



CREEE
CARIBBEAN CENTRE FOR RENEWABLE
ENERGY & ENERGY EFFICIENCY



2018 ENERGY REPORT CARD ST. VINCENT & THE GRENADINES

This document presents Saint Vincent and the Grenadines' Energy Report Card (ERC) for 2018. The ERC provides an overview of energy sector performance in Saint Vincent and the Grenadines. The ERC also includes energy efficiency, projects, technical assistance, workforce, training and capacity building information, subject to the availability of data.

This ERC includes data and information that was provided by government ministries, agencies or departments with responsibility for energy and was supplemented by internet research, author calculations and inferences.

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"AT-A-GLANCE"

Summary of the
Energy Sector

KEY DATA & INFORMATION – ENERGY SECTOR	
Population	110,520 ¹
GDP (USD) Per Capita	\$11,408 (2017) ²
Human Development Index	0.723 ³
National Energy Policy	Yes
Renewable Energy (RE) Policy	
RE Target	60 % renewable energy by 2020. ⁴
Energy Performance Standards/Appliance Labelling	No
Total Oil Imports (BOE) per day	1743 ⁵
Total Oil Export (BOE) per day	0 ⁵
Total Installed Capacity (MW)	51.06 ⁶
Total Installed RE (MW)	8.82 ^{6,7}
Fuel & Oil Imports as % of GDP	6.21 % ^{1,2}
Electric vehicle stock	N/A
National Repository for Energy Data	No

ENERGY SECTOR PERFORMANCE AGAINST TARGETS

<i>Indicator</i>	Base /Current Performance (Year)	National Target	National Target (Proposed by CARICOM – CSERMS Report) ⁸	<p><u>Indicative RE Oil Displacement^{9,10} Potential Annually**</u></p> <ul style="list-style-type: none"> 1 MW wind displaces 1,760 barrels of oil equivalent (BOE) 1 MW hydro displaces 3,300 BOE 1 MW solar displaces 1,210 BOE <p><u>Energy Intensity (EI)¹¹:</u></p> <ul style="list-style-type: none"> EI measures how energy benefits the economy and is calculated by taking the ratio of total primary energy use (all of the fuels and flows that a country uses to get energy) to GDP (the total money made in a country). EI indicates how effectively an economy uses their fuels and flows.
RE as % of Installed Capacity	17.28 % ¹²	60% RE by 2020	59% by 2027	
*Energy Intensity (BTU/US\$1 Unit of output)				

*The energy efficiency target for CARICOM is 33% reduction in energy intensity by 2027, compared to a reference of Average Annual Energy Intensity of ~13,000 BTU per USD of GDP in 2015.

**Based on capacity factors of 0.32 for wind. 0.6 for hydro and 0.22 for solar.¹⁶

KEY ENERGY SECTOR STAKEHOLDERS

GOVERNMENT MINISTRIES, DEPARTMENTS AND AGENCIES: ¹³

Ministry of National Security, Air and Sea Port
Development

- Energy Unit
- National Emergency Management
Organisation

Ministry of Finance, Economic Planning,
Sustainable Development, and Information
Technology

- Invest SVG

Ministry of Transport, Works, Urban Development
and Local Government

ELECTRIC UTILITY(IES): ¹³

St. Vincent Electricity Services Limited (VINLEC)

