

Electricity Sector Overview – OECS Member States

Support for a Renewable Energy
Transition in OECS Countries

September 9, 2022



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The Global Green Growth Institute was founded to support and promote a model of economic growth known as “green growth”, which targets key aspects of economic performance such as poverty reduction, job creation, social inclusion, and environmental sustainability.

Acknowledgements

This report was developed by Andrew Lewis, Senior Energy Regulatory Analyst, GGGI, with guidance from Kristin Deason, GGGI Caribbean Representative, and Judith Ephraim Programme Director – Sustainable Energy, OECS Commission, and inputs from Kurt Inglis, Energy Officer, GGGI. Valuable inputs were provided by: Dallen Connor – Anguilla; Dwight Laviscount – Antigua and Barbuda, Justinn Kase and Michael Fadelle – Dominica; Kenrick Burke – Montserrat; Wakely Daniel – Nevis; Bertille Browne – Saint Kitts, Lance Peters – Saint Vincent and the Grenadines. All pictures courtesy Kristin Deason.

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Introduction

As part of its project titled “Support for a Renewable Energy Transition in OECS Countries” GGGI is supporting the Sustainable Energy Framework (SEF) developed by the Organisation of Eastern Caribbean States (OECS) Commission, as well as the goals of the Eastern Caribbean Solar Challenge. As part of this support, GGGI is developing regional regulatory guidelines and offering long-term embedded technical assistance and capacity building on topics related to renewable energy development in OECS member states. The process of providing this support has required that GGGI gain an in-depth understanding of the electricity sector across OECS member states, including the governance frameworks in place. This activity has involved literature reviews and consulting with energy sector stakeholders across member states in order to verify or request information describing the electricity sector in the respective territories, and also to determine support needs related to developing regulatory frameworks to help accelerate renewable energy (RE) integration in the member states as they strive towards meeting RE targets.

While initially intended only as background information to help in better defining GGGI’s support of the SEF, GGGI recognizes that in light of widespread interest by many organizations in supporting the transition to renewable energy in the OECS region, this information is also of interest and valuable to others. This document was therefore developed and published to facilitate collaboration and inform the development of support programs aimed at accelerating an energy transition in the Eastern Caribbean region. It provides a general overview of the electricity sector in OECS member states, including governance frameworks and major stakeholders, based on information gathered by GGGI.



1. Electricity Sector Governance Framework and Electricity Sector Statistics Across OECS Member States

While all the territories of the OECS would generally be classified as small islands, with individual population sizes no greater than 200,000 (excluding the French territories), significant variations exist among them in many respects, including the size and configuration of their electricity systems, and governance mechanisms in place. Information describing the size, configuration and governance of the respective electricity systems were determined through literature review, as well as through consultation meetings with energy sector stakeholders across several member states/territories. Based on information gathered regarding each of the territories listed below, an overview is provided which indicates some of the major electricity sector stakeholders, describes the governance framework, and gives summary electricity sector statistics for each territory. It should be noted that publicly available information across OECS Member States is not the same in all cases, as such the types of information and timelines, etc. that are provided in this document are not the same for all territories.

Information is provided on the following territories:

1. Anguilla
2. Antigua and Barbuda
3. Commonwealth of Dominica
4. Grenada
5. Montserrat
6. Nevis
7. Saint Kitts (Saint Christopher)
8. Saint Lucia
9. Saint Vincent and the Grenadines

No information is provided on the British Virgin Islands, Guadeloupe and Martinique.

