investigated with the selected size of 5MW of power and 2.5MWh of energy identified as the option with the best combination of cost per unit of energy delivered and fuel savings.

4.02 This battery size minimises the use of diesel generators to provide spinning reserve, defined as the available excess capacity of generator sets operating on a grid at a given time. Spinning reserve is an ancillary service that provides contingency coverage for sudden load changes on the network thereby keeping voltage and frequency variations within regulated limits.

4.03 VINLEC is required by the Electricity Act to have in place firm, generating capacity (i.e. guaranteed available capacity at any time) to meet forecasted peak demand with the two largest generation units unavailable. The BESS is sized for providing spinning reserve capable of covering the loss of the largest diesel generator for at least the time required to start up a replacement generator and connect it to the power system (at least 20 minutes). This reduces the need to run generators at lower efficiency part load settings. The BESS can provide this service at a much higher efficiency and lower operating cost than a diesel generator.

4.04 The rooftop PV systems will be replacing existing 10-year-old, lower efficiency systems and installing additional systems and are sized to maximise use of VINLEC's available roof space. VINLEC prepared a structural assessment of the buildings, and the engineering consultant will review a natural hazard evaluation during preparation of tender documents. The 1 MWp ground mounted PV system was sized to ensure effective use of the available land space with a system sized to inject power into the distribution feeder at the point of common coupling with no adverse impact on the distribution network. The solar PV systems reduce the daily peak load, i.e. peak shaving, thereby reducing the need for running inefficient peaking generator sets and saving more fuel. However, spinning reserve must be maintained to account for the sudden variations in output from the solar PV systems due to passing clouds. This spinning reserve requirement can be provided by the BESS.

4.05 The ground mounted solar PV system will also be located near the Argyle International Airport where it is expected that most of the generated electricity will be consumed to meet the daily loads. This benefit will be experienced with no system transmission and distribution (T&D) losses.

4.06 An ODAS is required to ensure the most effective unit commitment of generator sets and batteries for efficient operations. The controller software utilises online 24-hour RE forecasts, generator and BESS operation parameters and system operations parameters to advise system operators on the optimal dispatch of all sources of energy at the lowest cost. This system will improve operational performance as the generation assets are currently manually dispatched.

4.07 The BESS will be located at the Cane Hall substation with the benefits that this is a main power distribution center, there is sufficient easily accessible space available and staff are already located onsite for system maintenance.

INSTITUTIONAL ASSESSMENT

4.08 **Ownership and Governance:** GOSVG owns more than 99% of VINLEC's shares. Oversight of the company's management and policy direction is provided by a Board of Directors, consisting of nine members, appointed by the Government. The Board's membership consists of a mixture of legal, financial, technical and

public sector experience. The work of the Board is facilitated by audit and risk sub-committees. The Board is responsible for approval of the annual budget and for monitoring operational and financial performance via monthly operational and financial reports provided by VINLEC's management. Ad-hoc committees also support the Board as circumstances dictate. The organisation's operations are guided by a comprehensive set of policies, which include development and training, occupational health and safety, performance evaluation, grievance reporting and occupational health and safety. CDB staff are satisfied with the arrangement for governance of the utility.

4.09 **Regulation:** The sector is regulated by the Electricity Act Chapters 404 and 405 established in 1973 and last amended in 1987. This Act granted VINLEC a 60-year operating license, ending in 2033. While the current regulatory environment provides sufficient oversight of the sector, it is recognised that thus establishing of an independent regulator would provide greater expertise and transparency in addressing sector issues. The government has recently completed a review of the Act, and it is currently awaiting presentation to Parliament for approval.

4.10 **Tariffs:** The Act noted above established the tariff structure through which the company charges its clients for the supply of electricity. The current tariff regime has been in place since 1989 and may not necessarily reflect the cost of providing electricity services, particularly given the increasing penetration of distributed RE. A tariff study is currently underway with recommendations from this work expected by yearend 2020. A summary of VINLEC's tariff structure can be found in Appendix 4.1.1.

4.11 **Management and Staffing:** The CEO has been in his current position for more than 15 years, with a tenure at VINLEC of more than 30 years and possesses formal qualification in engineering and management. His management team of six direct reports has approximately 20 years' experience with this utility and hold professional qualifications in their relevant disciplines, many with advanced degrees. Management skills are kept current through various training opportunities including attendance at workshops and conferences. CDB staff are satisfied that VINLEC's management team and staffing are sufficient for the organisation to successfully achieve its objectives and that the organization has the resources and experience to successfully execute the Project. It shall be a condition of the proposed Loan that the positions of CEO, Engineering Manager; Finance Manager, Human Resources and Administration Manager, Customer Service Manager, Information Systems Manager, Internal Audit Manager or positions of similar rank be held by persons whose qualifications and experience are acceptable to CDB. Further, VINLEC shall inform CDB of all appointments which it proposes to make to these posts.

4.12 VINLEC's staff complement is currently 313 employees (265 male/48 female) allocated across the five main functional areas. The organisational chart can be found at Appendix 4.1.2. Turnover is low (0.3% in 2019) and most employees have an average tenure of 15 years at the company indicating an experienced staff complement. With 148 customers per employee, staffing levels are aligned with industry averages, and should be viewed in the context of operations that are spread across five islands, requiring some level of functional duplication. In the past the company had experienced challenges attracting enough locally trained engineers. VINLEC has addressed this challenge by making provision for financial and other support to sponsor employees' attendance in university level engineering and related programmes.

4.13 **Supporting Operations: Information Technology (IT):** IT plays a critical role in VINLEC's operations. The company utilises an Enterprise Resource System (ERP) developed by a reputable firm whose modules integrate the finance, customer service, billing and receipts, payroll and human resources functions across this platform. In addition, a Supervisory Control and Data Acquisition (SCADA) system is used to monitor its various operations, including in the Grenadines. The company is currently undertaking an internal project aimed at improving the frequency of operational data. The existing PV systems are connected to the SCADA and the assets provided by this project will also be integrated with this system, facilitating optimal dispatch of VINLEC's generation capacity. The current systems are sufficient to meet VINLEC's operational requirements.

4.14 **Finance and Accounting:** In addition to the typical roles of management of payables, receivables, payroll, financial and management reporting, the stores and purchasing function also falls within the responsibility of this department. The company's financials have been regularly audited without qualification. Based on VINLEC's governance structures and processes, CDB staff are satisfied that the fiduciary arrangement is sufficient for financial management of this Project.

4.15 **Insurance:** VINLEC maintains commercial insurance policies covering:

(a) Property damage (excluding T&D assets) including machinery breakdown and business interruption: up to XCD150 mn per occurrence, annually.

(b) Third party insurance: up to XCD135 mm per occurrence, annually based on the value at cost of the company's generation plant and machinery, CDB staff are satisfied that the coverage of these policies is adequate for the respective interests specified.

(c) Like many regional electricity utilities, VINLEC has had difficulty obtaining reasonably priced insurance on its T&D systems. Therefore, it has established a self- insurance fund as a mitigant against potential damage to these assets. The fund is held in a reserve and is funded from retained earnings. Given the region's recent experience with severe damage to T&D assets caused by extreme weather events, it is critical to mitigate this risk. As at December 31, 2019, the value of the fund was XCD21.1 mn, compared to a cost value of XCD109 mn. The value of the fund is sufficient to enable the utility to commence restoration of the T&D systems following a catastrophic event, while seeking additional funding if required. Therefore, it shall be a condition of the Loan that VINLEC maintains the self-insurance plan in respect of its T&D assets in such amounts as shall be consistent with sound business practice.

FINANCIAL ANALYSIS

4.16 - 4.31

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

ECONOMIC ANALYSIS

4.32 The economic benefits of this Project are derived from the reduction in fuel consumption by VINLEC for the production of electricity, and the consequent decline in GHG emissions from both the PV and BESS systems over the expected 25-year Project life (2022 – 2046). Further details are provided below.

4.33 **PV system:** Over the past three years, approximately 84% (128 GWh) of VINLEC's total electricity production was derived from its fossil-fuel generators, with the remainder from RE sources. Without this Project, it is expected that fossil fuel-based electricity production will increase aligned with general economic growth in the country. The new 1.21 MWp PV system will displace an average of 1.922 MWh p.a. of production from VINLEC's diesel generators over its 25-year expected life. As a result, diesel consumption will be reduced by an average of 108,076 imperial gallons p.a. with economic savings equivalent to USD0.285 mn p.a.

4.34 **BESS – spinning reserve:** This is the generation capacity to be kept online to provide stability to the electricity supply should any of the production generators go offline. In addition, with increasing utilisation of RE sources like PV, the requirements for spinning reserves is greater due to the variable nature of the supply. While

spinning reserves require the consumption of diesel when provided by diesel generators, this requirement can also be met by BESS as proposed in this Project without the consumption of fossil fuels. A utility battery study was conducted by an external consultant (dated February 2019) to determine the optimal size and design for the BESS and was complemented by further analysis by VINLEC staff and the consultant. The analysis reviewed the unit cost of electricity for the operation of the system and whether it could provide sufficient time for one of VINLEC's generators to be restarted, should a fault occur. The study indicated that the optimal size of the BESS for VINLEC's operations is a 5MW/2.5MWh system. It is estimated that the proposed BESS will reduce fuel consumption for spinning reserve requirements by 147,159 IG p.a. The total value of fuel cost avoided from the operation of the BESS through spinning reserves benefits is approximately USD0.388 mn p.a. over the life of the Project.

4.35 **BESS – Operational Savings:** In addition, the reduced need for the diesel generators to provide spinning reserve capacity decreases the operating costs for these units, due to lower operating hours leading to less maintenance and use of consumables. The estimated reduction in operating expenses is USD0.226 mn p.a.

4.36 **Social Cost of Carbon:** This analysis draws on the work undertaken by the United States Interagency Working Group (IWG) to estimate the Social Cost of Carbon (SCC). SCC estimates the cost of climate change damage, including to agricultural productivity, human health, and poverty from increased risk of flooding caused by greater CO_2 emissions. Based on this work, a value of USD63/tonne of CO_2 was used in this analysis.

4.37 Detailed assumptions used in the analysis are documented in Appendix 4.3.1, with calculations in Appendix 4.3.2.

4.38 **Economic Rate of Return (ERR):** Based on the quantified benefits, the corresponding investment costs and incremental operating and maintenance costs, the Project yields an ERR of 13%. Although the economic returns appear marginal, this Project yields other significant benefits, not quantified in the analysis above.

4.39 The Project will improve SVG's energy security and mitigate the impact of fluctuating world market fuel prices. As well, it will assist with improving voltage and frequency regulation to the country's electricity distribution system and ultimately the quality of supply to customers. In addition, the reduction in operating hours for the diesel-powered generators is expected to result in an increase to the useful life of the diesel generation assets, delaying replacement costs.

4.40 In the future, GOSVG intends to continue increasing the proportion of electricity generated by RE. The Project will enhance VINLEC's understanding of the interaction of BESS technology with its existing systems, enabling deployment of similar projects in the Grenadine islands.

4.41 **Financial Rate of Return (FRR):** The Project yields an FRR of 7% (Net Present Value = $2.450 mn). This FRR is marginal as the BESS-related Project benefits are linked to the substitution of fuel, whose price has been depressed in recent years and projected to grow at an average only 6% p.a. over the next 10 years. Therefore, fuel costs are expected to remain low over the project life. However, the FRR is above VINLEC's five-year average return on equity (5%), indicating that this Project will increase the value of the operation and is reasonable in the current low-return environment. In addition, Project costs include 15% physical contingencies, while prices for batteries and PV panels have decreased over the past few years and are expected to continue declining. Therefore, unfavourable project cost variances are unlikely to occur and this FRR is conservative. The calculation of the FRR is found in Appendix 4.3.3, with the assumptions in Appendix 4.3.4.

MACROECONOMIC IMPACT

4.42 The project is aligned with the overarching growth and development strategy of SVG and is expected to yield positive economic growth impacts. SVG relies heavily on imported fossil fuels, estimated at over 90% for the satisfaction of its energy needs. This makes the country highly vulnerable to fluctuations in international oil prices

and has adverse implications for the trade and current account deficits and the foreign exchange reserves position. A reduction in the dependence on fossil fuels should result in lower energy costs and reduced pressure on the international reserves. Moreover, the macroeconomic implications of reducing energy costs and improving efficiencies is likely to enhance fiscal space, strengthen competitiveness and help improve growth. At the same time, electricity costs are ranked by Organisation of Eastern Caribbean States' firms as one of the major constraints to doing business, as such RE and EE investments can lead to improvements in the business climate.

4.43 The proposed project will temporarily add to the stock of public debt, in addition to other borrowings being undertaken for COVID-19 response support and a large capital investment pipeline that includes the Port Modernisation project. The resulting large project loan disbursements expected over the medium term will lead to an estimated increase in public debt-to-GDP to over 80% before moderating, as economic growth recovers. While this new project will contribute to the debt levels, the loan financing is on highly concessional terms inclusive of a significant grant component coupled with relatively low interest rates, which minimises risks to debt sustainability. As such, the loan supports the sustainable financing of the GOSVG's development goals. The Government remains committed to reaching the regional debt-to-GDP target of 60% by 2030. Along with anticipated growth recovery, greater fiscal effort will be needed to place debt on a declining path to reach this target.

SOCIAL AND GENDER IMPACT ASSESSMENT

4.44 Based on the Project's categorisation, no major social issues or conflicts are expected to negatively impact implementation. Overall, net social development benefits are expected.

4.45 The installation of battery storage will contribute to an increase in variable RE generation within VINLEC's network and improved reliability and quality of electricity supplied to households and commercial customers. Over time, incremental savings are likely to be derived from reduced utility bills, the benefits of which may be utilised by poor and vulnerable households (particularly female-headed) and small business operators, in pursuing income-generating opportunities that may contribute to poverty reduction. Further, the savings to be realised from reduction in diesel purchase and the introduction of efficient energy generating measures are expected to contribute to improved fiscal space. Such savings could create opportunities for GOSVG to invest additional resources in the social sector in an effort to improve efficiency and effectiveness in the delivery of targeted social protection programmes, made more urgent by the lingering and gendered impacts of COVID-19 on vulnerable sub-population groups.

4.46 Indirect contributions to poverty reduction are likely but will not be measured under the Project, as based on the CDB's Gender Marker Analysis, the Project will make no contribution to gender equality. Similarly, to other BMCs, labour market segmentation continues to influence participation of the sexes in the utility sector in SVG. Therefore, men are likely to benefit disproportionately from the employment opportunities created during implementation. Despite the gender marker score, as part of due diligence during project supervision, CDB staff will support VINLEC, the Project Implementation Team and PC to actively identify strategic approaches to increase employment opportunities of vulnerable groups including women, youth and Persons with Disabilities during project implementation. During the construction stage, there will be employment opportunities in areas including inter alia, site clearing, and foundation excavation. The Project would require workers at the different stages, and contractors will be encouraged to utilise both skilled and unskilled labour from the community. The Gender Marker Analysis is at Appendix 4.4.

4.47 An Abbreviated ESIA will be undertaken to provide site specific data to inform the establishment of the ground mounted PV system at Argyle. This installation will be in the vicinity of the Argyle International Airport in addition to communities in the Mt. Pleasant area. It will also be in close proximity to an existing solar farm, situated within one kilometre of the proposed Project site. In order to appropriately address the Bank's safeguard requirements during implementation, a Stakeholder Engagement Plan inclusive of a Grievance Redress Mechanism (GRM) scaled to the risks and potentially adverse impacts of the Project will be developed to

effectively facilitate resolution of any concerns and complaints of Project-affected People (PAPs). The GRM will be at no cost and without retribution to PAPs in addressing social and environmental concerns during implementation. In addition, CDB's Complaints Mechanism will be available to PAPs at projectscomplaints@caribank.org.

GENDER MARKER SCORE

Analysis	Design	Implementation	Monitoring & Evaluation	Score	Code
0.5	0.0	0.0	0.0	0.5	No

ENVIRONMENTAL ASSESSMENT

4.48 The environmental impact of the roof-mounted and ground-mounted solar PV systems and BESS will be minimal and greatly outweighed by the environmental benefits of reduced diesel consumption in electricity production, and CO_2 emissions reductions.

4.49 Potential impacts associated with the roof-mounted solar PV systems include short-term disruption of vehicle and pedestrian traffic around the work sites, occupational health and safety (OHS) issues, including working at height risks, trip and fall hazards, and the risk of electric shocks. While connecting the systems to the grid, these impacts are manageable through implementing measures stipulated in the project's ESMP and VINLEC's OHS Manual.

4.50 Likely adverse impacts associated with the installation of the ground-mounted solar PV system include vegetation removal during site preparation/land clearing, dust generation during excavations, noise pollution, OHS issues and generation of solid, human and construction waste. Installation of the roof-mounted solar PV systems would present working at height risks. These impacts are limited to the construction phase and are temporary in nature.

4.51 Potential environmental effects of the solar PV systems during operations relate to waste that may contain glass from the PV cells. Additionally, there may be some visual impact, including the possibility of glare from the panels. A glint and glare analysis will be conducted as part of the consultancy for SSIP to inform the project's design.

4.52 Decommissioning of the existing roof-mounted solar panels on the Cane Hall Engineering Building may pose environmental, health and safety risks. Electronic components of the solar panels to be decommissioned include heavy metals, silver, copper, lead, arsenic, cadmium, and selenium, that at certain levels may be classified as hazardous. Another potential environmental issue is the appropriate disposal of spent batteries from the BESS after its life cycle. Disposal of these hazardous components/materials will need to comply with the St. Vincent Solid Waste Management Act, 2000. The Solid Waste Management Unit of the Central Water and Sewerage Authority has in place facilities and procedures to manage the appropriate disposal of hazardous substances and waste.

4.53 An ESMP will be developed for the project by the ESC to address all potential environmental and social issues associated with the project. The ESMP will include, but not be limited to, arrangements for vehicular traffic control, pedestrian safety, provision and use of appropriate personal protective equipment, instructions for safe handling and storage of the solar panels, dust and noise abatement and proper disposal of construction/human waste. The contract for the decommissioning of solar panels will specify the requirements for the safe dismantling, packing, and transportation of the panels, and ultimate disposal of the waste. The contractor will be required to submit a draft ESMP for approval by the ESC. The contractor will be required to reflect the appropriate actions of the draft ESMP

prior to commencement of construction and installation works. Each contract for the installation works will incorporate requirements for implementing the mitigation measures in the ESMP. During construction, the ESC and VINLEC will monitor the contractor's conformance with the mitigation measures stipulated in the ESMP and in the contract documents.

4.54 As a condition precedent to installation works and decommissioning of the existing roof-mounted solar PV system, VINLEC will be required to submit to CDB, evidence in form and substance, acceptable to CDB, that it has obtained all required permits for the installation works and for the disposal of hazardous waste, as well as the decommissioning plan and recycling method for the existing roof-mounted solar panels on the Cane Hall Engineering Building.

RENEWABLE ENERGY AND ENERGY EFFICIENCY ASSESSMENT

4.55 The NEAP has identified five RE technologies for the generation of electricity, biomass, geothermal, hydropower, solar PV, and wind. GOSVG has pledged to implement initiatives for mainstreaming climate change into its national development processes, including the scaling up of renewable electricity. SVG NDC includes a conditional commitment to reduce GHG emissions to 22% below the business as usual scenario by 2025.

4.56 With approximately 50% of national emissions attributed the energy sector, the NDC further encourages the installation of small-scale PV in the private and public sectors as a means to reduce GHG emissions. Installation of the solar PV systems under this Project, is in alignment with these RE commitments. Current installed RE capacity accounts for 17.3% of installed capacity. This Project will increase the RE contribution to 19.2%. The proposed interventions are estimated to reduce fuel consumption by 114,667 IG (521,287 litres) of diesel in the first year, and 2.67 mn IG (12.1 mn litres) over the lifetime of the project. This would achieve CO_2 emissions reductions by 1,523 tonnes in the first year of operation and 35,446 tonnes over the lifespan of the project.

CLIMATE CHANGE VULNERABILITY ASSESSMENT (CCVA)

4.57 SVG is vulnerable to multiple climate-related hazards, including sea level rise, storm surges, intense rainfall, and hurricanes. These are the primary climate variables which could impact the project. Vulnerability of the 1.04 MW ground mounted solar PV system is exacerbated by the coastal location at the Argyle International Airport. Given SVG's exposure to these climate variables, climate resilience measures have been built into the project's design. These include design specifications of the solar PV panels and supporting infrastructure to withstand intense meteorological events in addition to high levels of salinity; extreme temperatures; and seismic activity. The Project's design will incorporate Recommended Technical Guidelines for the Installation of Resilient Solar PV Plants. A CVA will be included in the scope of works for SSIP for all the proposed systems, and the results will inform design specifications for the construction and installation of the systems. It should be a condition precedent to the Installation Works that VINLEC engage the services of SSIP consultants to perform the duties as set out in the terms of reference (TOR) at Appendix 2.2.2.

PAS GENERAL COMMENTARY

4.58 The composite performance rating based on CDB's Performance Assessment System (PAS) has been estimated as highly satisfactory, which suggests that there is a good probability that the Project will achieve its objectives.