OTHER KEY ELECTRICITY STAKEHOLDERS INCLUDE: ⁶

Rubis - importer/distributor of fuel

Petro Caribe - importer/distributor of fuel

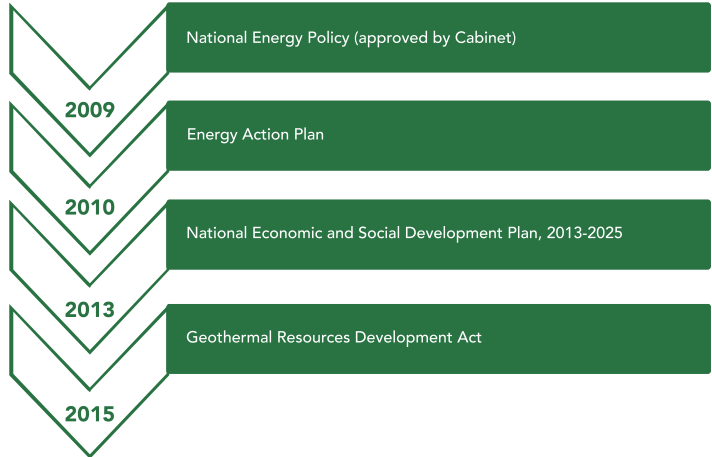
SOL- importer/distributor of fuel

POLICY, LEGAL AND REGULATORY FRAMEWORK

Electricity Sector : Policy, Legal and Regulatory (PLR) Framework ⁶

✓	Energy Policy and Energy Action Plan	●
✓	RE Target	●
✓	EE Target	●
✓	Electricity Regulator	●
✓	Net billing	●
✗	Interconnection Policy/Standards	●
✓	Feed-in-tariff	●
✓	RE/EE Act	●
●	Completed/ In place	
●	In progress/ Draft	
●	Not yet started/ Not established	

Key Achievements: PLR Framework Timeline for the Electricity Sector ⁶



ELECTRICITY & ENERGY EFFICIENCY

KEY DATA & INFORMATION	
1. Fuel Consumption – Electricity Subsector (BOE)	
2. Installed Conventional Capacity – Electric Utility (MW)	50.58 ^{6 7}
3. Installed Conventional Capacity – IPPs (MW)	12.18 ^{6 7}
4. Base Load (MW)	12.68 ^{6 7}
5. System Peak Demand (MW)	27.68 ^{6 7}
6. Total Generation (MWh)	164,799.65 ^{6 7}
7. Total Sales (MWh)	148,716.85 ^{6 7}
8. Total Number of Customers	45,430 ^{6 7}
TARIFFS	
9. Residential Tariff (US\$/kWh)	0.19 ⁶
10. Commercial (US\$/kWh)	0.20 ⁶
11. Industrial/Large Power (US\$/kWh)	0.15 ⁶
12. Street Lights (US\$/kWh)	0.21 ⁶
EFFICIENCY	
13. EE Target	15 % by 2020 ⁴
14. Electricity System Losses (%)	7.6 % ⁶

15. Energy Use (kWh) Per Capita ⁶	
St. Vincent	247
Bequia	237
Canouan	312
Union Island	222
Mayreau	209
16. EE Initiative ^{4, 6}	<ul style="list-style-type: none"> - LED Street Lighting - In progress - VINLEC Energy Efficiency (LED Retrofits for Buildings; Variable frequency drives installations for power plants; AC Changeout from non-inverter type to inverter type) - Government Building Energy Efficiency (LED Retrofits for select buildings; AC Changeout from non-inverter type to inverter type) - In progress

ELECTRICITY & ENERGY EFFICIENCY

RE Resource	Installed Capacity (MW) ^{6, 7}
Wind	0
Solar	3.09
Hydro	5.734
Geothermal	0
Biomass/ WTE	0
Total	8.824

RE Resource Potentials	Potential Capacity (MW) ⁴
Wind	4 - 5
Solar PV	1039.1
Hydro	5 - 10
Geothermal	900
Biomass/ WTE	3 - 4
Total	1951.1 – 1959.1