PAS TABLE

Criteria	Score	Justification
Relevance	Highly Satisfactory	The Project directly contributes to achieving the sustainable energy goals of SVG. In addition, the installed systems will be incorporated in VINLEC's core operations which include operation and maintenance. Concessional financing is used to directly reduce the cost of energy to the citizens of SVG.
Effectiveness	Highly Satisfactory	The Project is very likely to achieve its outcomes as the solar PV energy will directly replace fossil fuel energy and the BESS will reduce the dependence on costly diesel generation.
Efficiency	Satisfactory	Consultant reports indicate the BESS and PV as a cost-effective option for achieving the project outcomes. In addition, the Project ERR exceeds CDB's threshold of 12%, indicating that it provides significant net economic benefits.
Sustainability	Satisfactory	VINLEC has considerable experience with O&M of PV systems. The BESS will require a maintenance contract with the supplier. Recycling of PV modules and batteries is a nascent technology which requires further maturity in order to ensure environmental impacts are appropriately mitigated and decommissioned. The solar PV and BESS will provide affordable energy at predictable cost over its operating lifetime.
Overall Score	Highly Satisfactory	

5. RISK ASSESSMENT AND MITIGATION

RISK JUSTIFICATION

5.01 Essential to the structuring of this Project are the identification, assessment, mitigation and allocation of Project risks. These risks are related to events and uncertainties that could have a significant negative impact on the Project achieving the desired outcome and could endanger the Project during the development, financing, construction and operation phases. The Project risks and proposed mitigation measures are summarised in Table 5.1.

TABLE 5.1: SUMMARY OF RISKS ASSESSMENT AND MITIGATION MEASURES

Risk Category	Risk Type	Description of Risk	Mitigation Measures
Developmental	Disaster Risk/Adverse Events	Hurricane force winds and/or flooding could cause disruption to the operations of the solar PV installations and reduce power supplied to the grid.	The design of the solar PV installation will include international best practice recommendations for systems in hurricane prone areas as well as appropriate design considerations based on the CVA. VINLEC will take out appropriate insurance for the project including third party risks. Any damage to the system due to severe weather events will be repaired to utilize impact on energy production.

6. IMPLEMENTATION AND PROJECT MANAGEMENT

THE BORROWER

6.01 VINLEC is a limited liability company which was incorporated under the Companies Act, Cap 219 of the laws of St. Vincent and the Grenadines on November 27, 1961. Its registered office is situated at Paul's Avenue, Kingstown, St. Vincent. In accordance with Clause 3(A) of VINLEC's Articles of Association (the Articles), its primary mandate is the business of manufacturing, producing accumulating, distributing and dealing in electricity and to supply the same for lighting, heating, power and all other purposes whatsoever.

6.02 Clause 84 of the Articles permit the directors of VINLEC to borrow on a secured or unsecured basis, for the purposes of the Company in such manner and in such amounts as it deemed fit. The repayment of such borrowings may be secured by, inter alia, debentures, mortgage or liens or other securities charged on the undertaking or on all of the assets of the Company (both present and future).

6.03 VINLEC is authorised to issue an unlimited number of ordinary shares without nominal or par value, of which 5,809,182 have been issued and fully paid. GOSVG is the major shareholder of VINLEC, with a current shareholding of 99% (5,809,176) of the ordinary shares and the remaining shares are held by six private individuals. At present, VINLEC's Board of Directors consists of nine directors, all of whom were appointed by the Government.

THE GUARANTOR

6.04 The loan to VINLEC will be guaranteed by GOSVG. Section 5 of the Government Guarantee of Loans Act, Cap 255 of the laws of St. Vincent and the Grenadines confers on GOSVG the power to guarantee loans to state corporations. By the Government Guarantee of Loans (St. Vincent Electricity Services Ltd) (State Enterprise) Order 1993, VINLEC was designated a state corporation for the purposes of the Act. All amounts payable under a guarantee

given under the Act are charged on the Consolidated Fund. The agreement in respect of any guarantee given under the Act must be approved by a resolution of the House of Assembly. Accordingly, it shall be a condition precedent to first disbursement of the loan that GOSVG has provided to CDB a guarantee agreement in form and substance acceptable to CDB, together with any requisite ancillary documentation.

IMPLEMENTING AGENCY ANALYSIS

6.05 The Project will be executed by VINLEC, which has a demonstrated capacity and track record of implementing utility scale power generation projects.

PROJECT MANAGEMENT

6.06 The implementation of the Project will be the responsibility of a PC assigned from the staff of VINLEC and supported by VINLEC administrative and technical staff. Duties and responsibilities of the PC are outlined in Appendix 6.4.1. The PC shall report to the Chief Technical Officer and can draw on necessary in-house capacity to successfully execute all aspects of the Project. The Project management structure is shown at Appendix 6.5.1. It shall be a condition precedent to first disbursement of the Loan that VINLEC assign from within its staff a PC with qualifications and experience acceptable to CDB.

6.07 An engineering consultancy firm will be engaged to assist VINLEC during Project implementation. The firm will be required to support the procurement processes and certify installation works. It will therefore be a condition precedent to first disbursement of the Loan that VINLEC select and engage engineering supervision consultants to undertake the engineering services required during the implementation of the Project.

6.08 PV plants require very little maintenance as there are no moving parts and rainfall results in self- cleaning of the PV panels which are installed at an angle to the ground. The performance of the system can also be remotely monitored. VINLEC will provide operations and maintenance services using in-house resources as the company has extensive experience operating PV systems. Maintenance of the BESS will be the responsibility of the contracted supplier.

IMPLEMENTATION

6.09 The Project will be implemented by VINLEC over 24 months commencing with approval by CDB's Board of Directors (BOD). The proposed Implementation Schedule is presented at Appendix 6.1.1.

PARTICIPATION OF BENEFICIARIES AND STAKEHOLDERS

6.10 The preparation and appraisal of this Project involved consultation with a range of stakeholders including community representatives, VINLEC, Government organisations, including Ministry of Finance, Economic Planning, Sustainable Development and Information Technology. This principle of stakeholder participation will be reinforced and strengthened during implementation of the Project. Stakeholders will be invited to participate in a Project Launch to gain greater insights about the project's objectives and implementation arrangements. Multi-modal strategies will be used to communicate project results to stakeholders and the wider community. During implementation, VINLEC, through its Customers Relations/Communications Department should strengthen collaboration with the Energy Unit and conservation groups regarding solar PV awareness and sensitisation through ongoing campaigns. As part of the education and awareness raising efforts, social media content may be delivered to educate the public about the benefits of solar PV and sustainability of the renewable resource. To provide additional support, GOSVG agencies will utilise their Public Relations and Information Programmes to keep the public updated about the Project's progress and expected benefits.

DISBURSEMENT

6.11 Disbursement of the Loan and Grant will be made in accordance with CDB's Disbursement Guidelines for CDB-Financed Projects (January 2019). It is expected that the first disbursement from the Loan will be made by March 31, 2021. The Loan and Grant are expected to be fully disbursed by December 31, 2022. An Estimated Quarterly Loan Disbursement Schedule is presented in Appendix 6.2.

PROCUREMENT

6.12 Procurement shall be in accordance with the Procurement Policy and Procedures for Projects Financed by CDB (November 2019). However, where EU-CIF SEEC resources are being used together with CDB's Equity and Market resources to finance the BESS contract, to comply with the requirements of the EU-CIF Financing Agreement, a waiver is sought to extend eligibility to countries eligible for procurement under EU funded projects, which are not CDB Member Countries. The estimated value of the waiver being requested is $3.4mn.

6.13 In accordance with the provisions of the EIB CALC II Financing Agreement, where contracts are financed with CALC II resources, eligibility shall be extended to countries eligible for procurement under EIB-funded projects which are not CDB Member Countries. Procurement and contract award notices, above prevailing EU thresholds, shall be published in the Official Journal of the European Union and successful bidders for contracts will be required to submit the "Covenant of Integrity" in conformity with that annexed to the Procurement Plan, provided at Appendix 6.3.

MONITORING AND REPORTING

6.14 The results of the Project will be measured in accordance with the indicators set out in the Results Framework in Chapter 2. It will be a condition of the Loan that VINLEC shall furnish or cause to be furnished to CDB, the Reports listed in Appendix 6.6. in such form or forms as CDB may require, not later than the times specified therein for so doing.

7. TERMS AND CONDITIONS

7.01 Terms and Conditions of the Loan.

No.	Subject	Terms and Conditions of Loan
1.	**Parties**	Bank: Caribbean Development Bank (CDB) Borrower: St. Vincent Electricity Services Ltd. (VINLEC) Implementing Agency: VINLEC Guarantor: Government of St. Vincent and the Grenadines (GOSVG)
2.	**Amount of Loan**	The Bank agrees to lend to the Borrower an amount not exceeding the equivalent of five million, four hundred and fifty-three thousand three hundred United States dollars (USD5,453,300) (the Loan) comprising: **Ordinary Capital Resources (OCR)**: - an amount not exceeding the equivalent of two million, and thirty-eight thousand three hundred United States dollars (USD2,038,300) allocated from resources provided by the European Investment Bank (EIB) to CDB under the Second Climate Action Line of Credit (CALC) (the EIB- CALC II Resources); and - an amount not exceeding the equivalent of three million, four hundred and fifteen thousand United States dollars (USD3,415,000) allocated from the Bank's Equity and Market Resources (the Equity and Market Resources).
3.	**Purpose**	The purpose for which the Loan is being made is to assist the Borrower in financing the supply and installation of roof mounted solar photovoltaic (PV) system and battery storage at buildings owned by VINLEC, and a ground mounted PV system at Argyle, in the vicinity of the Argyle International Airport; and for the supply and installation of a battery energy storage system (BESS) to be installed at the Cane Hall sub-station (the Project).
4.	**Loan Accounts**	The Bank shall open two (2) Loan Accounts in its books in the name of the Borrower and shall credit to one (1) such account the amount of the EIB-CALC II Resources and to the other such account the amount of the Equity & Market Resources. The amounts credited to the Loan Accounts may be withdrawn from the Loan Accounts as provided and are subject to the rights of cancellation and suspension set out in the Loan Agreement.
5.	**Repayment**	The Borrower shall repay the Loan in forty (40) equal or approximately equal and consecutive quarterly instalments, commencing after the expiry of two (2) years following the date of the Loan Agreement or on such later date as the Bank may specify in writing.

No.	Subject	Terms and Conditions of Loan
6.	**Interest**	The Borrower shall pay interest on the amount of the Loan with-drawn and outstanding from time to time as follows: (i) at the rate of three decimal seven five percent (3.75%) per annum (variable) on the amount of the Equity and Market Resources; and (ii) at the rate of two decimal six eight percent (2.68%) per annum (variable) on the amount of the EIB-CALC II Resources. Such interest shall be payable quarterly. The Bank may from time to time increase or decrease the rate of interest for the time being payable on any amount of the Loan which is being lent from the OCR to take effect on the day after the first Due Date after March 31, June 30, September 30 and/or December 31 in any year, or such other date or dates as the Bank may specify in writing from time to time.
7.	**Commitment Charge**	The Borrower shall pay to the Bank a commitment charge at the rate of one percent (1%) p.a. shall be payable on the amount of the OCR resources unwithdrawn from time to time. Such charge shall accrue from the sixtieth (60th) day after the date of the Loan Agreement and shall be payable quarterly.
8.	**Withdrawal and Application of Loan**	(a) Except as the Bank may otherwise agree: (i) total disbursements of the Loan shall not exceed in the aggregate fifty-three percent (53%) of the cost of the Project; and (ii) the Loan shall be used exclusively to finance the components of the Project allocated for financing by the Bank as shown in the **Project Cost, Phasing and Financing Plan** up to the respective limits specified therein. (b) The Loan shall not be used to: (i) finance any **EIB Excluded Activities**; or (ii) meet any part of the cost of the Project which consists of identifiable taxes and duties imposed under the laws of St. Vincent and the Grenadines. (c) The Borrower shall comply with the Bank's "Disbursement Guidelines for CDB-Financed Projects" published in January

No.	Subject	Terms and Conditions of Loan
		2019, which publication is in effect at the date hereof and which may be amended from time to time by the Bank.
9.	**Period of Disbursement**	The Bank shall have received an application for first disbursement of the Loan by March 31, 2021, or such later date as may be specified in writing by the Bank. The Loan shall be disbursed up to December 31, 2022, or such later date as may be specified in writing by the Bank.
10.	**Procurement**	(a) Except as provided in sub-paragraph (b) below, procurement shall be in accordance with the following procedures or such other procedures as the Bank may from time to time specify in writing: (i) Procurement Policy for Projects Financed by CDB (November 2019); and (ii) Procurement Procedures for Projects Financed by CDB (November 2019) (b) In respect of procurement related to the design, supply and installation of the BESS, where CDB Equity and Market Resources are being utilised together with EU-CIF SEEC resources, eligibility for procurement shall be extended to countries eligible for procurement under EU-funded projects, which are not CDB Member Countries, in accordance with the EU Eligibility Rules; (c) Where the EIB-CALC II Resources are being utilised to finance the BESS contract, eligibility for procurement shall be extended to countries eligible for procurement under EIB-funded projects which are not CDB Member Countries. (d) Procurement notices for requirements financed by EIB CALC II Resources are required to be published in the Official Journal of the EU and bidders for the contracts in question will be required to submit the "Covenant of Integrity" in the form attached in the Annex to the **Procurement Plan** . (e) The Borrower shall comply with the procurement requirements set out in the **Procurement Plan**. Any revisions to the **Procurement Plan** shall require the Bank's prior approval in writing.

No.	Subject	Terms and Conditions of Loan
11.	**Additional Condition(s) Precedent to First Disbursement**	The Borrower shall, by the 60th day after the date of the Loan Agreement, or such later date as the Bank may agree, provide the Bank with evidence acceptable to the Bank, that the following conditions have been satisfied: (a) the PC has been assigned; (b) the Guarantee Agreement has been provided to the Bank; and (c) the engineering supervision consultant(s) have been engaged.
12.	**Condition(s) Precedent to Disbursement in respect of the Installation Works**	The Borrower shall, have provided the Bank with evidence acceptable to the Bank, that: (a) the SSIP consultant(s) have been engaged; (b) the land required for the Project shall have been vested in the Beneficiary, free from all encumbrances, stipulations or conditions which may adversely affect the Project, or alternatively the Beneficiary shall have made arrangements satisfactory to CDB to enter into possession of such lands for the purpose of the Project; and (c) it has received all requisite statutory, planning, building and environmental permits, licenses and/or other approvals; and (d) it has developed a decommissioning plan and recycling method, acceptable to the Bank, which includes the disposal of hazardous waste for the disposal of the existing roof-mounted solar panels on the Cane Hall Engineering Building.
13.	**Project Implementation**	Except as the Bank may otherwise agree, the Borrower shall: (a) implement the Project; (b) carry out the Project at all times with due diligence and efficiency, with management personnel whose qualifications and experience are acceptable to the Bank and in accordance with sound technical, environmental, administrative, financial, and managerial standards and practices; and (c) institute and maintain organisational, administrative, accounting and auditing arrangements for the Project, acceptable to the Bank.
14.	**Project Management**	The Borrower shall assign, from among its staff, and for the duration of the Project, maintain a Project Coordinator (PC), with

No.	Subject	Terms and Conditions of Loan
		qualifications and experience acceptable to the Bank, to oversee the implementation of all Project components and to carry out the duties and responsibilities described in the Duties and Responsibilities of Project Coordinator. The qualifications and experience of any person(s) subsequently assigned to the position(s) referred to in this Section shall be acceptable to the Bank.
15.	**Engagement of Consultants**	The Borrower shall: (a) in accordance with the procurement procedures applicable to the Loan, select and engage competent and experienced consultants to assist the Borrower during project implementation and to carry out the following consultancy services: – **Terms of Reference – Site Specific Investigation for PV Site** (b) select and engage competent and experienced consultants to carry out engineering services set out in the **Terms of Reference – Engineering Services**. The qualifications and experience of any person(s) subsequently engaged to perform the engineering services shall be acceptable to the Bank; and (c) within a timeframe acceptable to the Bank, implement such recommendations arising out of the aforementioned consultancies as may be acceptable to the Bank.
16.	**Engagement of Contractors**	The Borrower shall, in accordance with the procurement procedures applicable to the Loan, select and engage contractors to carry out the infrastructure works to be financed by the Loan.
17.	**Operational Covenants**	The Borrower shall ensure that the positions of CEO, Engineering Manager, Finance Manager, Human Resources and Administration Manager, Customer Service Manager, Information Systems Manager, Internal Audit Manager or positions of similar rank be held by persons whose qualifications and experience are acceptable to the Bank. To this end, the Borrower shall inform the Bank in writing of all appointments which it proposes to make to the abovementioned posts.
18.	**Security**	The Borrower shall furnish or cause to be furnished to the Bank, an agreement between the Guarantor and the Bank, in form and substance acceptable to the Bank, guaranteeing the repayment of

No.	Subject	Terms and Conditions of Loan
		the Loan under the Loan Agreement on the Bank's standard terms and conditions and on terms and conditions set forth herein (Guarantee Agreement).
19.	**Financial Covenants**	Except as the Bank may otherwise agree, (a) the Borrower shall not: (i) sell, lease, transfer or otherwise dispose of any of its assets which shall be required for the efficient carrying on of its business; (ii) make any loans to any of its directors or shareholders or to any other person (with the exception of the Borrower's staff) for any purpose whatsoever; (iii) grant any credit (other than in the ordinary course of business) or give or negotiate any guarantee or indemnity to or for the benefit of the Borrower, or anyone else, or voluntarily assume any liability in respect of any obligation of anyone else; or (iv) incur any new debt (other than for the Project) or pay any dividends unless a debt service coverage ratio (defined as the operating surplus before deduction of depreciation, but after taxes, divided by total debt service in the same year) of at least 1.5 is maintained. (b) the Borrower shall maintain, for the duration of the Loan: (i) a Debt Service Coverage Ratio of at least 1.5; (ii) a net debt to earnings ratio not exceeding 3.0; and (iii) levels of liquidity to achieve a minimum current ratio of 1.00. (c) the Borrower shall: (i) by June 30, 2021, or such later date as the Bank agree, provide to the Bank a plan to reduce its receivables to no more than 80 days by 2022 and 70 days by 2023; and (ii) achieve receivables of not more than 80 days of sales by 2022 and 70 by 2023.
20.	**Maintenance of Infrastructure**	The Borrower shall keep the buildings, works and other infrastructure financed from the Loan, or cause the same to be kept, in good repair and condition and shall provide the financial and

No.	Subject	Terms and Conditions of Loan
		other resources required to adequately maintain the infrastructure financed from the Loan.
21.	**Maintenance of Corporate Existence**	The Borrower shall: (i) maintain its corporate existence and, except with the prior approval of the Bank, shall not amend its Memorandum and Articles of Association without the Bank's prior consent; and (ii) not change its corporate structure or ownership without the prior written consent of the Bank.
22.	**Insurance**	The Borrower shall maintain a self-insurance fund, in respect of its transmission and distribution assets, in such amounts as shall be consistent with sound business practice.
23.	**EIB CALC II Conditions**	The Borrower shall: (i) unless the Bank has given its prior consent in writing, retain title to and possession of all or substantially all of the assets using the EIB CALC II Resources or, as appropriate, replace and renew such assets and maintain the Project in substantially continuous operation in accordance with its original purpose, provided that the Bank may withhold its consent only where the proposed action would prejudice the Bank's interests as lender to the Borrower or would render the Project ineligible for financing by the Bank under the EIB CALC II Finance Contract; (ii) maintain in force all rights of way or use and all permits necessary for the execution and operation of the Project; (iii) implement and operate the Project in compliance with all laws and regulations to which the Borrower or the Project is subject and in particular in compliance with applicable environmental laws and regulations, and international treaties; (iv) permit persons designated by the Bank or EIB or, as the case may be, authorised representatives of the Court of Auditors and/or the European Commission and/or European Anti-Fraud Office (OLAF), to visit the premises of the Borrower and the sites, installations and works comprising the Project and to conduct such checks as they may wish and the Borrower shall provide them, or ensure that they are provided, with all necessary assistance for this purpose; and

No.	Subject	Terms and Conditions of Loan
		(v) retain, in a single location, for inspection during six (6) years from the date of the Loan Agreement, the full terms of the Loan Agreement, as well as all material documents pertaining to the procurement process and to the execution of the contract and shall procure that the Bank and EIB may inspect the contractual documents that the contractor is obliged to retain under its supply contract. The Borrower warrants and undertakes that it has not committed, and no person to its present knowledge has committed, any of the following acts and that the Borrower will not commit, and no person with its consent or prior knowledge will commit, any such act, that is to say: the offering, giving, receiving or soliciting of any improper advantage to influence the action of a person holding a public office or function or a director or employee of a public authority or public enterprise or a director or official of a public international organisation in connection with any procurement process or in the execution of any contract in connection with those elements of the Project financed under the Loan; or (a) any act which improperly influences or aims improperly to influence the procurement process, or the implementation of the Project financed under the Loan to the detriment of the Borrower, including collusion between tenderers. For the purposes hereof, the knowledge of any employee of the Borrower involved as managers of the Project shall be deemed the knowledge of the Borrower. The Borrower undertakes to inform the Bank if it should become aware of any fact or information suggestive of the commission of any such act. (b) The Borrower acknowledges that the Bank or EIB may be obliged to divulge such documents relating to the Borrower and the Project to the Court of Auditors of the European Union (Court of Auditors), and/or OLAF as are necessary for the performance of that party's tasks under European Union law.
24.	**Additional Funds**	The Borrower shall be responsible for meeting any amount by which the total cost of the Project exceeds ten million two hundred and two thousand two hundred United States dollars (USD10,202,200).
25.	**Borrower's Contribution to the Project**	The Borrower shall contribute to the Project an amount of not less than the equivalent of four million one hundred and eighty thousand nine hundred and fifty Eastern Caribbean dollars (XCD4,180,950).

No.	Subject	Terms and Conditions of Loan
		Except as the Bank may otherwise agree, the contribution which the Borrower is required to make to the Project shall be expended by the Borrower in a timely manner on the components of the Project allocated for financing by the Borrower as shown in the **Project Cost, Phasing and Financing Plan**, up to the respective limits set out therein.
26.	**Reports and Information**	Except as the Bank may otherwise agree, the Borrower shall furnish or cause to be furnished to the Bank the reports and information in the Reporting Requirements, in the form specified therein, or in such form or forms as the Bank may require, not later than the times specified therein for so doing.
27.	**Additional Event(s) of Default, Suspension, Cancellation**	The Bank may by notice to the Borrower suspend, cancel, or call in the whole or any part of the Loan if: – the EU-CIF SEEC Resources or any part thereof is suspended, cancelled, or required to be refunded; or – the FCDO SEEC Resources or any part thereof is suspended, cancelled, or required to be refunded.

7.02 Terms and Conditions of the Grant.

No	Subject	Terms and Conditions of the Grant
1.	**Parties**	Bank: Caribbean Development Bank Beneficiary: St. Vincent Electricity Services Ltd. (VINLEC) Implementing Agency: VINLEC
2.	**Amount of Grant**	The Bank agrees to make available to the Beneficiary by way of grant (the Grant): - Special Funds Resources (SFR): an amount not exceeding one million, six hundred and fifty eight thousand Euros (EUR1,658,000) allocated from resources provided by the European Union (EU) Caribbean Investment Facility (CIF) to CDB under the EU Contribution Agreement for the implementation of the action entitled Sustainable Energy for the Eastern Caribbean (SEEC) Programme (EU-CIF SEEC Resources); and - an amount not exceeding nine hundred and two thousand Pounds Sterling (GBP902,000) allocated from resources provided by the Government of the United Kingdom of Great Britain and Northern Ireland through its Foreign Commonwealth and Development Office (FCDO) (formerly known as the Department for International Development (FCDO) for the SEEC Programme) (FCDO SEEC Resources).
3.	**Purpose**	The purpose for which the Grant is being made is to assist the Borrower in financing the supply and installation of roof mounted solar photovoltaic (PV) system and battery storage at buildings owned by VINLEC and a ground mounted PV system at Argyle, in the vicinity of the Argyle International Airport; and for the supply and installation of a battery energy storage system (BESS) to be installed at the Cane Hall sub-station (the Project).
4.	**Payment of Grant**	Except as the Bank may otherwise agree, the Grant shall be made to the Beneficiary as follows: (a) The Grant shall be paid to the Beneficiary periodically after receipt by the Bank of (i) a request in writing from the Beneficiary for such funds; and (ii) an account and documentation, satisfactory to the Bank in support of expenditures incurred by the Beneficiary in respect of, and in connection with, the Project. (b) The Bank shall not be under any obligation to make the first payment of the Grant until the Bank shall have received evidence, acceptable to the Bank, that the conditions precedent to first disbursement of the Grant have been satisfied.

No	Subject	Terms and Conditions of the Grant
1.	**Parties**	Bank: Caribbean Development Bank Beneficiary: St. Vincent Electricity Services Ltd. (VINLEC) Implementing Agency: VINLEC
		(c) The Bank shall not be under any obligation to make any payments following the first payment until the Bank shall have received the requisite number of copies of the reports or other deliverables, in form and substance acceptable to the Bank, to be submitted by the Beneficiary to the Bank in accordance with the **Reporting Requirements**. (d) Except as the Bank may otherwise agree, total disbursements of the Grant shall not exceed in the aggregate thirty-one percent (31%) of the cost of the Project. (e) Except as the Bank may otherwise agree, the Grant shall be used to finance the components of the Project allocated for financing by the Bank as shown in the **Project Cost, Phasing and Financing Plan** up to the respective limits specified therein. (f) The Grant shall not be used to meet any part of the costs of the Project which consists of identifiable taxes and duties imposed under the laws of St. Vincent and the Grenadines. (g) The Beneficiary shall comply with the Bank's "*Disbursement Guidelines for CDB-Financed Projects"* published in January 2019 (the Guidelines), which publication is in effect at the date hereof and which may be amended from time to time by the Bank.
5.	**Period of Disbursement**	The first payment of the Grant shall be made by March 31, 2021, or such later date as the Bank may specify in writing. The Grant shall be fully disbursed by December 31, 2022 or such later dates as the Bank may specify in writing.
6.	**Procurement**	(a) Except as provided in sub-paragraph (b) below, procurement shall be in accordance with the following procedures or such other procedures as the Bank may from time to time specify in writing: - Procurement Policy for Projects Financed by CDB (November 2019); and - Procurement Procedures for Projects Financed by CDB (November 2019)

No	Subject	Terms and Conditions of the Grant
1.	**Parties**	Bank: Caribbean Development Bank Beneficiary: St. Vincent Electricity Services Ltd. (VINLEC) Implementing Agency: VINLEC
		(b) Eligibility for procurement shall be extended to countries eligible for procurement under EU-funded projects, which are not CDB Member Countries, in accordance with the EU Eligibility Rules. (c) The Beneficiary shall comply with the procurement requirements set out in the **Procurement Plan**. Any revisions to the **Procurement Plan** shall require the Bank's prior approval in writing.
7.	**Additional Condition(s) Precedent to First Disbursement**	The Bank shall not be obliged to make the first disbursement of the Grant until the Beneficiary has furnished or caused to be furnished to the Bank, evidence acceptable to the Bank, that the conditions precedent to first disbursement of the Loan have been satisfied.
8.	**Condition(s) Precedent to Disbursement in respect of the Installation Works**	The Beneficiary shall, have provided the Bank with evidence acceptable to the Bank, that the condition(s) precedent to disbursement in respect of the Installation Works of the Loan have been satisfied.
9.	**Project Implementation**	Except as the Bank may otherwise agree, the Beneficiary shall implement the Project.
10.	**FCDO SEEC Conditions**	The Beneficiary shall: (a) ensure that contracts explicitly acknowledge FCDO Funding, in writing and verbal communications about activities related to the FCDO Funding, to the public or third parties, including in announcements, and through use, where appropriate, of FCDO's "UK aid – from the British people" logo ('UK aid logo') in accordance with FCDO standards for use of the UK aid logo, unless otherwise agreed in advance by FCDO or CDB and in all cases subject to security and safety considerations of CDB; (b) facilitate and permit, during implementation of the Project, and up to March 31, 2025, any authorised representative of CDB or FCDO conducting investigations of credible suspicion of or actual fraud, corruption or any other financial irregularity, impropriety or wrong doing and if necessary request an appropriate refund; and (c) permit CDB, or any person appointed thereby, to audit the expenditures financed by the Grant, and to provide CDB, or the appointed person with all reasonably required assistance, documents and information.

No	Subject	Terms and Conditions of the Grant
1.	**Parties**	Bank: Caribbean Development Bank Beneficiary: St. Vincent Electricity Services Ltd. (VINLEC) Implementing Agency: VINLEC
11.	**EU-CIF SEEC Conditions**	The Beneficiary shall: (i) ensure that the visibility of the EU contribution is guaranteed, and is at least equivalent to that given through media to other donors supporting the implementation of the SEEC Programme (e.g. the European logo shall be displayed whenever a public notice regarding the investments financed under this Project is displayed; whenever possible, billboards with the European logo and reference to the approved grant should be displayed during the works and thereafter). If necessary, guidelines applicable to communication and visibility can be found on the website of EuropeAid. The EU, CDB, and co-financers shall be invited to any visibility event relating to the SEEC Programme; and (ii) permit the EU (or any appointed person) to carry out monitoring, audit and evaluation missions throughout the Programme, and provide the EU, or the appointed person, with all reasonably required assistance, reports and information.
12.	**Reports and Information**	Except as the Bank may otherwise agree, the Beneficiary shall furnish or cause to be furnished to the Bank the reports and information set out in the Reporting Requirements in the form specified therein, or in such form or forms as the Bank may require, not later than the times specified therein for so doing.
13.	**Beneficiary's Contribution to the Project**	Except as the Bank may otherwise agree, the Beneficiary shall: (i) meet or cause to be met: (a) the cost of the items designated for financing by the Beneficiary in the **Project Cost, Phasing and Financing Plan** (b) any amount by which the cost of the Project exceeds the estimated costs set out in the **Project Cost, Phasing and Financing Plan**; and (c) the cost of any other items needed for the purpose of, or in connection with Project; and (ii) provide all other inputs required for the punctual and efficient carrying out of the Project not being financed by the Bank.
14.	**Suspension, Cancellation and Refunds**	The Bank shall be entitled to suspend, cancel, or require a refund of the Grant, or any part thereof, if: (i) the whole or any part of the Loan is suspended, cancelled or called in; (ii) the EU-CIF SEEC Resources or any part thereof is suspended, cancelled, or required to be refunded; or (iii) the FCDO SEEC Resources or any part thereof is

No	Subject	Terms and Conditions of the Grant
1.	**Parties**	Bank: Caribbean Development Bank Beneficiary: St. Vincent Electricity Services Ltd. (VINLEC) Implementing Agency: VINLEC
		suspended, cancelled, or required to be refunded, except that the Beneficiary shall not be required to refund any amount of the Grant already expended by the Beneficiary on the components of the Project to be financed from the Grant and not recoverable by the Beneficiary, unless that amount already expended was misappropriated due to proven fraudulent, unethical or other activity of wrong doing.

APPENDIX 1.1 SOCIAL CONTEXT DETAILS

MACRO SOCIAL CONTEXT

Population and Demographic Characteristics

1. SVG constitutes the most archipelagic of the countries of the Eastern Caribbean. The largest island, St. Vincent, is the most northerly of the chain, and extends south to Palm Island. Seven smaller islands and 28 islets form the archipelago. The islands together are comprised of a land mass of 389 square kilometres (km^2), with St. Vincent, accounting for 344 km^2 and the other islands, the Grenadines, accounting for 45km^2. The 2020 population estimate was 110,696 (56,780 males and 53,916 females) a marginal increase from the mid-year estimate determine five years previously in 2016 to be 110,343 (56,600 males and 53,743 females). The capital Kingstown, and its suburbs accounted for 24.3 % of the population, while the Grenadines accounted for 9.3%. According to World Bank (2016), annual population growth has averaged 0.1 percent over the last 10 years. SVG is at the stage of the demographic transition where the population is youthful with 17.0% of persons between the ages of 15 and 24 years and 26.0% under the age of 15 years.

Poverty and Gender

2. The Labour Force Survey (2017) found high levels of unemployment, particularly among women and youth cohorts. This was compounded by labour market segmentation by sex. Such segmentation portends particular implications for single-parent female-headed households, given their historical over- representation in the poverty statistics. Efforts to break this historical reality will hinge on the creation of opportunities for SVG to derive economic dividends from unencumbered labour market participation of males and females in non-traditional occupational areas. Successive Country Poverty Assessments have highlighted very high levels of poverty and vulnerability including significant informality in the labour market. This is significant, particularly since the majority of those in the lowest quintile are in elementary occupations or are working intermittently in the informal sector. In both cases, a significant proportion are categorised as working poor.

3. The CDB-supported Country Gender Assessment (2016) highlighted labour market segmentation in traditionally male-dominated occupational areas - agriculture, fisheries and agriculture. These are also the dominant economic sectors in SVG. In addition, women are overly represented in lower-waged positions in the services sector in hotels and restaurants. Limited access by women to credit and land ownership, coupled with a significant level of female household headship, high household dependency ratios and unpaid domestic labour, conspire to increase women's vulnerability to poverty.

Project Sites

4. The Project will be implemented at three sites on mainland SVG – (i) Johnson Hill in Argyle; (ii) Cane Hall; and VINLEC's Corporate Headquarters located in the capital, Kingstown.

Johnson Hill

5. The proposed ground mounted Photovoltaic Project will be implemented at Johnson Hill in the well-established Mount (Mt.) Pleasant community of Argyle on the north eastern coast of SVG. The site is accessed via the old public road between Mt. Coke and Peruvian Vale Main Road. The area can be described as a rural coastal community of middle income and upper income dwellers. The 2012 National Population and Household Census revealed that the Mt. Pleasant community stretches across three census divisions – Calliaqua, Marriaqua, and Bridgetown. Three communities – Stubbs, Peruvian Vale, and Argyle are located approximately within

a three-mile radius of the project area. The Mt. Pleasant community has a population of 906 persons (462 males and 444 females), located in 326 households with an average household size of 3 persons, in sync with the national average. Land use in the surrounding area is mainly residential. A small number of households in the project area are involved in subsistence farming (cassava and peas), commercial farming (peanuts and sweet potato) as well as animal rearing and horticulture activities. Tri Tri (West Indian white fish) harvesting is common at the Argyle River located north east of the project site. Households in the area obtain electricity from VINLEC, the main source of lighting used by 88.8% of the population in country. They also receive an adequate supply of water and sanitation services with approximately 10% of households utilising RE in the form of solar water heaters.

Cane Hall

6. The Cane Hall site was officially commissioned in 1976 as a diesel power station and is located in the parish of St. George. This site is at the centre of the Cane Hall community, bordered on the east by the Warrowwarrow river, north by the community of Belair, on its west are the communities of Cane Hall and Queens Drive, and on the south the community of Arnos Vale. All communities in the project area of influence are residential with a few commercial establishments. The surrounding communities are serviced by electricity and water infrastructure and more than 90% of the population access these services. The housing stock is constructed mainly of concrete walls with galvanize roofing. According to the Population and Housing Census (2012), the population of the communities at the Cane Hall site includes Arnos Vale, Queens Drive, Cane Hall and Belair. Approximately 600 households are established here (See Table 1 below for population data). A variety of establishments exist within the environs of the project site including supermarkets, a medical school, private medical services, churches, and auto mechanic repair shops. These communities are also located in close proximity to the capital.

TABLE 1: POPULATION OF COMMUNITIES AROUND CANE HALL

Community	ED	HH	Male	Female	Total
Arnos Vale & Queens Drive	0302	127	209	178	387
Cane Hall and Claxton	0308	113	176	191	367
Cane Hall & Claxton	0308	159	200	167	367
Arnos Vale	03060	174	229	245	474
Belair (3)	03120	91	111	135	246

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

Vinlec Corporate Headquarters, Kingstown

7. The Company's Corporate Headquarters were opened in 1995 and located at Pauls Avenue, central Kingstown. It is north of the Kingstown vegetable market, and the House of Assembly. On the east is Her Majesty's Prison and the community of Mc Kies Hill while on the west is Kingstown Park and Level Gardens. There are a number of public and private establishment including *inter alia,* book shops, credit unions, churches, schools, supermarkets, warehouses, restaurants, medical labs, and stores. (See Table 2 for population data).

TABLE 2: COMMUNITIES SURROUNDING VINLEC ADMINISTRATIVE OFFICE

Community	ED	HH	Male	Female	Total
Kingstown & Pauls Avenue	01050	4	5	2	7
Kingstown & Pauls Avenue	01060	30	42	38	80
Kingstown	01070	0	0	0	0
Kingstown & Mc Kies Hill	01080	21	33	30	63
Kingstown Park & Mc Kies Hill	01450	151	177	194	371
Kingstown Park, Mc Kies Hill & Level Garden	01460	126	171	183	354

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

APPENDIX 2.1

COMPONENT DETAILED DESCRIPTION

Land

VINLEC has secured the 1.13 hectares of land near the Argyle International Airport and permits required for installation of the ground mounted PV system.

Infrastructure Works

(a) Includes an EPC contracts for design, supply and installation of the following items:

(b) One contract for three roof mounted PV Systems with total capacity of 165.75kWp DC and one ground mounted PV System with total capacity of 1,044.75kWp DC.

(c) One contract for a BESS with power/energy capacity of 5MW/2.5MWh.

(d) One contract for an Optimised Dispatch Advisory System (ODAS) System to ensure efficient operations of all sources of energy and the BESS.

Engineering and construction-related services

(a) VINLEC utilised the services of a competitively procured engineering services consultant (ESC) to produce preliminary designs and procurement documents for the BESS. The ESC will be engaged as a natural continuation of their services to provide design, procurement, inspection and certification services with respect to the solar PV systems, BESS and ODC contracts. The services will be financed from counterpart resources.

(b) A consulting firm will be engaged to provide required site specific investigations (SSIP) with respect to the solar PV ground mounted system, geotechnical surveys, a climate vulnerability analysis, an abbreviated environmental and social impact assessment and a glint and glare analysis as the PV system is to be located next to the international airport.

Project Management

This component covers the services provided by the PC appointed by VINLEC. It also covers services provided by the management of VINLEC and all administrative support. The costs of these services will be covered by counterpart financing. A consultant will be contracted to perform independent audits of the project to verify compliance with fiduciary requirements.

APPENDIX 2.2.1

DRAFT TERMS OF REFERENCE
ENGINEERING SERVICES

1. OBJECTIVE

1.1 The objective of the consultancy is the certification of works and submission of claims to the Caribbean Development Bank (CDB).

2. SCOPE OF WORK

2.1 The Consultants shall:

(a) work closely with the Project Coordinator to ensure that the objectives of the project are met;

(b) prepare and/or review and revise bidding documents and draft contract documents for the procurement of goods and construction of infrastructure;

(c) supervise the implementation of engineering, procurement and construction of infrastructure contracts;

(d) determine operating standards/planning requirements for the proposed facilities consistent with the employer's objectives and guided by appropriate international and local best practices for similar facilities;

(e) determine and present other employer requirements, that will include, but not be limited to, procedures for testing and commissioning plant and equipment, practical completion, contract form(s), liability, indemnity, insurance requirements, and risk allocation matters;

(f) assist the employer in the development of criteria for the evaluation of bid submissions;

(g) assist the employer in the bidding process, including preparation of RFPs, participation in any pre-tender meetings, evaluation of bids and preparation of bid evaluation reports;

(h) prepare an evaluation report documenting the process and the scoring and recommendations of the evaluation committee;

(i) assist the employer in the negotiation and the preparation of solar PV and battery energy storage system turnkey contracts;

(j) conduct site visits throughout project implementation, including technical inspection of all the installation works to ensure compliance with contract provisions;

(k) perform the duties of advisor to the Employer or "the Engineer" as specified in the construction contracts, similar to the duties of "the Engineer" in the "Conditions of Contract for Plant and Design-Build" published by FIDIC;

(l) monitor contractors' performance, certify work and issue milestone payment certificates;

(m) liaise with the Department of the Environment and other key stakeholders in the

preparation of the Environmental and Social Management Plan (ESMP). The EMP shall include, among other aspects, arrangements for proper vehicular traffic control, pedestrian safety, use of appropriate personal protective equipment as well as instruction for safe handling and storage of system components;

(n) monitor contractor's compliance with the ESMP;

(o) supervise the contractors in all matters concerning construction-related health and safety and care of the works, including, among others, warning signs, lighting, fencing, security;

(p) prepare monthly reports on the progress of the works indicating any difficulties affecting its efficient and timely execution commencing one month after the engagement of the consultants;

(q) witness testing and commissioning of all the works;

(r) certify works for interim payments based o10n contractual obligations;

(s) issue certificates of completion to the contractors upon completion of installation works;

(t) review all available relevant documentation and technical data relevant to the installation works;

(u) have at least one member of the consulting team on site full time in Country to obtain and assess information required and verify works carried out;

(v) perform technical inspection of all the installation works including review of test results to ensure compliance with contract provisions and installation standards;

(w) be responsible for preparation of monthly reports on the progress of the works indicating any difficulties affecting its efficient and timely execution commencing one month after the engagement of the consultant. Report content will include but not be limited to:

(i) descriptive paragraphs on component procurement, installations, and the maintenance aspects of the project;

(ii) an analysis of the project implementation management structure and function and recommendations for improvements; and

(iii) any other inputs required for completion of the consultancy.

(x) in respect of each contract, prepare a completion report within two months after the date of the issue of a certificate of practical completion.

3. DELIVERABLES

(a) Inception Report providing details of tender documents to be prepared/revised, installation and testing specifications to be used during installation.

(b) Tenders report containing all specifications and tender documents for completion of the project.

(c) Mid project report including photographs showing installation works for all contracts at 50% completion.

(d) Completion report providing sufficient photographic and other evidence of a project completed to the required specifications.