RE as % of installed Power Capacity
= 17.28%

PROJECTS IN THE PIPELINE 4, 6

Renewable Energy Source	Resource and Project Capacity	Development Partner	Funding Source
Solar Photo-Voltaic	Union Island Hybrid Power Plant (524 kW PV and 637 kWh Battery Storage)	VINLEC, Government of St. Vincent and the Grenadines	United Arab Emirates Caribbean Renewable Energy Fund, VINLEC
	Mayreau Hybrid Power Plant (100 kW PV with 216 kWh Battery Storage)	Rocky Mountain Institute, Carbon War Room	VINLEC, Rocky Mountain Institute, Ray and Tye Noorda Foundation
	CDB Solar Farm (400 kW)	VINLEC, Government of St. Vincent and the Grenadines, Caribbean Development Bank	Caribbean Development Bank, Government of St. Vincent and the Grenadines,
Geothermal	VINLEC Carport (30 kW)	VINLEC	VINLEC
	10 - 15 MW Geothermal Plant (TBD after preliminary drilling)	Reykjavik Geothermal, Light and Power Holdings Ltd, Government of St. Vincent and the Grenadines, Clinton Climate Initiative, VINLEC	Reykjavik Geothermal, Emera Caribbean Incorporated, Government of SVG, Caribbean Development Bank (via Inter-American Development Bank, UK Department for International Development, European Union's Caribbean Investment Facility)
Other	Battery Energy Storage System for St. Vincent (2.5 MWh; 5 MW)	VINLEC, HATCH	VINLEC

PROJECTS IN THE PIPELINE 4, 6

Energy Efficiency	Old/Existing Infrastructure (Number/Size)	Consumption (kWh)	Annual costs (USD)
Street Lighting			
50 W HPS (70 W actual)	5249	134111.95	336433.24
100 W HPS (136W actual)	1105	54852.2	137602.23
150 W HPS (181 W actual)	446	29464.99	73915.87
250 W HPS (300 W actual)	48	5256	13185.20

NUMBER OF PERSONS EMPLOYED IN THE ENERGY SECTOR ¹⁴

NAME OF ENTITY	NUMBER OF PERSONS EMPLOYED	BREAKDOWN BY GENDER	
St Vincent Electricity Services Ltd.	250	Females: 8	Males: 242
Ministry of National Security, Air and Sea Port Development	4	Females: 2	Males: 2

*This may not be an exhaustive list

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¹St. Vincent and the Grenadines Statistical Office

²St. Vincent and the Grenadines Statistical Office 2 St Vincent and the Grenadines Ministry of Finance: Moody's St. Vincent and the Grenadines Annual Credit Analysis (2019)

³United Nations Development Programme Human Development Reports: <http://hdr.undp.org/en/countries/profiles/VCT>

⁴St Vincent and the Grenadines Energy Unit: Energy Action Plan

⁵St. Vincent and the Grenadines Statistical Office: Merchandise Trade Imports (2013 to 2018)

⁶St. Vincent Electricity Services Limited

⁷The Mustique Company Limited

⁸Worldwatch Institute. (2015). Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) Baseline Report and Assessment. Retrieved from http://www.worldwatch.org/system/files/C-SERMS_Full_PDF.pdf

⁹Ministry of Science, Energy, Technology and Mining. (2013). Grid Impact Analysis and Assessment for Increased Penetration of Renewable Energy into the Jamaican Electricity Grid. Retrieved from https://www.mset.gov.jm/sites/default/files/pdf/Grid%20Impact%20Analysis%20for%20Renewable%20Energy%20Penetration_2.pdf

¹⁰Sustainable Energy Ireland – Renewable Energy Information Office. (2011). Energy Unit Conversion Tool. Retrieved from https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/make-it-be_energy_unit_conversion_tool.xlsx

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- ¹¹J.M.K.C. Donev et al. (2018). Energy Education - Energy intensity. Retrieved from https://energyeducation.ca/encyclopedia/Energy_intensity.
- ¹²Calculated
- ¹³Ministry of National Security, Air and Sea Port Development. CARIFORUM Energy Report Card Input Data (completed for St Vincent and the Grenadines).
- ¹⁴Rapid Scan Assessment of the Capacity Requirements for Sustainable Energy Development for CARICOM Countries (Professor Dr. Olav Hohmeyer, International Energy Consulting) (2019)