4. QUALIFICATIONS AND EXPERIENCE

4.1 The selected firm should have at least five years of experience in utility scale PV and energy storage systems design, procurement, installation, certification testing, commissioning and project management. Experience in management of EPC contracts is essential. Project team members shall include, but not be limited:

(a) Utility PV System design, construction and commissioning specialist with a Master's degree in Engineering or renewable energy systems and at least five years of proven experience.

(b) BESS storage systems design, installation and commissioning specialist with a Master's degree in Engineering or renewable energy systems and at least five years of proven experience.

(c) Automated dispatch control systems expert a Master's degree in Engineering at least five years of proven experience.

(d) A social and environmental specialist with a Bachelor's degree in social or environmental sciences, project management, monitoring and evaluation or a related discipline and at least five years relevant experience in development projects.

(e) Procurement specialist with experience in application of procurement procedures from multilateral development banks.

4.2 Relevant experience must include the preparation of project schedules and budgets, monitoring of project execution, and project reporting. Experience in major infrastructure projects and projects financed by multilateral development agencies would be assets. Excellent oral and written communication skills are necessary.

5. DURATION

5.01 The consultancy is expected to be implemented over a period of 24 months starting in January 2021 and ending in December 2022.

BUDGET (USD)

Item	CDB
Engineering Supervision Services:	
1. Professional Fees	678,000
2. Air Travel	31,200
3. Local Transportation	5,000
4. Accommodations	72,000
5. Report Preparation and Reproduction	10,000
Sub-total	**796,200**

APPENDIX 2.2.2

DRAFT TERMS OF REFERENCE
CONSULTANCY FOR SITE-SPECIFIC INVESTIGATIONS FOR THE ST. VINCENT ELECTRICITY SERVICES LTD UTILITY BATTERY STORAGE AND GRID- CONNECTED SOLAR PV PROJECT

1. BACKGROUND

1.1 The state-owned St. Vincent Electricity Services Limited (VINLEC) is the sole provider of utility scale electricity on St. Vincent and four of the Grenadine islands and is governed by its Board of Directors. The utility is responsible for the generation, transmission, distribution and sale of electricity for a period of 60 years, expiring in 2033. VINLEC is subject to the Electricity Supply Act (1973), which is the guiding instrument for its operations in the energy sector. Additionally, in the absence of a regulator, the Act provides for VINLEC, with the Minister's approval, the right to grant sub-licenses to generate, transmit, distribute, and sell electricity under certain terms and conditions and within a specified area.

1.2 VINLEC has an installed generation capacity of 58.3MW, of which 5.6MW comes from three hydropower plants, with the remainder provided by diesel generators and a very small share by solar photovoltaic (PV). However, the hydropower capacity is reduced by approximately 50% during the dry season. In 2016, VINLEC's net generation of electricity was 148,245MWh with around 22% coming from renewable sources. The annual generation growth is forecasted at 6.9% per year.

1.3 VINLEC is embarking on a project to install a total of 1.21 MWp of solar photovoltaic (PV) capacity distributed across three locations around the country. These installations include three roof-mounted systems at the Kingstown Annex Building, Cane Hall Engineering Building and Cane Hall Transformer Shed and one (1) ground-mounted PV system at Argyle in the vicinity of the Argyle International Airport (AIA). A 5MW/2.5MWh Battery Energy Storage System (BESS) will also be installed at the Cane Hall substation.

1.4 St. Vincent and the Grenadines (SVG) currently depends on high priced and volatile diesel fuel for power generation and other energy needs, resulting in electricity prices that are among the highest in the world. The annual petroleum import expense is the equivalent of roughly 19% of its GDP. Furthermore, as an island nation that is highly vulnerable to the impacts of climate change – including higher sea levels, more powerful storms and warmer, more acidic oceans – it wants to show leadership on reducing its carbon emissions.

1.5 VINLEC, which is the sole provider of electricity on St. Vincent and most of the Grenadine islands, has been a driving entity for the uptake of renewable energy technologies, particularly solar photovoltaic (PV), by its customers. VINLEC itself has invested heavily in solar PV systems, including two hybrid microgrid systems in the Grenadines, to supplement the generation of electricity in SVG. This expansion lends support to SVG's energy transformation goals outlined in the National Energy Policy and Action Plan.

1.6 The proposed site for the 1MW solar PV system is in close proximity to the Argyle International Airport, and to residential communities. As such, the following studies will be required as part of the approval process: geotechnical analysis, environmental and social impact assessment, climate vulnerability assessment, and glint and glare analysis investigations to guide the preparation of design specifications for the proposed PV systems.

2. OBJECTIVE

2.1 The primary objective of this consultancy is to prepare design specifications for the proposed interventions of roof-mounted solar PV systems equating to 165.75 kilowatt peak (kWp), a 5MW/2.5MWh Battery Energy Storage System (BESS) and a 1,044.75 kWp (1MW) ground-mounted solar PV system. The consultants will be required to conduct site specific investigations and climate vulnerability assessment of the project site, inclusive of an assessment of environmental and social impacts and to propose measures that will guide design and construction requirements.

3. SCOPE OF WORK

3.1 The scope of services is understood to cover all activities necessary to accomplish the objectives of the consultancy, whether or not a specific activity is cited in these terms of reference (TOR). The draft TOR will be finalised based on discussions between VINLEC and the Consultant. A participatory and consultative approach is required in the conduct of the services.

3.2 Specific duties and responsibilities of the Consultants include but are not limited to the undertaking the following:

(a) Appropriate geotechnical surveys;

(b) Climate Vulnerability Assessment (CVA);

(c) Abbreviated Environmental and Social Impact Assessment (ESIA); and

(d) Glint and glare analysis.

3.3 In undertaking the surveys and assessments, the consultants will be required to undertake the following tasks:

(a) **Geotechnical Survey**

3.4 The purpose of the geotechnical survey is to inform the design of the foundations for the PV plant and the housing for the battery storage. The consultants will be required to establish the design bearing capacity and the potential for differential settlement on the proposed site. To such end, before conducting the proposed survey, the consultant will prepare and share with VINLEC, a detailed schedule and procedures to be undertaken including environmental and safety standards to be followed. VINLEC will share all available geotechnical reports of the adjacent site as reference/supplementary information.

(b) **Climate Vulnerability Assessment**

3.5 A climate risk assessment shall be undertaken to evaluate potential impacts from climate change (CC) on the proposed PV plant and to identify options to increase its resilience, which should be incorporated in the design following cost-benefit analysis. The key issues be addressed by the risk assessment include:

(a) site suitability for housing a PV installation;

(b) susceptibility PV plant to fire hazard;

(c) seismic design parameters;

(d) wind design parameters;

(e) drainage design parameters to avoid potential flooding;

(f) potential for exposure of some electrical components to flooding; and

(g) the minimum measures to make the PV plant resilient to CC.

3.6 The consultant should undertake a quantitative analysis that is consistent with the Inter-Governmental Panel on Climate Change (IPCC) guidelines and includes, inter-alia, the sub-tasks listed below. A participatory and consultative approach is to be encouraged in the conduct of the services.

3.7 The consultant will undertake the following steps:

(a) **Site Description**: The consultant shall provide a description of the characteristics of the site relevant for the PV installation, including the location, terrain, slope, vegetation, etc., particularly in regard to potential for flooding and wind exposure. The consultants should begin with a consultation with stakeholders to obtain the historical record of the area with respect to extreme weather events and environmental influences.

(b) **Analysis of Climate Hazards and Exposure:** The consultant should undertake an analysis of historical trends and future projections for the relevant climate variables. For the purposes of this analysis, the main climate variables of interest are wind, rainfall and to a lesser extent, heat and humidity, though depending on the specific location, sea-level rise and storm surge may also be relevant. Rainfall has the potential to flood the solar farm site, or to cause scour and erosion that may deteriorate the facility, while extreme wind gusts will be an important measure in designing the structures and panel orientation. Projected increases in ambient temperature may also be important. Historical and projected rainfall and temperature data are available from several sources, such as the Caribbean Community Climate Change Centre and the World Bank's Climate Change Knowledge Portal, while studies have been conducted on wind gusts for neighboring islands.

(c) **Sensitivity and Impacts:** Based on the analysis of exposure, the consultant shall assess the sensitivity and impact on the propose PV installation. What are the wind and pressure parameters that should be taken into account in the design of the PV system? High wind speeds and pressure can damage the structures and cause abrasion to the panels. Is there a risk of flooding as a result of extreme rainfall, given the location and any natural drainage? Sensitivity to heat might be significant, in which case the recommended panels would already need to be heat tolerant.

(d) **Recommended Resilience Options:** Based on the above assessment of impacts, the consultant should recommend appropriate design measures to ensure resilience of the system. It would be useful to provide a summary matrix showing: the climate variable, system component affected, main impacts and the resilience option.

(c) **Environmental and Social Impact Assessment**

(i) **Abbreviated Environmental and Social Impact Assessment (ESIA):** Undertaking the assignment remotely or face-to-face will include conducting agender sensitive ESIA of potential environmental and social impacts and the associated mitigation measures required for successful implementation of the proposed project. It should also include an assessment of baseline social

conditions as they relate to the proposed location of the works, as well as relevant policies, legislation and regulations which have implications for successful implementation of the proposed works;

(ii) preparing a demographic profile and detailing the socio-cultural characteristics of the resident population, disaggregated by sex;

(iii) conducting consultative and participatory meetings with stakeholders and in particular, community representatives and residents who will be directly impacted by the project;

(iv) assessing the impact of the works on stakeholders, recommending mitigation measures, and monitoring indicators, disaggregated by sex;

(v) developing an Environmental and Social Management Plan (ESMP) to identify the critical issues requiring monitoring to ensure compliance with risk mitigation and benefit-promotion measures. This should include the technical aspects of monitoring the effectiveness of proposed mitigation measures (including data analysis, reporting schedules, emergency procedures and a detailed budget);

(vi) exploring how the economic opportunities generated by the project can benefit socially excluded groups including women and youth; and

(vii) convening a Stakeholders' meeting to discuss the findings of the consultancy and to seek clarification on issues from participants for incorporation in the draft final report.

(d) **Glint and Glare Analysis**

(i) The purpose of the glint and glare analysis is to assess potential for ocular impact of glare emanating from sunlight reflections from the proposed ground-mounted solar PV system and its potential to cause an impact to users of the nearby Argyle International Airport. The consultant will be required to perform an analysis of the impact of the PV panels on light reflection (glint and glare study) to ensure that the study complies with the necessary requirement standards, international airport operations standards and that regulations are maintained. The consultant will also be required to share the study requirements with the Argyle International Airport. To such end, before conducting the proposed survey, the consultant will prepare and share with VINLEC a detailed schedule and procedures to be undertaken including environmental and safety standards to be followed.

4. IMPLEMENTATION ARRANGEMENTS

4.1 The Consultant will report to the Project Manager (PM) or his/her designate within VINLEC, who will have overall responsibility for the management and implementation of the consultancy and facilitate the work of the consultant. PC will make available all studies, reports and data relevant to the completion of the exercise and will act as liaison between the consultants and VINLEC officials and stakeholders. PE will make arrangements for the introduction of the Consultant to the key stakeholders.

5. QUALIFICATIONS AND EXPERIENCE OF CONSULTING TEAM/ KEY SPECIALISTS

5.1 It is the consultant's responsibility to ensure that their team has an appropriate mix of key and non-key experts required to satisfy the full requirements of the TOR.

5.2 As a guide only it is considered that the consulting team is likely to need to include the following key experts, from which a Team Leader shall be selected and proposed. The consulting team should be multidisciplinary and comprise following:

(a) Electrical Engineer (Team Leader) with a Bachelors' Degree, a Maters' Degree and at least ten years' experience in design and installation of electrical systems, including PV plants;

(b) Environmental Specialist with a Master's Degree in Environmental Studies and a Social Specialist with a Master's Degree in Sociology, Social Sciences and/or Development Studies and at least ten years' experience in conducting Environmental and Social Impact Assessments.

(c) Civil Engineer with Bachelors' Degree in Civil Engineering and a Masters' Degree in Geotechnical Engineering. Ten years' experience in conducting geotechnical field investigation will be required.

(d) Climate Specialist: - With no less than ten years of professional experience and a graduate degree of MSc. or equivalent. Experience should include working with data provided by Global Circulation Models and Regional Circulation Models, undertaking Vulnerability Assessments and familiarity with the Fifth Assessment Report by the IPCC.

5.3 The consultant will present detailed CVs for each member of the Core Consulting Team, and their corresponding level of effort. The consultant shall also indicate if they require additional specialists, their expected role and the aggregated level of effort.

6. REPORTING REQUIREMENTS AND DELIVERABLES

6.1 The consultant will deliver the following documents/outputs (in MS Word and GIS format respectively):

(a) **Inception Report**

6.2 The Inception report should be submitted to the Project Coordinator within one week after contract signing, and will include details on site reconnaissance visits and government and/or key stakeholder consultations: (i) characterisation of the study area (socio-economic and physical conditions/characteristics of the area), (ii) preliminary vulnerability issues, (iii) summary of consultations, (iv) a draft outline of the analysis to be undertaken, including detailed recommended methodology to undertake each of the tasks, (v) data requirements and limitations, and (vi) detailed work plan, indicating the final schedule of tasks and allocation of time for each of the activities proposed.

(b) **Hazard and Impact Assessment Report**

Describing amongst other aspects: i) the methodology utilised to determine the climate variables and establish the climate baseline, estimate the projections for key climate parameters, and undertake the

probability analysis, ii) assumptions made, iii) a summary of the results and main conclusions of the assessment, and iv) including the hazard maps developed for each of the scenarios studied.

(c) **The Design Report**

6.3 Will be concise and limited to significant climate risk, environmental and social issues. The main text must focus on findings, conclusions and recommendations. The Report will have the following outline:

(i) Executive Summary.

(ii) Abbreviated ESIA.

(iii) CVA.

(iv) Environmental and Social Management Plan.

(v) Electrical and Structural Design Specifications and Criteria.

(vi) Bidding Documents.

(d) **Adaptive Capacity Assessment and Adaptation Options Report**

6.4 Describing (i) the methodology utilised to perform the vulnerability assessments, (ii) a summary of the results and main conclusions of the assessments, (iii) including the vulnerability maps developed for the study area based on the different extreme scenarios investigated, (iv) the adaptation strategy including prioritised adaptation options (considering grey and green infrastructure as well as soft adaptation measures), and recommended implementation periods (short-, medium- and long-term measures), and (v) implementation arrangements, implementation risks, training and capacity building plan and estimated budget.

(e) **Final Project Report**

6.5 The Final Project report should include: (i) Summary of the hazard and adaptive capacity assessments (methodology, results, and main conclusions); (ii) the most relevant hazard and vulnerability maps; (iii) a summary of the proposed adaptation options; (iv) a summary of workshop results; (v) recommendations for use of the study results; vi) technical annexes on models, maps, procedures, contacts, consultations, contributing national and local entities in the study, etc.

(f) **Project Data**

6.6 All data collected and created throughout the duration of the project, in digital form (all shape files and corresponding metadata, etc.)

7. DURATION

7.1 The consultancy is expected to be undertaken within a period of six months.

8. SCHEDULES

8.1 The Inception Report will be submitted five weeks after commencement of the consultancy.

8.2 A draft Design Report within four months of the notice to proceed shall be submitted to VINLEC for review. VINLEC will provide written comments within four weeks.

8.3 The final Design Report shall be completed and delivered to CDB within 10 business days of receipt of comments from VINLEC.

8.4 All background reports (i.e. Preliminary environmental report, community and stakeholder assessment report, Geological report, and Geotechnical report) shall be submitted to VINLEC as soon as completed.

BUDGET (USD)

Item	**Cost**
ESIA	14,000
CVA	12,000
Geotechnical Analysis	31,500
Glint and Glare Analysis	31,500
Sub-Total	**89,000**
Contingencies (10%)	8,900
Total	**97,900**

RESULTS MONITORING PLAN

Indicator	Baseline	Year 2020	Year 2021	Year 2022	Responsibility for Data Collection
1.1 Annual fossil fuel generation replaced by solar PV (GWh)	1.96; 12/31/2018	0	2.21	4.03	PC
1.2 Annual reduction in fossil fuel imports (Tonnes)	409; 12/31/2018	0	500	839	PC
Post-Secondary	0; 8/8/2020				
1.3 Annual reduction in carbon dioxide emissions. (Tonnes)	209000; 7/28/2020	0	208500	207500	PC
Post-Secondary	0; 7/28/2020				

Indicator	Baseline	Year 2020	Year 2021	Year 2022	Responsibility for Data Collection
1.1 ODAS installed and operational (#)	0; 7/28/2020	0	0	1	PC
2.1 Conventional or renewable power generation capacity installed (kW)	1306; 7/28/2020	0	1472	2512	PC

Indicator	Baseline	Year 2020	Year 2021	Year 2022	Responsibility for Data Collection
3.1 Capacity installed and operational (MW)	0; 7/28/2020	0	0	5	PC

APPENDIX 2.3

PROJECT COSTS PHASING AND FINANCING PLAN

Components	OCR-USD		OSF-EUR	OSF-GBP		COUNTERPART		
	EIB CALC Resources	Equity and Market Resources	EU-CIF SEEC Resources	FCDO SEEC Resources	Total	VINLEC	Executing Agency Counterpart Forecast	Total
2020 TOTAL								
Project Preparation	-	-	-	-	-		-	
Land					-	321,666	-	321,666
Project Management					-		-	
Base Cost	-	-	-	-	-	**321,666**	-	**321,666**
Physical Contingency	-				-	1,750	-	1,750
Price Contingency	-				-	-	-	-
Total Project Cost	-	-	-	-	-	**323,416**	-	**323,416**
Interest During Implementation	-				-	-	-	-
Commitment Fees	-				-	-	-	-
Total Financing	-				-	**323,416**	-	**323,416**
Percentage Financing	**0.00%**	**0.00%**	**0.00%**	**0.00%**	-	**100.00%**	-	**100.00%**
2021 TOTAL								
Project Preparation						-	-	
Infrastructure Works	2,038,300	1,836,635	1,968,600	1,195,800	7,039,335	313,337	-	7,352,672
Engineering and Construction-related Services							-	
Project Management							-	
Base Cost	**2,038,300**	**1,836,635**	**1,968,600**	**1,195,800**	**7,039,335**	**313,337**	-	**7,352,672**
Physical Contingency	-	1,062,023	-	-	1,062,023	47,002	-	1,109,025
Price Contingency	-	253,857	-	-	253,857	8,846	-	262,703
Total Project Cost	**2,038,300**	**3,152,515**	**1,968,600**	**1,195,800**	**8,355,215**	**369,185**	-	**8,724,400**
Interest During Implementation	-	-	-	-	-	64,969	-	64,969
Commitment Fees	-	-	-	-	-	38,551	-	38,551
Total Financing	**2,038,300**	**3,152,515**	**1,968,600**	**1,195,800**	**8,355,215**	**472,705**	-	**8,827,920**
Percentage Financing	**23.09%**	**35.71%**	**22.30%**	**13.55%**	**94.65%**	**5.35%**	-	**100.00%**
2022 TOTAL								
Infrastructure Works	-		-	-			-	
Engineering and Construction-related Services		7,500			7,500	580,011	-	587,511
Project Management							-	
Base Cost	-	**7,500**	-	-	**7,500**	**580,011**	-	**587,511**
Physical Contingency	-	1,125	-	-	1,125	87,000	-	88,125
Price Contingency	-	253,860	-	-	253,860	17,844	-	271,704
Total Project Cost	-	**262,485**	-	-	**262,485**	**684,855**	-	**947,340**
Interest During Implementation	-	-	-	-	-	64,972	-	64,972
Commitment Fees	-	-	-	-	-	38,552	-	38,552
Total Financing	-	**262,485**	-	-	**262,485**	**788,379**	-	**1,050,864**
Percentage Financing	**0.00%**	**24.98%**	**0.00%**	**0.00%**	**24.98%**	**75.02%**	-	**100.00%**
TOTALS								
Project Preparation							-	
Land							-	
Infrastructure Works	2,038,300	1,844,135	1,968,600	1,195,800	7,046,835	1,215,014	-	8,261,849
Engineering and Construction-related Services							-	
Project Management							-	
Base Cost	**2,038,300**	**1,844,135**	**1,968,600**	**1,195,800**	**7,046,835**	**1,215,014**	-	**8,261,849**
Physical Contingency	-	1,063,148	-	-	1,063,148	135,752	-	1,198,900
Price Contingency	-	507,717	-	-	507,717	26,690	-	534,407
Total Project Cost	**2,038,300**	**3,415,000**	**1,968,600**	**1,195,800**	**8,617,700**	**1,377,456**	-	**9,995,156**
Interest During Implementation	-	-	-	-	-	129,941	-	129,941
Commitment Fees	-	-	-	-	-	77,103	-	77,103
Total Financing	**2,038,300**	**3,415,000**	**1,968,600**	**1,195,800**	**8,617,700**	**1,584,500**	-	**10,202,200**
Percentage Financing	**19.98%**	**33.47%**	**19.30%**	**11.72%**	**84.47%**	**15.53%**	-	**100.00%**

APPENDIX 4.1.1

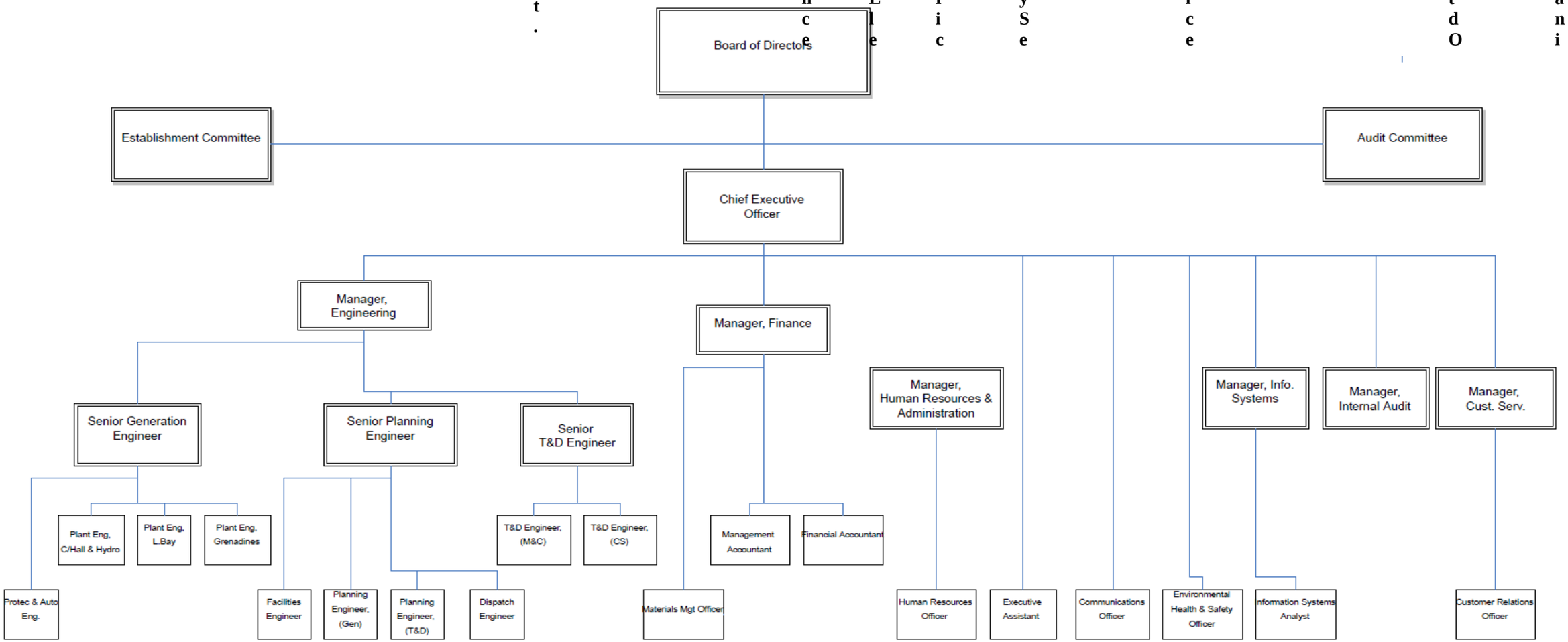
ST. VINCENT ELECTRICITY SERVICES LIMITED

TARIFF STRUCTURE

Tariff Class	Energy charge ($/kWh)
Domestic: 0 - 50 kWh More than 50kWh	- Minimum charge: $5.00 - 0.425/kWh - 0.50/kWh VAT: 16% after first 150 kWh
Commercial: 0 - 17 kWh 18 - 150,000 kWh 150,001 - 199,999 kWh More than 199,999 kWh	 - $15.00 - 0.54/kWh - 0.513/kWh - 0.486/kWh - VAT: 16%
Industrial: - 150,000kWh - 150,001 - 199,999 kWh - More than 199,999 kWh	 - 0.42/kWh - 0.399/kWh - 0.378/kWh - VAT: 16%
Streetlights:	- 0.566/kWh

N.B.: A fuel surcharge is applicable to all the above unit tariff levels.

St. Vincent Electricity Services Ltd Organisational Chart



APPENDIX 4.1.2

APPENDIX 4.2.1

HISTORICAL BALANCE SHEET AS AT DECEMBER 31, 2015 – 2019

	Year				
Item	**2019**	**2018**	**2017**	**2016**	**2015**
Assets					
Property, plant and equipment	150,059,147	165,972,149	175,351,247	182,760,804	186,764,305
Long term investments	6,824,350	8,779,976	9,619,338	11,297,156	12,901,946
Total non-current assets	**156,883,497**	**174,752,125**	**184,970,585**	**194,057,960**	**199,666,251**
Inventories	4,126,475	4,793,996	3,933,144	1,956,025	8,105,236
Current portion of long-term investments	1,976,852	1,897,027	1,677,818	1,604,790	1,534,941
Short-term investments	12,693,237	12,426,148	16,567,939	23,205,372	22,241,418
Trade and other receivables	35,594,055	31,228,410	32,468,026	30,352,860	41,091,607
Income tax refundable	0	0	127,091	0	0
Prepayments	1,407,481	847,326	909,581	587,438	280,727
Cash at Bank	3,605,629	2,272,621	1,342,583	7,712,077	3,540,573
Total Current assets	**59,403,729**	**53,465,528**	**57,026,182**	**65,418,562**	**76,794,502**
Total Assets	**216,287,226**	**228,217,653**	**241,996,767**	**259,476,522**	**276,460,753**
Equity					
Share capital	29,045,910	29,045,910	29,045,910	29,045,910	29,045,910
Self-insurance fund	21,101,631	21,101,631	24,389,199	27,000,000	27,000,000
Retirement benefit reserve	0	0	0	-684,320	-362,415
Retained earnings	97,449,313	87,356,973	83,789,803	82,460,816	86,602,310
Total equity	**147,596,854**	**137,504,514**	**137,224,912**	**137,822,406**	**142,285,805**
Liabilities					
Borrowings	8,422,050	16,821,588	28,070,676	39,317,519	51,279,138
Consumers' contribution to line extensions	372,363	539,534	1,555,477	2,344,324	3,322,372
Deferred grant income	0	1,873,189	122,350	130,160	138,468
Consumers' deposits	10,771,884	12,059,494	11,676,971	11,178,107	10,672,067
Retirement benefit obligation	0	0	0	601,896	185,757
Deferred tax liability	22,085,770	27,888,364	32,203,299	29,123,412	35,530,013
Total non-current liabilities	**41,652,067**	**59,182,169**	**73,628,773**	**82,695,418**	**101,127,815**
Income tax payable	2,682,766	1,630,864	0	145,362	4,417,840
Current portion of borrowings	8,165,385	13,463,496	11,432,195	13,641,268	11,590,950
Trade and other payables	16,190,154	16,402,661	18,819,970	25,172,068	17,038,343
Bank overdraft	0	33,949	890,917	0	0
Total current liabilities	**27,038,305**	**31,530,970**	**31,143,082**	**38,958,698**	**33,047,133**
Total liabilities	**68,690,372**	**90,713,139**	**104,771,855**	**121,654,116**	**134,174,948**
Total equity and liabilities	**216,287,226**	**228,217,653**	**241,996,767**	**259,476,522**	**276,460,753**

APPENDIX 4.2.2

HISTORICAL STATEMENT OF INCOME AND EXPENDITURE FOR THE YEARS ENDED DECEMBER 31, 2015-2019

Item	2019	2018	2017	2016	2015
Energy sales	70,927,007	68,572,156	69,493,571	70,479,146	67,455,914
Fuel surcharge recovered	54,088,805	50,514,230	38,220,690	33,113,741	42,362,077
Other revenue	2,276,852	1,292,664	1,188,676	1,168,909	1,631,953
	127,292,664	**120,379,050**	**108,902,937**	**104,761,796**	**111,449,944**
Operating expenses					
Fuel cost over base price	53,166,772	51,227,716	38,304,473	33,785,565	41,957,673
Fuel at base price	3,860,655	3,562,286	3,823,826	4,035,522	3,817,052
Depreciation	20,071,995	19,554,195	19,690,452	19,907,086	20,947,202
Repairs and maintenance	10,721,983	8,195,279	8,770,465	11,438,571	7,725,932
Salaries and wages	15,063,251	15,256,324	15,086,714	14,753,425	13,195,867
National insurance contributions	637,088	632,844	618,619	633,466	597,784
Medical insurance contributions	418,452	382,864	367,019	351,994	247,214
Pension expense	934,280	1,752,800	1,312,903	1,064,660	1,004,505
Other operating expenses	9,849,476	9,264,399	9,335,031	8,115,244	9,049,400
Impairment losses, net	2,391,459	4,321,616	6,134,112	30,000	0
Amortisation of consumers' contributions to line extensions	-564,250	-1,276,087	-1,254,935	-1,232,787	-1,195,811
	116,551,161	**112,874,236**	**102,188,679**	**92,882,746**	**97,346,818**
Operating Profit	**10,741,503**	**7,504,814**	**6,714,258**	**11,879,050**	**14,103,126**
Other (losses) gains, net	62,472	-556,976	113,850	179,498	-822,657
Earnings before interest and taxes	**10,803,975**	**6,947,838**	**6,828,108**	**12,058,548**	**13,280,469**
Finance Income	715,710	705,211	1,101,015	1,487,358	1,232,574
Finance cost	-1,123,175	-1,908,515	-1,543,463	-2,852,671	-3,304,725
Net finance cost	**-407,465**	**-1,203,304**	**-442,448**	**-1,365,313**	**-2,072,151**
Profit before taxation	10,396,510	5,744,534	6,385,660	10,693,235	11,208,318
Income tax expense	-304,171	210,765	-6,618,526	1,667,981	-2,953,028
Profit/(Loss) for the year	**10,092,339**	**5,955,299**	**-232,866**	**12,361,216**	**8,255,290**
Other comprehensive income:	0	0	-364,628	-321,905	-418,785
Total comprehensive income/(Loss) for the year	**10,092,339**	**5,955,299**	**-597,494**	**12,039,311**	**7,836,505**

APPENDIX 4.2.3

HISTORICAL CASH FLOW STATEMENT
FOR THE YEARS ENDED DECEMBER 31, 2015-2019

Item	2019	2018	2017	2016	2015
Cash flow from operating activities					
Profit/(loss) for the year	10,092,339	5,955,299	-232,866	12,361,216	8,255,290
Adjustments for:					
Depreciation	20,071,995	19,554,195	19,690,452	19,907,086	20,947,202
Amortization of consumers' contributions to line extensions	-564,250	-1,276,087	-1,254,935	-1,232,787	-1,195,811
Loss/(gain) on disposal of property, plant and equipment	-85,533	386,156	-125,202	-165,900	311,034
Finance costs	1,123,175	1,908,515	1,543,463	2,852,671	3,304,725
Defined benefit pension expense	0	0	428,594	251,071	232,127
Defined benefit plan contributions	0	0	-1,202,511	-290,002	-299,616
Foreign exchange gain	0	0	0	-13,598	-2,675
Amortization of deferred income grant income	-115,009	-7,341	-7,810	-8,308	-8,838
Finance income	-715,710	-705,211	-1,101,015	-1,487,358	-1,232,574
Fair Value gain FVTPL financial assets	0	327,300	0	0	0
Income tax expense	304,171	-210,765	6,618,526	-1,667,981	2,953,028
Operating Profit before changes in working capital	**30,111,178**	**25,932,061**	**24,356,696**	**30,506,110**	**33,263,892**
Change in inventories	891,265	-1,922,982	-2,811,216	1,841,293	-991,558
Effect of change in accounting policy: ECL	0	-6,002,997	0	0	0
Change in trade and other receivables	-4,195,809	1,151,111	-2,217,446	10,612,338	1,476,931
Change in prepayments	-560,155	62,255	-322,143	-306,711	84,564
Change in trade and other payables	313,501	-2,667,900	120,133	2,529,546	-7,821,122
Cash generated from operations	**26,559,980**	**16,551,548**	**19,126,024**	**45,182,576**	**26,012,707**
Interest Paid	-2,883,096	-1,516,052	-2,521,706	-2,365,882	-2,983,774
Interest received	716,086	875,852	1,203,295	1,613,766	1,330,474
Income tax paid	-5,054,863	-2,346,214	-4,003,699	-8,877,933	-1,233,004
Net cash generated from operating activities	**19,338,107**	**13,565,134**	**13,803,914**	**35,552,527**	**23,126,403**
Cash flow from Investing activities					
Acquisition of long-term securities	0	-1,000,000	0	-961,448	-663,126
Proceeds from redemption of short-term investment securities	0	4,141,791	6,637,432	0	0
Acquisition of short-term investment securities	-267,088	0	0	0	0
Acquisition of property plant and equipment	-6,347,585	-9,577,286	-11,446,798	-10,673,339	-10,953,047
Proceeds from disposal of property, plant and equipment	100,764	78,162	125,202	165,900	35,607
Proceeds from redemption of long-term investment securities	1,897,027	1,538,018	1,604,790	1,534,941	1,468,132
Net Cash used in investing activities	**-4,616,882**	**-4,819,315**	**-3,079,374**	**-9,933,946**	**-10,112,434**
Cash flow from financing activities					
Change in consumers' deposits	-53,698	240,650	217,522	202,095	268,332
Repayment of borrowings	-13,697,650	-9,217,787	-13,455,915	-9,896,955	-10,141,214
Proceeds from long-term loan/grant	0	1,758,180	0	0	0
Dividends paid	0	0	-5,212,646	-12,006,956	0
Net change in consumers' contributions	397,079	260,144	466,088	254,739	687,241
Net cash used in financing activities	**-13,354,269**	**-6,958,813**	**-17,984,951**	**-21,447,077**	**-9,185,641**
Net increase/(decrease) in cash and cash equivalents	**1,366,956**	**1,787,006**	**-7,260,411**	**4,171,504**	**3,828,328**
Cash and equivalents - beginning of year	2,238,672	451,666	7,712,077	3,540,573	-287,754
Cash and equivalents - end of year	**3,605,628**	**2,238,672**	**451,666**	**7,712,077**	**3,540,574**
Represented by:					
Cash and equivalents	3,605,628	2,272,621	1,342,583	7,712,077	3,540,574
Bank overdraft	0	-33,949	-890,917	0	0
	3,605,628	**2,238,672**	**451,666**	**7,712,077**	**3,540,574**

HISTORICAL KEY FINANCIAL RATIOS AS AT DECEMBER 31, 2015 - 2019

Item	Formula	2019	2018	2017	2016	2015
1. **LIQUIDITY**						
Current Ratio	Current Assets/Current Liabilities	2.20	1.70	1.83	1.68	2.32
Quick Ratio	Current Assets - Inventory/Current Liabilities	2.04	1.54	1.70	1.63	2.08
Working Capital	Current Assets - Current Liabilities	32,365,424	21,934,558	25,883,100	26,459,864	43,747,369
2. **PROFITABILITY**						
Net Profit/Sales (%)	NPAT/Sales	7.93	4.95	(0.21)	11.80	7.41
Operating Profit/Sales (%)	Operating Profit/Sales	8.44	6.23	6.17	11.34	12.65
Return on Total Assets (%)	NPBT /Total Assets	4.81	2.52	2.64	4.12	4.05
Return on Average FA (%)	NPBT + Interest Exp./Avg. Fixed Assets	7.29	4.48	4.43	7.33	7.77
Return on Equity (%)	NPAT/Equity	6.84	4.33	(0.17)	8.97	5.80
3. **COVERAGE**						
Interest Coverage (Times)	(NPBT +Dep.)/Int. Exp. on Long term Debt (LTD)	10.57	16.69	10.34	12.93	10.78
Debt Service Coverage	(NPBT + Dep/Amort)/Prinp + Int.	1.84	2.36	1.63	2.50	2.45
Net Debt to earnings	Total Long-term debt/EBITDA	0.53	1.09	1.44	1.59	1.73
4. **LEVERAGE**						
Long-term Debt to Equity	Long-term Debt/Total Equity	0.11	0.22	0.29	0.38	0.44
Debt to Equity	Total Liabilities/Total Equity	0.47	0.66	0.76	0.88	0.94
LTD/Total Capitalisation (%)	LTD / (Equity + LTD)	10.10	18.05	22.35	27.76	30.65
5. **EFFICIENCY**						
Working Ratio	Total Exp.- (Dep. + Int)/Gross Income	0.75	0.77	0.75	0.69	0.68
Receivables (Days)	(AR - Pre-payments)/Net Revenue x 365	91.55	84.30	86.11	106.40	116.19

PROJECTED BALANCE SHEET AS AT DECEMBER 31, 2019 – 2026

Item	2019	2020	2021	2022	2023	2024	2025	2026
Assets								
Property, plant and equipment	150,059,147	153,614,311	178,742,400	192,600,800	202,710,064	205,048,189	209,516,349	211,198,249
Long term investments	6,824,350	6,824,350	5,824,350	4,624,350	4,624,350	4,624,350	4,624,350	4,624,350
Government Bridging Loan	0	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Total non-current assets	**156,883,497**	**164,438,661**	**188,566,750**	**201,225,150**	**211,334,414**	**213,672,539**	**218,140,699**	**219,822,599**
Inventories	4,126,475	4,331,163	4,422,473	4,515,447	4,601,887	4,689,547	4,778,886	4,869,937
Current portion of long-term investments	1,976,852	0	1,000,000	1,200,000	0	0	0	0
Short-term investments	12,693,237	12,693,237	12,693,237	12,693,237	12,693,237	12,693,237	12,693,237	12,693,237
Trade and other receivables	35,594,055	33,170,091	33,571,265	29,970,539	26,652,180	27,087,649	27,530,768	27,981,680
Prepayments	1,407,481	1,410,296	1,431,450	1,452,922	1,481,981	1,511,620	1,541,853	1,572,690
Cash at Bank	3,605,629	2,892,855	2,423,486	10,434,549	8,011,744	7,924,103	5,992,294	7,209,894
Total Current assets	**59,403,729**	**54,497,642**	**55,541,912**	**60,266,694**	**53,441,028**	**53,906,156**	**52,537,038**	**54,327,438**
Total Assets	**216,287,226**	**218,936,303**	**244,108,662**	**261,491,844**	**264,775,442**	**267,578,695**	**270,677,737**	**274,150,037**
Equity								
Share capital	29,045,910	29,045,910	29,045,910	29,045,910	29,045,910	29,045,910	29,045,910	29,045,910
Self-insurance fund	21,101,631	21,101,631	21,101,631	21,101,631	21,101,631	21,101,631	21,101,631	21,101,631
Retained earnings	97,449,313	104,657,188	111,583,647	117,778,657	123,632,612	129,686,067	136,024,077	142,654,975
Total equity	**147,596,854**	**154,804,729**	**161,731,188**	**167,926,198**	**173,780,153**	**179,833,608**	**186,171,618**	**192,802,516**
Liabilities								
Borrowings	8,422,050	3,684,654	19,482,403	30,472,871	25,591,097	21,412,712	17,923,491	14,572,102
Consumers' contribution to line extensions	372,363	372,363	372,363	372,363	372,363	372,363	372,363	372,363
Deferred grant income	0	0	8,438,079	8,100,556	7,763,033	7,425,510	7,087,987	6,750,464
Consumers' deposits	10,771,884	10,793,428	10,955,329	11,119,659	11,342,052	11,568,893	11,800,271	12,036,277
Deferred tax liability	22,085,770	22,085,770	22,085,770	22,085,770	22,085,770	22,085,770	22,085,770	22,085,770
Total non-current liabilities	**41,652,067**	**36,936,215**	**61,333,944**	**72,151,219**	**67,154,316**	**62,865,248**	**59,269,881**	**55,816,975**
Income tax payable	2,682,766	2,682,766	2,682,766	2,682,766	2,682,766	2,682,766	2,682,766	2,682,766
Current portion of borrowings	8,165,385	7,234,429	718,340	718,340	2,800,057	3,489,221	3,489,221	3,420,305
Trade and other payables	16,190,154	17,278,164	17,642,423	18,013,321	18,358,151	18,707,852	19,064,250	19,427,475
Total current liabilities	**27,038,305**	**27,195,359**	**21,043,530**	**21,414,427**	**23,840,974**	**24,879,839**	**25,236,238**	**25,530,546**
Total liabilities	**68,690,372**	**64,131,574**	**82,377,474**	**93,565,646**	**90,995,289**	**87,745,087**	**84,506,119**	**81,347,521**
Total equity and liabilities	**216,287,226**	**218,936,303**	**244,108,662**	**261,491,844**	**264,775,442**	**267,578,695**	**270,677,737**	**274,150,037**

APPENDIX 4.2.5

PROJECTED STATEMENT OF INCOME AND EXPENDITURE
FOR THE YEARS ENDED DECEMBER 31, 2019 – 2026

Item	2019	2020	2021	2022	2023	2024	2025	2026
Energy sales	70,927,007	70,784,555	71,846,324	72,924,019	74,382,499	75,870,149	77,387,552	78,935,303
Fuel surcharge recovered	54,088,805	48,799,194	49,287,186	48,839,829	49,369,882	49,905,588	50,447,006	50,994,196
Other revenue	2,276,852	1,605,802	1,629,890	1,654,338	1,687,425	1,721,173	1,755,597	1,790,709
	127,292,664	**121,189,552**	**122,763,399**	**123,418,185**	**125,439,806**	**127,496,910**	**129,590,154**	**131,720,208**
Operating expenses								
Fuel cost over base price	53,166,772	48,799,194	49,287,186	48,839,829	49,369,882	49,905,588	50,447,006	50,994,196
Fuel at base price	3,860,655	3,840,535	3,878,940	3,841,246	3,880,424	3,919,993	3,959,958	4,000,322
Depreciation	20,071,995	18,626,731	19,381,768	20,377,652	21,100,095	21,604,578	22,002,159	22,402,746
Repairs and maintenance	10,721,983	12,492,363	12,833,449	13,180,588	13,408,640	13,636,587	13,868,409	14,104,172
Salaries and wages	15,063,251	15,289,200	15,594,984	15,906,883	16,225,021	16,549,522	16,880,512	17,218,122
National insurance contributions	637,088	638,960	651,739	664,774	678,069	691,631	705,463	719,572
Medical insurance contributions	418,452	395,287	403,192	411,256	419,481	427,871	436,428	445,157
Pension expense	934,280	1,353,328	1,380,394	1,408,002	1,436,162	1,464,885	1,494,183	1,524,067
Other operating expenses	11,676,685	9,633,815	9,778,323	9,924,997	10,123,497	10,325,967	10,532,487	10,743,136
	116,551,161	**111,069,412**	**113,189,975**	**114,555,228**	**116,641,273**	**118,526,622**	**120,326,604**	**122,151,490**
Operating Profit	10,741,503	10,120,140	9,573,425	8,862,957	8,798,533	8,970,288	9,263,550	9,568,717
Other (losses) gains, net	62,472	0	0	0	0	0	0	0
Earnings before interest and taxes	**10,803,975**	**10,120,140**	**9,573,425**	**8,862,957**	**8,798,533**	**8,970,288**	**9,263,550**	**9,568,717**
Finance Income	715,710	681,650	581,765	461,903	461,903	461,903	461,903	461,903
Finance cost	-1,123,175	-504,825	-260,248	-474,846	-897,644	-784,399	-671,153	-557,908
Net finance cost	**-407,465**	**176,824**	**321,517**	**-12,943**	**-435,741**	**-322,496**	**-209,250**	**-96,005**
Profit before taxation	10,396,510	10,296,965	9,894,941	8,850,014	8,362,792	8,647,793	9,054,300	9,472,712
Income tax expense	-304,171	-3,089,089	-2,968,482	-2,655,004	-2,508,838	-2,594,338	-2,716,290	-2,841,814
Profit/(Loss) for the year	**10,092,339**	**7,207,875**	**6,926,459**	**6,195,010**	**5,853,955**	**6,053,455**	**6,338,010**	**6,630,898**
Other comprehensive income:	0	0	0	0	0	0	0	0
Total comprehensive income/(Loss) for the year	**10,092,339**	**7,207,875**	**6,926,459**	**6,195,010**	**5,853,955**	**6,053,455**	**6,338,010**	**6,630,898**

APPENDIX 4.2.6

PROJECTED STATEMENT OF CASH FLOW
FOR THE YEARS ENDED DECEMBER 31, 2019 – 2026

Item	2019	2020	2021	2022	2023	2024	2025	2026
Cash flow from operating activities								
Profit/(loss) for the year	10,092,339	7,207,875	6,926,459	6,195,010	5,853,955	6,053,455	6,338,010	6,630,898
Adjustments for:								
Depreciation	20,071,995	18,626,731	19,381,768	20,377,652	21,100,095	21,604,578	22,002,159	22,402,746
Amortisation of consumers' contributions to line extensions	-564,250	0	0	0	0	0	0	0
Loss/(gain) on disposal of property, plant and equipment	-85,533	0	0	0	0	0	0	0
Finance costs	1,123,175	504,825	260,248	474,846	897,644	784,399	671,153	557,908
Amortisation of deferred grant income	-115,009	0	0	0	0	0	0	0
Finance income	-715,710	-681,650	-581,765	-461,903	-461,903	-461,903	-461,903	-461,903
Fair Value gain FVTPL financial assets	0	0	0	0	0	0	0	0
Income tax expense	304,171	3,089,089	2,968,482	2,655,004	2,508,838	2,594,338	2,716,290	2,841,814
Operating Profit before changes in working capital	**30,111,178**	**28,746,871**	**28,955,193**	**29,240,609**	**29,898,629**	**30,574,867**	**31,265,709**	**31,971,463**
Change in inventories	891,265	-204,688	-91,310	-92,974	-86,440	-87,661	-89,339	-91,050
Change in trade and other receivables	-4,195,809	2,423,964	-401,173	3,600,725	3,318,360	-435,469	-443,120	-450,912
Government Bridging Loan	0	-4,000,000	0	0	0	0	0	0
Change in prepayments	-560,155	2,815	21,154	21,472	29,058	29,640	30,232	30,837
Change in trade and other payables	313,501	1,088,010	364,259	370,897	344,830	349,701	356,398	363,224
Cash generated from operations	**26,559,980**	**28,056,971**	**28,848,123**	**33,140,730**	**33,504,438**	**30,431,078**	**31,119,881**	**31,823,562**
Interest Paid	-2,883,096	-504,825	-260,248	-474,846	-897,644	-784,399	-671,153	-557,908
Interest received	716,086	681,650	581,765	461,903	461,903	461,903	461,903	461,903
Income tax paid	-5,054,863	-3,089,089	-2,968,482	-2,655,004	-2,508,838	-2,594,338	-2,716,290	-2,841,814
Net cash generated from operating activities	**19,338,107**	**25,144,706**	**26,201,157**	**30,472,783**	**30,559,859**	**27,514,244**	**28,194,341**	**28,885,744**

APPENDIX 4.2.7

PROJECTED STATEMENT OF CASH FLOW FOR THE YEARS ENDED DECEMBER 31, 2019 – 2026

Item	2019	2020	2021	2022	2023	2024	2025	2026
Cash flow from Investing activities								
Acquisition of short-term investment securities	-267,088	0	0	0	0	0	0	0
Acquisition of property plant and equipment	-6,347,585	-24,644,594	-45,552,166	-34,816,518	-30,405,000	-24,339,505	-26,868,307	-24,483,844
Proceeds from disposal of property, plant and equipment	100,764	0	0	0	0	0	0	0
Proceeds from redemption of long-term investment securities	1,897,027	0	1,000,000	1,200,000	0	0	0	0
Net Cash used in investing activities	**-4,616,882**	**-24,644,594**	**-44,552,166**	**-33,616,518**	**-30,405,000**	**-24,339,505**	**-26,868,307**	**-24,483,844**
Cash flow from financing activities								
Change in consumers' deposits	-53,698	21,544	161,901	164,330	222,393	226,841	231,378	236,005
Repayment of borrowings	-13,697,650	-7,234,429	-718,340	-718,340	-2,800,057	-3,489,221	-3,489,221	-3,420,305
Proceeds from long-term loan	0	6,000,000	10,000,000	11,708,808	0	0	0	0
Proceeds of grant	0	0	8,438,079	0	0	0	0	0
Dividends paid	0	0	0	0	0	0	0	0
Net change in consumers' contributions	397,079	0	0	0	0	0	0	0
Net cash used in financing activities	**-13,354,269**	**-1,212,886**	**17,881,640**	**11,154,798**	**-2,577,664**	**-3,262,380**	**-3,257,843**	**-3,184,299**
Net increase/(decrease) in cash and cash equivalents	**1,366,956**	**-712,773**	**-469,368**	**8,011,063**	**-2,422,805**	**-87,641**	**-1,931,810**	**1,217,601**
Cash and equivalents - beginning of year	2,238,672	3,605,628	2,892,855	2,423,486	10,434,549	8,011,744	7,924,103	5,992,294
Cash and equivalents - end of year	**3,605,628**	**2,892,855**	**2,423,486**	**10,434,549**	**8,011,744**	**7,924,103**	**5,992,294**	**7,209,894**

HISTORICAL KEY FINANCIAL RATIOS AS AT DECEMBER 31, 2019 - 2026

Item	2019	2020	2021	2022	2023	2024	2025	2026
1. **LIQUIDITY**								
Current Ratio	2.20	2.00	2.64	2.81	2.24	2.17	2.09	2.13
Quick Ratio	2.04	1.84	2.43	2.60	2.05	1.98	1.90	1.94
Working Capital	32,365,424	27,302,283	34,603,631	38,839,237	29,607,607	29,089,288	27,388,467	28,911,906
2. **PROFITABILITY**								
Net Profit/Sales (%)	7.93	5.95	5.64	5.02	4.67	4.75	4.89	5.04
Operating Profit/Sales (%)	8.44	8.35	7.80	7.18	7.01	7.04	7.15	7.27
Return on Total Assets (%)	4.81	4.70	4.05	3.38	3.16	3.23	3.35	3.46
Return on Average FA (%)	7.68	7.11	6.11	5.02	4.69	4.63	4.69	4.77
Return on Equity (%)	6.84	4.66	4.28	3.69	3.37	3.37	3.41	3.44
3. **COVERAGE**								
Interest Coverage (Times)	10.57	57.29	112.28	61.68	32.93	38.69	46.43	57.33
Debt Service Coverage	1.84	3.74	29.90	24.52	7.99	7.10	7.49	8.04
Net Debt to earnings	0.53	0.37	0.68	1.05	0.93	0.80	0.67	0.55
4. **LEVERAGE**								
Long-term Debt to Equity	0.11	0.07	0.12	0.19	0.16	0.14	0.11	0.09
Debt to Equity	0.47	0.41	0.51	0.56	0.52	0.49	0.45	0.42
LTD/Total Capitalisation (%)	10.10	6.59	11.10	15.61	14.00	12.12	10.28	8.50
5. **EFFICIENCY**								
Working Ratio	0.75	0.76	0.76	0.76	0.76	0.76	0.76	0.75
Receivables (Days)	91.55	90.00	90.00	80.00	70.00	70.00	70.00	70.00

DEBT SERVICE SCHEDULE
FOR THE YEARS ENDED DECEMBER 31, 2015-2026
($'000)

Items	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Opening balance												
CDB - First Power Project[1]	818,672	764,093	709,591	654,966	600,346	545,764	491,359	436,954	382,549	328,144	273,739	219,334
CDB - Third Power Project[2]	24,490,184	21,403,213	16,898,856	12,394,500	7,890,143	3,385,786	0	0	0	0	0	0
GOSVG[3]	9,031,432	8,362,254	7,320,372	6,599,477	5,856,792	5,091,660	4,427,725	3,763,789	3,099,854	2,435,918	1,771,983	1,108,048
European Investment Bank - Lowman's Bay[4]	14,348,617	11,656,733	9,377,061	7,294,809	5,409,983	3,130,303	0	0	0	0	0	0
PDV Caribe[5]	24,325,073	20,683,795	18,652,907	12,559,119	10,527,820	4,433,921	0	0	0	0	0	0
CDB - New Loan OCR[6]	0	0	0	0	0	0	0	1,926,463	9,262,634	8,336,370	7,410,107	6,483,844
CDB New Loan CALC[7]	0	0	0	0	0	0	0	1,181,893	5,554,531	4,999,078	4,443,625	3,888,172
Other infrastructure Loan 1[8]	0	0	0	0	0	0	6,000,000	6,000,000	6,000,000	5,400,000	4,800,000	4,200,000
Other infrastructure Loan 2[9]	0	0	0	0	0	0	0	6,891,644	6,891,644	6,891,644	6,202,479	5,513,315
Totals	**73,013,978**	**62,870,088**	**52,958,787**	**39,502,871**	**30,285,084**	**16,587,434**	**10,919,084**	**20,200,743**	**31,191,211**	**28,391,154**	**24,901,933**	**21,412,712**
Additions												
CDB - First Power Project	0	0	0	0	0	0	0	0	0	0	0	0
CDB - Third Power Project	1,403,421	0	0	0	0	0	0	0	0	0	0	0
GOSVG	0	0	0	0	0	0	0	0	0	0	0	0
European Investment Bank - Lowman's Bay	0	174,871	372,291	569,717	174,863	0	0	0	0	0	0	0
PDV Caribe	408,722	2,019,112	0	2,018,701	0	0	0	0	0	0	0	0
CDB - New Loan OCR	0	0	0	0	0	0	1,926,463	7,336,170	0	0	0	0
CDB New Loan CALC	0	0	0	0	0	0	1,181,893	4,372,638	0	0	0	0
Other infrastructure Loan 1	0	0	0	0	0	6,000,000			0	0	0	0
Other infrastructure Loan 2	0	0	0	0	0	0	6,891,644	0	0	0	0	0
Totals	**1,812,143**	**2,193,983**	**372,291**	**2,588,418**	**174,863**	**6,000,000**	**10,000,000**	**11,708,808**	**0**	**0**	**0**	**0**
Repayments:												
CDB - First Power Project	54,579	54,502	54,625	54,620	54,582	54,405	54,405	54,405	54,405	54,405	54,405	54,405
CDB - Third Power Project	4,490,392	4,504,358	4,504,356	4,504,358	4,504,357	3,385,786	0	0	0	0	0	0

[1] Amount = USD 664,210; Interest rate = 0.75%; Repayable over 80 semi-annual payments with final installment due in October 2029
[2] Amount = USD 18,311,000; Interest rate = OCR; repayable in 44 quarterly installments with final installment due in July 2020
[3] Amount = USD 7,500,000; Interest at 4% to June 2007 and 5% thereafter; Repayable in 60-semi-annual payments with final installment due in June 2025
[4] Amount= EUR 8,300,00; Interest rate = 5.505%; repayable in 22 semi-annual payments following a grace period of 4 years, with final installment due in May 2020
[5] Amount = USD 12,000,000; Repayable in semi-annual installments with final payment in October 2020; Interest rate = 4.5% commencing after grace period
[6] Amount = USD1,819,376; interest rate = OCR; repayable in 40 semi-annual payments following a 2-year grace period
[7] Amount = USD2,749,671; interest rate = OCR less CALC subsidy; repayable in 40 semi-annual payments following a 2-year grace period
[8] Amount = XCD 6,000,000, Interest rate = 5% grace period = 2 years
[9] Amount =XCD 16,668,971; Interest rate = 5%, grace period = 2 years

Items	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
GOSVG	669,178	1,041,881	720,895	742,684	765,132	663,935	663,935	663,935	663,935	663,935	663,935	663,935
European Investment Bank - Lowman's Bay	2,691,884	2,454,543	2,454,543	2,454,543	2,454,543	3,130,303	0	0	0	0	0	0
PDV Caribe	4,050,000	4,050,000	6,093,788	4,050,000	6,093,899	0	0	0	0	0	0	0
CDB - New Loan OCR	0	0	0	0	0	0	0	0	926,263	926,263	926,263	926,263
CDB New Loan CALC	0	0	0	0	0	0	0	0	555,453	555,453	555,453	555,453
Other infrastructure Loan 1	0	0	0	0	0	0	0	0	600,000	600,000	600,000	600,000
Other infrastructure Loan 2	0	0	0	0	0	0	0	0		689,164	689,164	620,248
	11,956,033	**12,105,284**	**13,828,207**	**11,806,205**	**13,872,513**	**7,234,429**	**718,340**	**718,340**	**2,800,057**	**3,489,221**	**3,489,221**	**3,420,305**
Interest												
CDB - First Power Project	5,935	5,526	5,117	4,707	4,298	3,889	3,481	3,073	2,665	2,257	1,849	1,441
CDB - Third Power Project	871,975	727,739	0	0	214,243	77,027	0	0	0	0	0	0
GOSVG	434,842	0	0	0	273,711	237,985	204,788	171,591	138,394	105,198	72,001	38,804
European Investment Bank - Lowman's Bay	715,797	578,955	458,893	349,699	235,071	86,162	0	0	0	0	0	0
PDV Caribe	1,012,700	885,076	702,271	519,456	336,639	99,763	0	0	0	0	0	0
CDB - New Loan OCR	0	0	0	0	0	0	36,121	209,796	329,981	295,246	260,512	225,777
CDB New Loan CALC	0	0	0	0	0	0	15,858	90,386	141,603	126,697	111,792	96,886
Other infrastructure Loan 1	0	0	0	0	0	0	0	0	285,000	255,000	225,000	195,000
Other infrastructure Loan 2	0	0	0	0	0	0	0	0	0	0	0	0
Totals	**3,041,249**	**2,197,297**	**1,166,281**	**873,863**	**1,063,962**	**504,825**	**260,248**	**474,846**	**897,644**	**784,399**	**671,153**	**557,908**
Closing balance												
CDB - First Power Project	764,093	709,591	654,966	600,346	545,764	491,359	436,954	382,549	328,144	273,739	219,334	164,929
CDB - Third Power Project	21,403,213	16,898,856	12,394,500	7,890,143	3,385,786	0	0	0	0	0	0	0
GOSVG	8,362,254	7,320,372	6,599,477	5,856,792	5,091,660	4,427,725	3,763,789	3,099,854	2,435,918	1,771,983	1,108,048	444,112
European Investment Bank - Lowman's Bay	11,656,733	9,377,061	7,294,809	5,409,983	3,130,303	0	0	0	0	0	0	0
PDV Caribe	20,683,795	18,652,907	12,559,119	10,527,820	4,433,921	0	0	0	0	0	0	0
CDB - New Loan OCR	0	0	0	0	0	0	1,926,463	9,262,634	8,336,370	7,410,107	6,483,844	5,557,580
CDB New Loan CALC	0	0	0	0	0	0	1,181,893	5,554,531	4,999,078	4,443,625	3,888,172	3,332,719
Other infrastructure Loan 1	0	0	0	0	0	6,000,000	6,000,000	6,000,000	5,400,000	4,800,000	4,200,000	3,600,000
Other infrastructure Loan 2	0	0	0	0	0	0	6,891,644	6,891,644	6,891,644	6,202,479	5,513,315	4,893,067
Totals	**62,870,088**	**52,958,787**	**39,502,871**	**30,285,084**	**16,587,434**	**10,919,084**	**20,200,743**	**31,191,211**	**28,391,154**	**24,901,933**	**21,412,712**	**17,992,407**

APPENDIX 4.2.10

ASSUMPTIONS TO THE PROJECTED FINANCIAL ANALYSIS

1. **Loan Terms**

   (a) **CDB Proposed Loan:** Grace period of two years followed by a repayment period of 10 years comprising;

      (i) OCR: USD3.43 mn. Variable interest rate currently 3.75% p.a.

      (ii) EIB-CALC: USD2.06 mn. Variable interest rate of 2.68% p.a.

   (b) **CDB First Power Project Loan:** Loan of USD0.664 mn (balance of USD0.546 mn as at December 31, 2019), with a fixed interest rate of 0.75% p.a. to GOSVG, on-lent to, and repayable by, VINLEC. Repayable over 80-semi-annual installments with the final installment due in October, 2029.

   (c) **CDB Third Power Project Loan:** Loan of USD18.311 mn (balance of USD3.386 mn as at December 31, 2019) with a variable interest rate of 4.10%, repayable over 44 quarterly installments, with the final installment due in July 2020.

   (d) **GOSVG Loan:** Loan of USD7.5mn (balance of USD5.092 mn as at December 31, 2019) with a fixed interest rate of 5% p.a. repayable over 60 semi-annual payments, with the final installment due in June 2025.

   (e) **European Investment Bank – Lowmans Bay Loan:** Loan equivalent to EUR8.3mn (balance of USD4.433mn as at December 31, 2019) with a fixed interest rate of 5.505%, repayable over 22 semi-annual payments, with the final installment due in May 2020.

   (f) **PDV Caribe Loan:** Loan of USD12.00 mn (balance of USD4.434 mn as at December 31, 2019) with a fixed interest rate of 4.5% for a period of 10 years, inclusive of a 2-year grace period repayable in sixteen equal semi-annual payments with the final installment in October 2020.

2. **Inflation**: 2% p.a. in 2021 as per IMF forecast. Same rate assumed to continue through 2026.

Income Statement

3. **Electricity Sales:** Remain flat in 2020, increasing by 1.5% in 2021 and 2022 and 2.0% p.a. thereafter. The assumption is conservative assumption compared to ECCB and IMF GDP growth forecasts.

4. **Tariffs:** Tariff levels assumed to remain constant, as per past 5-year trend (average of $0.51/MWh).

5. **Fuel efficiency:** Average of the past three years ($17.74 kWh/IG). Fuel consumption displaced by the proposed Project from 2022 onward is included in the analysis.

6. **Fuel prices:** Unit fuel prices are the average of the past 3-year period $7.12/IG.

7. **Fuel costs:** Fuel Surcharge costs fully passed on to customers.

8. **Repairs and maintenance:** As per forecast provided by VINLEC.

9. **Salaries and wages:** Staff numbers will remain fixed over the review period, while salaries, allowances and other employee expenses will increase at the rate of inflation.

10. **Finance Income:** Average return on Long term investments over the past three years (10%).

11. **Other Operating Expenses:** These include insurance, lubricating oils, motor vehicles, training and development, bed debts and professional services. It is assumed these expenses average 14% of sales revenues consistent with the past three years.

12. **Depreciation:** Machinery, Equipment and other intangible assets is depreciated on a straight-line basis over their useful lives for the major asset classes as follows:

Assets	Life (years)
Freehold Property	2.5 - 5%
Generation plan and machinery	5 - 20%
Transmission and distribution	5 - 6%
Motor vehicles	25%
Furniture and equipment	12.5%

13. **Corporate Tax Rate**: 30% of net income as per corporate tax rate.

Balance Sheet

14. **Inventories:** 11% of operating expenses as per historical trends.

15. **Accounts Receivable:** 90 days of sales equivalent in 2020, declining to 80 days in 2022 and then 70 days in 2023.

16. **Accounts Payable:** Trade payables of 158 days of operating expenses equivalent based on historical trends.

17. **Dividends:** No dividends payable during the forecast period.

18. **Work-in-progress**: 90% of capital works are assumed to be capitalised in the same year that they are acquired.

19. **Contribution to self-insurance fund:** Self-insurance funds remains at 2019 levels.

20. **Capital Expenditure** is as per Appendix 4.2.11.

APPENDIX 4.2.11

ST. VINCENT ELECTRICITY SERVICES LIMITED
CAPITAL EXPANSION PROGRAMME BUDGET

Items	2020	2021	2022	2023
Generation Expansion				
St. Vincent Capacity Expansion (New Generator, battery)	12,000,000	5,000,000	2,000,000	10,000,000
St. Vincent Capacity Expansion (Battery storage system and PV)	2,900,000	11,500,000	-	-
Bequia Capacity Expansion	50,000	5,000,000	8,000,000	1,000,000
Mayreay Capacity Expansion	220,000	-	-	-
Canouan replacement unit No 5A Generator Set	390,000	-	-	-
Mayreau - Green Solutions	25,000	-	-	-
Union Island Solar PV - Hybrid System	50,000	-	-	-
Plant Upgrade		-	-	-
Lowmans Bay SCADA Upgrade	475,000	-	-	-
Cumberland - Richmond Floor mitigation	1,000,000	1,400,000	2,000,000	3,000,000
Generation Capital Equipment Tools	250,000	50,000	50,000	200,000
Total Generation	**17,360,000**	**22,950,000**	**12,050,000**	**14,200,000**
T&D System Expansion				
Line Upgrade	150,000	15,000,000	2,000,000	-
Increase in Transformer Capacity	400,000	136,615	300,000	500,000
New Street Light Installation	402,410	220,855	200,855	150,000
New Switchgear Installation	40,000	13,420	13,420	-
Replacements				
Replacement of Transformers	236,815	173,325	159,130	200,000
Replacement of Poles	252,910	114,520	97,720	120,000
Replacement of Conductors	132,640	104,990	91,415	90,000
Replacement of Cable	68,620	68,620	60,470	130,000
Replacement of Street Lights	400,000	150,000	147,550	30,000
Replacement of Capacitors	20,175	20,175	20,175	25,000
Replacement of Switchgears	53,685	13,420	13,420	30,000
T&D Suspense				
Suspense Jobs	600,000	600,000	600,000	600,000
Metering				
New Connections	382,660	387,786	390,900	320,000
Meter relocations	98,364	100,240	101,310	50,000
Meter replacement	61,270	61,450	61,450	10,000
Vehicles				
New Vehicles	1,405,245	510,000	800,000	700,000

ST. VINCENT ELECTRICITY SERVICES LIMITED – CAPITAL EXPANSION PROGRAMME BUDGET CONT'D

Other T&D				
GIS	0	40,000	40,000	-
Small Equipment Replacement	5,000	5,000	5,000	-
T&D Equipment and Tools	175,350	20,000	20,000	-
Advancement Metering Infrastructure	200,000	3,000,000	12,000,000	12,000,000
Total T&D	**5,085,144**	**20,740,416**	**17,122,815**	**14,955,000**
Administration				
Fire Protection Dispatch Cane Hall Annex	15,000	-	-	-
Fire Protection Union Island PV and Battery Storage	140,000	-	-	-
Capital Replacement of Air Conditioning Units	30,000	30,000	30,000	
Line Truck Sheds	165,000			750,000
Cane Hall Stores Building refurbishment	300,000	325,000		
Dispatch Centre Expansion	330,000	400,000		
Furniture and Fixtures - Admin	225,000	231,750	238,703	
Safety Equipment	107,450	75,000	75,000	100,000
Payment Kiosk	200,000	300,000	200,000	200,000
GEN STATS (Comprehensive)	100,000	100,000	-	-
Windows Domain Backup System Upgrade	20,000	-	-	-
Research & Development (Microsoft Windows Client and Server, Physical and Cyber Security (Intrusion Detection), Incident response, Utility Bill Redesign	50,000	-	-	-
Surveillance System program (Lowmans Bay & Cane Hall)	135,000	300,000	-	-
Tablets for BOD	20,000	-	-	-
New Server Room Equipment including raised floor (C/Hall Stores Building)	75,000	-	-	-
Windows Server Replacement 5	100,000	-	-	-
SCADA Hardware Upgrade; PC and Monitors - Cane Hall operator booth, Servers - Grenadines	60,000	-	-	-
Backup Bill Printer	15,000	-	-	-
Lotop Engineers planning (3)	12,000	-	-	-
Total Administration	**2,099,450**	**1,761,750**	**543,703**	**1,050,000**
Research & Development				
Renewable Energy (Reliability)	50,000	100,000	100,000	100,000
Battery Storage Research	50,000	-	-	100,000
Total Capital Expansion Programme	**24,644,594**	**45,552,166**	**29,816,518**	**30,405,000**

APPENDIX 4.3 ECONOMIC ANALYSIS

ASSUMPTIONS TO THE ECONOMIC ANALYSIS

1. For the purpose of this analysis, the benefits and costs are stated in constant 2020 prices.

2. The analysis was conducted over the 25-year life of the assets.

3. The financial costs of the capital investments were converted to their economic costs, excluding price contingencies by applying a conversion factor of 0.83 to adjust for price distortions.

4. Base conversion factors for the various cost components of the project were calculated as demonstrated in Table 1.

TABLE 1: CONVERSION FACTORS FOR ADJUSTMENT OF FINANCIAL COSTS TO ECONOMIC COSTS

Items	Shadow Rate	Standard Conversion Factor	Base Factor
Skilled Labour	0.96	1.00	0.96
Unskilled Labour	0.57	1.00	0.57
Local Materials	1.00	1.00	1.00
Imported Materials	0.82	1.00	0.82
Equipment	0.82	1.00	0.82

5. The base conversion factors for each cost component were used to calculate the specific conversion factors (SpCFs) for each project component, as shown in Table 2.

TABLE 2: DERIVATION OF SPECIFIC CONVERSION FACTORS

	% Split					SpCF
	Skilled Labour	Unskilled Labour	Local Materials	Imported Materials	Equipment	
Base Factor	**0.96**	**0.57**	**1.00**	**0.82**	**0.82**	
1. PV system - Ground Mounted	20%	20%	5%	0%	55%	0.81
2. PV System - Rooftop	20%	20%	5%	0%	55%	0.81
3. Battery Storage system	20%	20%	5%	0%	55%	0.81
4. Economic Dispatch Advisor	10%	30%	0%	0%	60%	0.76
5. Engineering and Construction- related services	95%	5%	0%	0%	0%	0.94
6. Project Management	95%	5%	0%	0%	0%	0.94
7. Project Preparation Assistance	95%	5%	0%	0%	0%	0.94
8. Land	0%	0%	100%	0%	0%	1.00
9. ESIA	95%	5%	0%	0%	0%	0.94
10. Project Audit	95%	5%	0%	0%	0%	0.94
11. Site specific Investigations	95%	5%	0%	0%	0%	0.94

6. The SpCFs were used to convert financial costs for each Project component to economic costs, resulting in an overall conversion factor of 0.83, as outlined in Table 3.

TABLE 3: OVERALL CONVERSION FACTOR FOR THE PROJECT

Item	SpCF	Financial Costs	Economic Costs
1. PV system - Ground Mounted	0.81	3,248,750	2,621,741
2. PV System - Rooftop	0.81	400,200	322,961
3. Battery Storage system	0.81	3,967,269	3,201,586
4. Optimal Dispatch Advisory system	0.76	425,918	323,272
5. Engineering and Construction-related services	0.94	920,017	865,276
6. Project Management	0.94	120,750	113,565
7. Project Preparation Assistance	0.94	50,000	47,025
8. Land	1.00	260,000	260,000
9. ESIA	0.94	16,100	15,142
10. Project Audit	0.94	17,250	16,224
11. Site Specific Investigation	0.94	34,500	32,447
Total Base Cost and Physical Contingency		9,460,753	7,819,239
Overall Conversion Factor			0.83

Solar Photovoltaic Energy Generation System:

7. A 1.21 MWp Solar Photovoltaic system, distributed across 3 locations consisting of 3 roof-mounted and 1 ground-mounted system will be operational by 2022, producing 2.064MWh of power in its first year of operation.

8. The efficiency of the system will decline by 0.6% per year

9. The inverter has a 10-year life span and will therefore require replacement in 2032, estimated at $100K.

10. The Project incorporates the removal of an existing PV system on the Engineering Building and replacement with new equipment. Therefore, the projected energy savings from the current PV system have been projected over the project life (average of 4.7MWh) and deducted from the Project benefits.

11. Incremental operating and maintenance (O&M) costs are estimated at $10K p.a. for routine inspection, cleaning and maintenance of the panels.

Battery Energy Storage System (BESS):

12. A 5MW/2.5MWh Battery Energy Storage System (BESS) will become operational in 2022.

13. **Spinning Reserve:** The BESS will substitute some of spinning reserve capacity that is currently provided by diesel generators. This is expected to result in savings of 147,159 IG of diesel p.a.

14. **Operating Savings:** The BESS will facilitate a reduction in the use of the diesel generators due to fewer running hours leading to lower maintenance and reduced use of consumables. Variable operating costs have been estimated at 3.5 cents per kWh.

15. **Operating Costs:** The proposed BESS will incur the following additional operating expenses:

    (a) Battery Operating costs: XCD6/kWh
    (b) Annual Vendor operating costs: XCD40,500/year
    (c) Power conversion system: XCD17/kW

Determination of fuel savings:

16. Fuel costs per kWh generated are based on the average for the 3-year period 2017 to 2019 (USD 2.64/IG)

Greenhouse Gas emission:

17. As per data located in section 4 of the Solar Photovoltaic Expansion Project Proposal prepared by VINLEC staff (Section 4, June 20, 2020), VINLEC's diesel generators produce 0.0133 tonnes of Greenhouse gases per IG of diesel fuel consumed.

Social Cost of Carbon:

18. Valuation of CO_2 emissions avoided by the project was carried out using data from the SCC model. SCC is an estimate of the economic harm cases by increasing CO_2 emissions. SCC is useful in these types of cost benefit analyses conducted by development agencies and use regularly used in making regulatory decisions. Based on this framework, the social cost of carbon, was determined to be USD63/tonne.

CALCULATION OF ECONOMIC RATE OF RETURN

Project Year		0	1	2	3	4	5	6	7	8	9	10	11	12
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Item	**Units**													
PV PLANT														
PV plant production	MWh	0	2,064	2,052	2,039	2,027	2,015	2,003	1,991	1,979	1,967	1,955	1,943	1,932
Fuel cost savings	USD ('000)	0	306	304	302	300	299	297	295	293	292	290	288	287
Carbon emissions avoided	Tonnes	0	1,538	1,529	1,520	1,512	1,503	1,494	1,485	1,477	1,468	1,459	1,451	1,442
Social cost of carbon emissions avoided	USD ('000)	0	96	96	95	95	94	94	93	93	92	92	91	90
Total Economic Benefits (PV)	**USD ('000)**	**0**	**402**	**400**	**398**	**395**	**393**	**391**	**388**	**386**	**384**	**382**	**379**	**377**
BESS														
Reduction in Fuel consumption	IG	0	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159
Fuel Cost Savings	USD ('000)	0	388	388	388	388	388	388	388	388	388	388	388	388
Carbon emissions avoided	Tonnes	0	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954
Social cost of carbon emissions avoided	USD ('000)	0	123	123	123	123	123	123	123	123	123	123	123	123
Reduction in engine Opex	USD ('000)	0	226	226	226	226	226	226	226	226	226	226	226	226
Total Economic benefits (BESS)	USD ('000)	0	737	737	737	737	737	737	737	737	737	737	737	737
Total Economic Benefits	**USD ('000)**	**0**	**1,139**	**1,137**	**1,134**	**1,132**	**1,130**	**1,127**	**1,125**	**1,123**	**1,120**	**1,118**	**1,116**	**1,114**
Incremental O&M Costs														
PV Plant	USD ('000)	0	10	10	10	10	10	10	10	10	10	10	10	10
BESS	USD ('000)	0	52	52	52	52	52	52	52	52	52	52	52	52
Total O&M Costs	**USD ('000)**	**0**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**
Capital Expenditure	**USD ('000)**	**4,084**	**3,734**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,933**	**0**
Net Benefits	**USD ('000)**	**-4,084**	**-2,657**	**1,074**	**1,072**	**1,070**	**1,068**	**1,065**	**1,063**	**1,061**	**1,058**	**1,056**	**-879**	**1,052**

ERR (%) **13%**
NPV **$350**

APPENDIX 4.3.2

CALCULATION OF ECONOMIC RATE OF RETURN CONT'D

Project Year		13	14	15	16	17	18	19	20	21	22	23	24	25
		2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Item	**Units**													
PV PLANT														
PV plant production	MWh	1,920	1,909	1,897	1,886	1,875	1,863	1,852	1,841	1,830	1,819	1,808	1,797	1,786
Fuel cost savings	USD ('000)	285	283	282	280	278	277	275	273	272	270	269	267	265
Carbon emissions avoided	Tonnes	1,434	1,425	1,417	1,408	1,400	1,392	1,384	1,375	1,367	1,359	1,351	1,343	1,335
Social cost of carbon emissions avoided	USD ('000)	90	89	89	88	88	87	87	86	86	85	85	84	84
Total Economic Benefits (PV)	**USD ('000)**	**375**	**373**	**370**	**368**	**366**	**364**	**362**	**360**	**357**	**355**	**353**	**351**	**349**
BESS														
Reduction in Fuel consumption	IG	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159	147,159
Fuel Cost Savings	USD ('000)	388	388	388	388	388	388	388	388	388	388	388	388	388
Carbon emissions avoided	Tonnes	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954
Social cost of carbon emissions avoided	USD ('000)	123	123	123	123	123	123	123	123	123	123	123	123	123
Reduction in engine Opex	USD ('000)	226	226	226	226	226	226	226	226	226	226	226	226	226
Total Economic benefits (BESS)	USD ('000)	737	737	737	737	737	737	737	737	737	737	737	737	737
Total Economic Benefits	**USD ('000)**	**1,112**	**1,109**	**1,107**	**1,105**	**1,103**	**1,101**	**1,098**	**1,096**	**1,094**	**1,092**	**1,090**	**1,088**	**1,086**
Incremental O&M Costs														
PV Plant	USD ('000)	10	10	10	10	10	10	10	10	10	10	10	10	10
BESS	USD ('000)	52	52	52	52	52	52	52	52	52	52	52	52	52
Total O&M Costs	**USD ('000)**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**	**62**
Capital Expenditure	**USD ('000)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Net Benefits	**USD ('000)**	1,049	1,047	1,045	1,043	1,041	1,039	1,036	1,034	1,032	1,030	1,028	1,026	1,024

ERR (%) **13%**
PV **$350**

FINANCIAL RATE OF RETURN CALCULATION

YEAR	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
(In USD '000s)													
PV - electricity purchase cost avoided	0	343	341	339	337	335	333	331	329	327	325	323	321
BESS - Fuel cost savings	0	388	388	388	388	388	388	388	388	388	388	388	388
BESS Reduction in engine Opex	0	226	226	226	226	226	226	226	226	226	226	226	226
Incremental O&M costs	0	62	62	62	62	62	62	62	62	62	62	62	62
Capital investment	4,988	4,478	0	0	0	0	0	0	0	0	0	2,339	0
Net benefits (costs)	-4,988	3,583	893	891	889	887	885	883	881	879	877	-1,464	873

YEAR	2034	2035	203	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
(In USD '000s)													
PV - electricity purchase cost avoided	319	317	316	314	312	310	308	306	305	303	301	299	297
BESS - Fuel cost savings	388	388	388	388	388	388	388	388	388	388	388	388	388
BESS Reduction in engine Opex	226	226	226	226	226	226	226	226	226	226	226	226	226
Incremental O&M costs	62	62	62	62	62	62	62	62	62	62	62	62	62
Capital investment	0	0	0	0	0	0	0	0	0	0	0	0	0
Net benefits (costs)	871	870	868	866	864	862	860	858	857	855	853	851	850

Financial Rate of Return (%)	7%
Net Present Value ($)	2,450

APPENDIX 4.3.3

APPENDIX 4.3.4

ASSUMPTIONS TO THE FINANCIAL RATE OF RETURN

1. **General:** The Project life is assumed to be 25 years.

2. **Capital Expenditure:** The investment cost of the project is estimated to be $4.998 mn in 2021 and $4,478 mm in 2022 for the costs of the PV plant and the BESS. After 10 years, the inverters and battery will need to be replaced at an estimated cost of $0.1 mn and $2.239 mn, respectively.

3. **Solar PV Plant:**

   (a) The Solar PV Plant will produce 2.064MWh of electricity in its first year of operation declining by 0.6% p.a. over the life of these assets.

   (b) Production from this PV plant will reduce VINLEC's purchase of distributed and/or 3rd party produced RE-based electricity while seeking to achieve the NEAP RE goals. The feed-in tariff is XCD 0.45/kWh.

   (c) There will be incremental maintenance cost of $10,000 p.a. for routine inspection, cleaning and maintenance of the panels.

4. **Battery Energy Storage System (BESS):**

   (a) The BESS will substitute some of the spinning reserve capacity currently provided by the diesel generators. Modelling of the system conducted by a specialist consultant determined that there will be savings of 147,159 IG of diesel p.a., based on the reduction in operating hours.

   (b) Due to the reduction in operating hours of VINLEC's diesel generators, variable operating costs (i.e. variable maintenance costs and consumables) will be lower from 2022 when the system is operational. Annual savings in operating expenses are estimated at $226,000 p.a.

   (c) The BESS will incur the additional operating costs of 52K/year based on the following:

      (i) Battery operating costs: XCD 6/kWh.

      (ii) Annual vendor operating costs: XCD 40,500/year.

      (iii) Power conversion system: XCD 17/kW.

   (d) **Fuel Savings:**

      (i) VINLEC's current fuel costs as are based on its average for the 3-year period 2017 – 2019 (USD 2.64/IG).

      (ii) Projected changes in fuel prices are based on the Commodity Market Outlook, October 2020 (World Bank). This publication provides a forecast for crude oil prices over the next 10 years and shows an average increase of 6% p.a. from 2022 onwards.

APPENDIX 4.4

GENDER MARKER ANALYSIS

Project Cycle Stage	Criteria	Score
Analysis 1	Consultations with relevant categories of males and females and relevant gender-related public/ private sector organisations and Non-Governmental/ Community-Based Organisations will take / have taken place	Yes
Analysis 2	Socioeconomic, Sector and/or Institutional analysis considers gender risks and/or gender disparities that impact the achievement of project outcomes.	No
Design 1	Project interventions / policies address existing gender disparities.	No
Design 2	Project objective / outcome includes the enhancement of gender equality or the design of gender-responsive policies or guidelines.	No
Implementation 1	Implementation arrangements include either: Capacity building initiatives to enhance gender mainstreaming of the executing and/or implementing agency. Or Active participation of representatives of gender-relevant stakeholders in project execution.	No
Implementation 2	Terms of Reference of consultancy/project coordinating unit/project management unit includes responsibilities and resources, including budgets for gender mainstreaming.	No
Monitoring and Evaluation 1	Sex-disaggregated data included in the baselines, indicators and targets of the RMF. Or Collection of sex-disaggregated data is part of the project.	No
Monitoring and Evaluation 2	At least one gender-specific indicator at the outcome and/or output level in the RMF or included in tranche releases of PBLs.	No

Analysis	Design	Implementation	Monitoring and Evaluation	Score	Code
0.5	0.0	0.0	0.0	0.5	No

APPENDICES TO CHAPTER 5 - RISK ASSESSMENT AND MITIGATION

There are no appendices related to Chapter 5 (Risk Assessment and Mitigation)

IMPLEMENTATION SCHEDULE – VINLEC BESS AND SOLAR PV PROJECT

APPENDIX 6.1.1

ESTIMATED QUARTERLY DISBURSEMENT SCHEDULE

Year	Quarter	OCR-USD	OSF-EUR	OSF-GBP	Finance Charge	Total	Cumulative
2020	2020 - Q4	-			-	-	-
Sub-total		**-**			**-**	**-**	**-**
2021	2021 - Q1	84,964			-	84,964	84,964
	2021 - Q2	70,964	-	-	-	70,964	155,928
	2021 - Q3	4,143,329	1,476,450	913,418	-	6,533,197	6,689,125
	2021 - Q4	891,558	492,150	282,382	-	1,666,090	8,355,215
Sub-total		**5,190,815**	**1,968,600**	**1,195,800**	**-**	**8,355,215**	**8,355,215**
2022	2022 - Q1	63,465	-	-	-	63,465	8,418,680
	2022 - Q2	63,465			-	63,465	8,482,145
	2022 - Q3	63,465			-	63,465	8,545,610
	2022 - Q4	72,090			-	72,090	8,617,700
Sub-total		**262,485**	**-**	**-**	**-**	**262,485**	**8,617,700**
Total		**5,453,300**	**1,968,600**	**1,195,800**	**-**	**8,617,700**	**8,617,700**

APPENDIX 6.2

APPENDIX 6.3

PROCUREMENT PLAN

All Estimated Costs Are In USD

A. General

1. **Project Information**

Country:	St. Vincent and the Grenadines
Borrower:	St Vincent Electricity Services Ltd.
Project Name:	St. Vincent Electricity Services Limited Utility Battery Storage and Grid-Connected Solar PV Project
Implementing Agency	St Vincent Electricity Services Ltd.

2. **Bank's Approval Date of the Procurement Plan:** December 10, 2020

3. **This Procurement Plan is valid until:** June 30, 2022

4. **Prior Review Thresholds:** Procurement decision subject to prior review by the Bank.

Procurement Method	Prior Review Threshold	Comments
ICB		
FBS		
ICS		
DS		

5. **Reference to relevant Procurement Guidelines**

Procurement Policy and Procedures for Projects Financed by CDB (2019)

6. **Any Other Special Procurement Arrangements**

(a) Where EU-CIF SEEC resources are being used together with CDB's Equity and Market resources to finance the BESS contract, procurement eligibility shall be extended to countries eligible for procurement under EU funded projects, which are not CDB Member Countries.

(b) In accordance with the provisions of the EIB CALC II Finance Contract, where contracts are financed under the EIB CALC II, eligibility shall be extended to countries eligible for procurement under EIB-funded projects which are not CDB Member Countries; procurement and contract award notices, above prevailing EU thresholds, shall be published in the Official Journal of the European Union and successful bidders for contracts will be required to submit the "Covenant of Integrity" in conformity with that annexed to the Procurement Plan.

B. Goods Works and Non-Consulting Services

Ref No.	Contract (Description)	Estimated Cost	Procurement/ Selection Method	Prequalification (Yes/No)	Review by Bank (Prior/Post)	Expected Bid-Opening Date	Comments
73604-G-1	Design, Supply, Installation and Commissioning of Solar PV Systems		ICB	No	Prior	March 2021	
73604-G-14	Battery Energy Storage System (OCR)		ICB	No	Prior	April 2021	
73604-G-2	Battery Energy Storage System		ICB	No	Prior	April 2021	
73604-G-3	Optimal Dispatch Advisory System		ICB	No	Prior	April 2021	

C. Consulting Services

Ref No.	Assignment (Description)	Estimated Cost	Selection Method	Review by Bank (Prior/Post)	Expected Proposal Submission Date	Comments
73604-C-13	Site Specific Investigations PV		FBS	Post	March 2021	
73604-C-5	Auditing Services		DS	Post	April 2021	Continuation of services by existing auditing consultant.
73604-C-8	Engineering and construction-related services		NBF	n/a	January 2021	
73604-C-9	Project Management		NBF	n/a	November 2020	

D. Implementing Agency Capacity Building Activities with Time Schedule

N/A

E. Summary of Proposed Procurement Arrangement

Project Components / Contracts	CDB ('000)			NBF ('000)		Total Cost ('000)
	DC	FBS	ICB	Counterpart	Co-Financing	
Infrastructure Works	-	-		-	-	
Design, Supply, Installation and Commissioning of Solar PV Systems	-	-		-	-	
Battery Energy Storage System (OCR)	-	-		-	-	
Battery Energy Storage System	-	-		-	-	
Optimal Dispatch Advisory System	-	-		-	-	
Engineering and Construction-related Services	-		-		-	
Engineering and construction-related services	-	-	-		-	
Site Specific Investigations PV	-		-	-	-	
Project Management		-	-		-	
Project Management	-	-	-		-	
Auditing Services		-	-	-	-	
Summary Costs					-	

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

Goods, Works and Non-Consultancy Services

- NCB - National Competitive Bidding
- ICB - International Competitive Bidding
- RCB - Regional Competitive Bidding
- LB - Limited Bidding
- DS - Direct Selection
- FA - Force Account
- CP - Commercial Practices
- APA - Alternative Procurement Arrangements
- NBF - Non-Bank Financed
- Other

Consultancy Services:

- QCBS - Quality and Cost-Based Selection
- QBS - Quality-Based Selection
- FBS - Fixed Budget Selection
- LCS - Least-Cost Selection
- CQS - Consultants' Qualification Selection
- DS - Direct Selection
- CP - Commercial Practices
- APA - Alternative Procurement Arrangements
- ICS - Individual Consultants Selection
- NBF - Non-Bank Financed
- Other (as above)

COVENANT OF INTEGRITY

to the_____from a Tenderer, Contractor, Supplier or Consultant to be attached to its Tender (or to the Contract in the case of a negotiated procedure)

"We declare and covenant that neither we nor anyone, including any of our directors, employees, agents, joint venture partners or sub-contractors, where these exist, acting on our behalf with due authority or with our knowledge or consent, or facilitated by us, has engaged, or will engage, in any Prohibited Conduct (as defined below) in connection with the tendering process or in the execution or supply of any works, goods or services for [*specify the contract or tender invitation*] (the "**Contract**") and covenant to so inform you if any instance of any such Prohibited Conduct shall come to the attention of any person in our organisation having responsibility for ensuring compliance with this Covenant.

We shall, for the duration of the tender process and, if we are successful in our tender, for the duration of the Contract, appoint and maintain in office an officer, who shall be a person reasonably satisfactory to you and to whom you shall have full and immediate access, having the duty, and the necessary powers, to ensure compliance with this Covenant.

If: (i) we have been, or any such director, employee, agent or joint venture partner, where this exists, acting as aforesaid has been, convicted in any court of any offence involving a Prohibited Conduct in connection with any tendering process or provision of works, goods or services during the five years immediately preceding the date of this Covenant; or (ii) any such director, employee, agent or a representative of a joint venture partner, where this exists, has been dismissed or has resigned from any employment on the grounds of being implicated in any Prohibited Conduct; or (iii) we have been, or any of our directors, employees, agents or joint venture partners, where these exist, acting as aforesaid has been excluded by the Caribbean Development Bank (CDB), the European Union institutions or any major Multi-lateral Development Bank (including World Bank Group, African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank or Inter-American Development Bank) from participation in a tendering procedure on the grounds of Prohibited Conduct, we give details of that conviction, dismissal or resignation, or exclusion below, together with details of the measures that we have taken, or shall take, to ensure that neither this company nor any of our directors, employees or agents commits any Prohibited Conduct in connection with the Contract [*give details if necessary*].

In the event that we are awarded the Contract, we grant the....., CDB, the European Investment Bank (EIB) and auditors appointed by any of them, as well as any authority or European Union institution or body having competence under European Union law, the right of inspection of our records and those of all our sub-contractors under the Contract. We accept to preserve these records generally in accordance with applicable law but in any case, for at least six (6) years from the date of substantial performance of the Contract.

For the purpose of this Covenant, Prohibited Conduct includes[1]:

(a) **Corrupt Practice** is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

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[1] Most definitions are those of the IFI Anti-Corruption Task Force's Uniform Framework of September 2006.

(a) **Fraudulent Practice** is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(b) **Coercive Practice** is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of any party to influence improperly the actions of a party;

(c) **Collusive Practice** is an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;

(d) **Obstructive Practice** is: (a) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (b) acts intended to materially impede the exercise of CDB or the EIB's contractual rights of audit or access to information or the rights that any banking, regulatory or examining authority or other equivalent body of the European Union or of its Member States may have in accordance with any law, regulation or treaty or pursuant to any agreement into which the EIB has entered in order to implement such law, regulation or treaty;

(e) **Money Laundering** as defined in EIB's Anti-Fraud Policy;

(f) **Terrorist Financing** as defined in EIB's Anti-Fraud Policy;

(g) **Corrupt practices, fraudulent practices, collusive practices** and **coercive practices** as defined in CDB's Guidelines for Procurement; and

(h) **Project Owner** means.....

Note: This Covenant must be sent to CDB and EIB together with the contract in the case of an international procurement procedure (as defined in CDB's Guidelines for Procurement). In other cases, it must be kept by …….. and made available upon request from CDB or EIB. The Covenant is not mandatory for contracts awarded prior to CDB or EIB involvement in the Project. Nevertheless, recipients of CDB financing who are seeking or may seek to utilise resources provided by EIB to CDB in a project, are advised to include it in order to promote integrity among the tenderers/contractors. This is particularly relevant in the case of a recipient of CDB financing who has already implemented a number of previous CDB-financed projects and is considering further CDB financing utilising resources provided by EIB to CDB.

Name: _____

In the capacity of: _____

Signed: _____

Duly authorised to sign the bid for and on behalf of: _____

Dated on: _____ day of _____

APPENDIX 6.4

PROJECT MANAGEMENT DUTIES AND RESPONSIBILITIES

DUTIES AND RESPONSIBILITIES OF PROJECT COORDINATOR/ENGINEER

The PC will be responsible for coordinating and monitoring all aspects of the implementation of the Project. The PC's duties will include, but will not be limited to:

(a) Project monitoring, collecting, analysing and reporting the results data as required by the monitoring framework.

(b) Overseeing the installation works.

(c) Expedition of the submission to CDB of claims for disbursement/reimbursement.

(d) Liaison with CDB on all technical and administrative aspects of the Project.

(e) Submission to CDB, within two weeks after the end of each month, project progress reports and the monthly reports prepared by the Engineering Consultants.

(f) Submission to CDB of the annual report describing progress on targets outlined in the results monitoring framework.

(g) Submission to CDB of the Contract Completion Report within three months after the date of issue by the Engineering Consultant of a certificate of practical completion of each contract.

(h) Preparation and submission to CDB of a Project Completion Report, within three months after practical completion of the works. This report will focus on the project's performance on desired results as outlined in the results monitoring framework and lessons learned.

(i) Updating the procurement plan as required and at least annually.

The appointment is expected to last for a period of 36 months from the date of contract signing. Prospective candidates should have a minimum of the following qualifications:

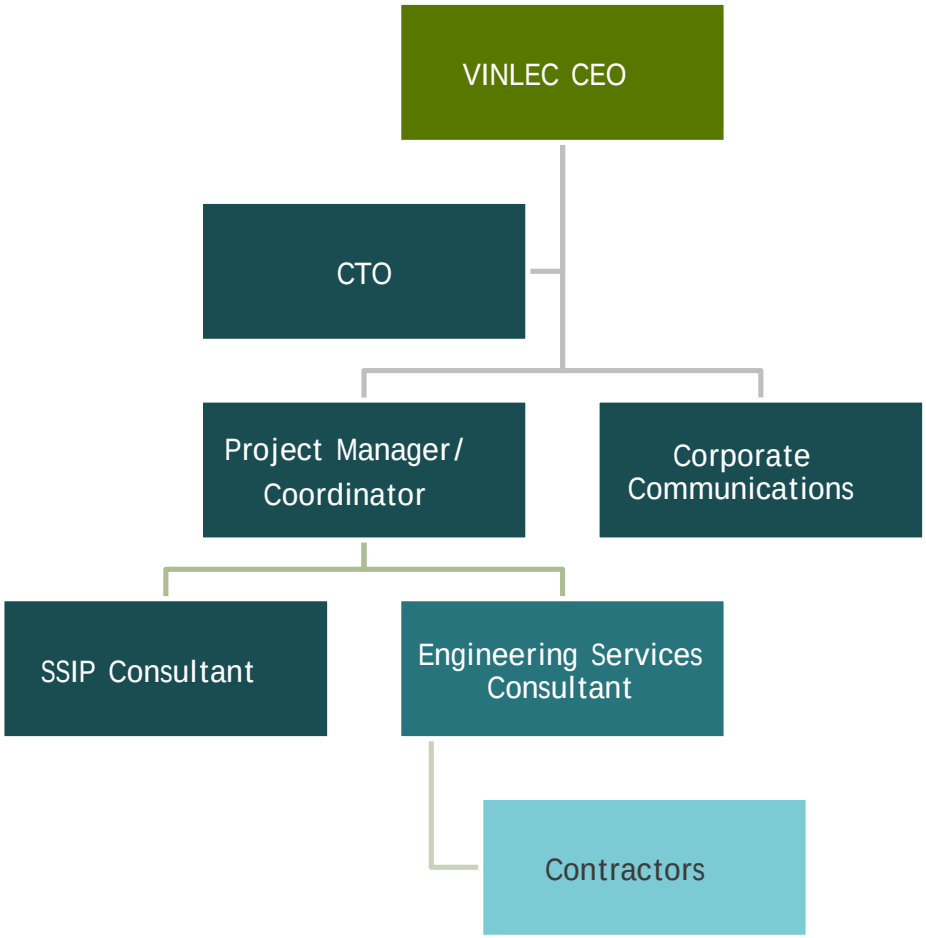
(a) A Master's Degree or equivalent in Engineering or Project Management with a minimum of four years' experience in the management and implementation of power engineering projects.

(b) A Bachelor's Degree or equivalent in Electrical or Power Engineering with a minimum of eight years' experience in the management and implementation of power engineering projects.

Experience in the administration and/or delivery of EPC contracts is a requirement. The selected candidate will be required to complete the CDB's online procurement training within 2 months of being contracted.

APPENDIX 6.5.1

PROJECT MANAGEMENT STRUCTURE



APPENDIX 6.6

REPORTING REQUIREMENTS

Report Implementation		Frequency	Deadline for Submission	Responsibility
1.	Progress reports on project implementation	Monthly	Within two weeks of the end of each month commencing with the month of contracting, until the works are completed.	Engineering Consultants and PC
2.	Report on Investment Cost and progress against indicators in the Results and Monitoring Framework (Sample Guidelines at the Appendix).	Quarterly	Within six weeks of the end of each quarter commencing with the quarter of contract signing, until the works are completed.	PC
3.	Annual Report on project implementation and progress against indicators in the Results and Monitoring Framework. Updates to the Procurement Plan as needed but at least annually.	Annually	Within six months of the end of the Financial Year.	PC

CHAPTER 7.1 – ADDITIONAL APPENDICES

EUROPEAN UNION ELIGIBILITY RULES (EU-SEEC PROGRAMME) PARTICIPATION IN PROCEDURES FOR THE AWARDING OF PROCUREMENT CONTRACTS OR GRANT CONTRACTS

1. Participation in procedures for the award of procurement contracts financed from the contribution by the European Union (EU) to the Caribbean Development Bank (the Bank) for the implementation of the activity entitled: "Sustainable Energy for the Eastern Caribbean (SEEC) Programme", is open to international organisations and all natural persons who are nationals of, or legal persons who are established in, an eligible country.

2. Eligible countries[2] are deemed to be:

(a) Caribbean Development Bank member countries:

Anguilla, Antigua and Barbuda, Barbados, Belize, British Virgin Islands, Canada, Cayman Islands, China, Columbia, Dominica, Germany, Grenada, Guyana, Haiti, Jamaica, Italy, Mexico, Montserrat, St Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Suriname, The Bahamas, Trinidad and Tobago, Turks and Caicos Islands, the United Kingdom and Venezuela.

(b) Members of the "African, Caribbean and Pacific (ACP) Group of States[3]":

Africa:

South Africa[4], Angola, Benin, Botswana, Burkina Faso, Burundi, Central African Republic, Cameroon, Cape Verde, Chad, Comoros Islands, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Lesotho, Liberia,

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[2] Note some countries may be eligible by virtue of more than one category

[3] Cotonou Partnership Agreement of 23 June 2000 (as amended by the provisional application of Decision No 1/2000 of the ACP-EC Council of Ministers of 27 July 2000, Decision No 1/2000 of the ACP-EC customs cooperation committee of 18 October 2000, Decision No 1/2001 of the ACP-EC customs cooperation committee of 20 April 2001, Decision No 2/2001 of the ACP-EC customs cooperation committee of 20 April 2001, Decision No 3/2001 of the ACP-EC customs cooperation committee of 10 May 2001, Decision No 4/2001 of the ACP-EC customs cooperation committee of 27 June 2001, Decision No 5/2001 of the ACP-EC customs cooperation committee of 7 December 2001, Decision No 2/2002 of the ACP-EC customs cooperation committee of 28 October 2002, Decision No 1/2003 of the ACP-EC Council of Ministers of 16 may 2003, Council Decision (EC) of 19 December 2002, Decision No 1/2004 of the ACP-EC Council of Ministers of 6 may 2004, Decision No 2/2004 of the ACP-EC customs cooperation committee of 30 June 2004 and Decision No 4/2005 of the ACP-EC customs cooperation committee of 13 April 2005).

[4] Natural and legal South African persons are eligible to participate in contracts financed by the 10th/11th EDF. However, the 10th/11th EDF does not finance contracts in South Africa.

Madagascar, Malawi, Mali, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Zambia and Zimbabwe.

Caribbean:

Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago.
Pacific:

Cook Islands, East Timor, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, the Solomon Islands, Western Samoa, Tonga, Tuvalu, Vanuatu.

Overseas Countries and Territories:

Anguilla, Antarctic, Netherlands Antilles, Aruba, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Falkland Islands (Malvinas), French Polynesia, French Southern Territories, Greenland, Mayotte, Montserrat, New Caledonia, Pitcairn, Saint Helena, Saint Pierre and Miquelon, South Georgia and South Sandwich Islands, Turks and Caicos, Wallis and Futuna Islands.

(c) A Member State of the European Union:
Austria, Belgium, Bulgaria, Croatia, Czech republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

An official candidate country of the European Union:

The Former Yugoslav Republic of Macedonia, Turkey, Iceland, Montenegro.

A Member State of the European Economic Area: Iceland, Lichtenstein, Norway.

(d) All-natural persons who are nationals of, or legal persons who are established in, a Least Developed Country as defined by the United Nations:

Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Dem. Rep. Congo, Equatorial Guinea, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao PDR, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Djibouti, Solomon Islands, Somalia, South Sudan, Sudan, Tanzania, The Gambia, Timor-Leste, Togo, Tuvalu, Uganda, Vanuatu, Yemen, Rep. and Zambia.

(e) Participation in procedures for the award of procurement contracts or grants financed from the Facility shall be open to all natural persons who are nationals of, or legal persons established in, *any country other than those referred to in paragraph 1, where reciprocal access to external assistance has been established*. Reciprocal access in the Least Developed Countries as defined by the United Nations (UN) shall be automatically granted to the OECD/DAC members: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.

3. Services under a contract financed from the Facility may be provided by experts of any nationality, without prejudice to the qualitative and financial requirements set out in the Bank's procurement rules.

4. Supplies and materials purchased under a contract financed from the Facility must originate in a State that is eligible under paragraph 1. In this context, the definition of the concept of 'originating products' shall be assessed by reference to the Bank's prevailing procurement guidelines/procedures, and supplies originating in the EU shall include supplies originating in the Overseas Countries and Territories.

5. Whenever the Facility finances an operation implemented through an international organisation, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons who are eligible under paragraphs 1, care being taken to ensure equal treatment of all donors. The same rules apply for supplies and materials.

6. Whenever the Facility finances an operation implemented as part of a regional initiative, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons who are eligible under paragraph 1, and to all natural and legal persons from a country participating in the relevant initiative. The same rules apply for supplies and materials.

7. Whenever the Facility finances an operation co-financed with a third entity, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons eligible under paragraph 1, and to all persons eligible under the rules of the third entity. The same rules shall apply to supplies and materials.

Caveat: The Bank and EU eligibility requirements are subject to change by the Bank and the EU. The applicant is responsible for checking whether there have been any updates on the eligibility requirements, as well as the UN's list of Least Developed Countries.

APPENDIX 7.1.2

EUROPEAN INVESTMENT BANK EXCLUDED ACTIVITIES

VINLEC shall not finance, with the proceeds of the Loan, any activity involving:

(a) ammunition and weapons, military/police equipment or infrastructure. Includes explosives and sporting weapons;

(b) projects which result in limiting people's individual rights and freedom, or violation of human rights, as per EIB's Statement of Environmental and Social Principles and Standards, in particular 6, 46 and 47;

(c) projects unacceptable in environmental and social terms, such as projects in protected areas, critical habitats and heritage sites or without adequate compensation/mitigation, as per EIB's Statement of Environmental and Social Principles and Standards, in particular 58, 71 and 72;

(d) ethically or morally controversial projects, such as sex trade and related infrastructure, services and media, animal testing, gambling and related equipment, hotels with in-house casinos or tobacco;

(e) activities prohibited by national legislation (only where such legislation exists); and

(f) projects with a political or religious content.