1.1 Anguilla Electricity Sector

1.1.1 Electricity Sector Governance Framework

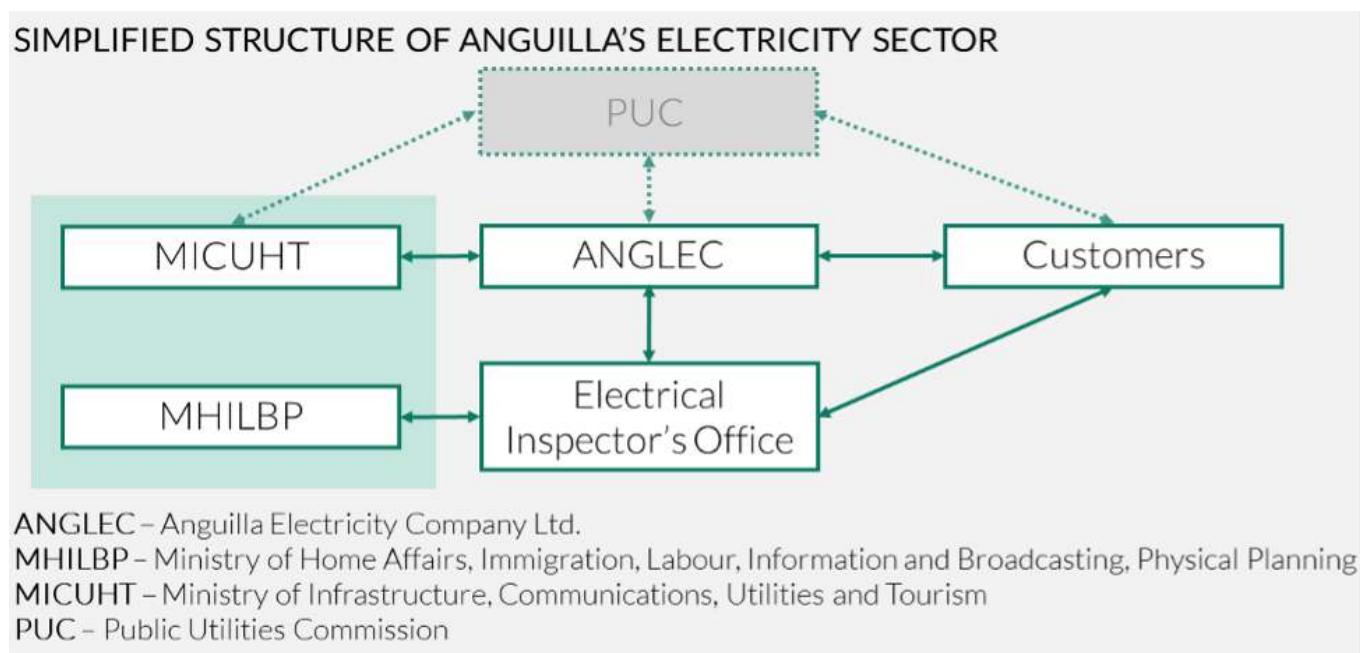
The major stakeholders in the electricity sector in Anguilla are:

1. The Ministry of Infrastructure, Communications, Utilities, Housing and Tourism (MICUHT)
2. Public Utilities Commission (PUC)
 - o Established by Anguilla's Public Utilities Commission Act dated December 15, 2014.
 - o Authorizes the PUC to regulate telecommunications, electricity and water supply services in Anguilla.

- Despite indications that the PUC Act grants the PUC authority to regulate electricity and water supply services, the PUC currently only exercises jurisdiction over the telecommunications sector in Anguilla. Amendments are being made to Anguilla's Electricity Act and PUC Act which should give the PUC greater authority over the electricity sector.
3. The Electrical Inspector's Office
 - Resides within the Ministry of Home Affairs, Immigration, Labour, Information and Broadcasting, Physical Planning (MHILBP).
 - Responsible for certifying electrical installations.
 4. Anguilla Electricity Company Ltd. (ANGLEC)
 - A vertically integrated utility with responsibility for generation, transmission, and distribution of electricity in Anguilla.
 - According to ANGLEC's 2019 Financial Statements, the company is majority owned by the Government of Anguilla (40% direct ownership, 23% indirect ownership through the government owned National Commercial Bank of Anguilla Ltd.). The financial statements do not identify other shareholders.
 5. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 1 below.

Figure 1: Simplified Structure of the Anguilla's Electricity Sector



As indicated above, Anguilla does indeed have an independent regulator, the PUC, whose enabling legislation appears to indicate that they have the authority to regulate the electricity sector. This however has not been the practice. Proposed amendments to Anguilla's Electricity Act and PUC Act should fully enable the PUC to regulate the electricity sector.

While the entities identified represent the major stakeholders in the electricity sector in Anguilla, the latest reference document that provides overall policy direction for Anguilla's electricity sector is the Anguilla National Energy Policy: 2010 - 2020 dated December 2009. This policy does not indicate a target for the incorporation of renewable energy in the electricity generation mix, however, US Department of Energy data indicates a target of 30% by 2030. This target was confirmed during consultations with energy sector stakeholders in Anguilla.

1.1.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Anguilla are provided below.

1.1.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on customer count, electricity sales and gross generation for 2018 is provided in Table 1 below.

Table 1: Anguilla Electricity Sector – Customer Count, Sales and Gross Generation (2018)

ANGUILLA ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND GROSS GENERATION (2018)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Gross Generation (MWh)
Domestic	6,819	22,630.11	
Commercial	1,029	40,337.74	
Industrial	19	127.27	
Own Use/ Internal Consumption	8	257.28	
Streetlight	19	1,542.49	
Total	7,894	64,894.89	71,889.76*

* - Based on a reported system losses figure of 9.73%

As indicated in Table 1, the total number of electric utility customers in Anguilla was reportedly just under 7,900 in 2018, with only Montserrat in the OECS region having less electric utility customers. The majority of customers (about 86%) were classified as domestic customers, with commercial customers accounting for approximately 13% of the customer base. However, with respect to electricity sales, commercial customers account for the highest proportion of electricity sales at approximately 62%.

1.1.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 2 below.

Table 2: Anguilla Electricity Sector – Installed Capacity and Peak Demand (2018)

ANGUILLA ELECTRICITY SECTOR – INSTALLED CAPACITY AND PEAK DEMAND (2018)		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	26.0
Interconnected Renewable Energy Generation Capacity	None Presently	0.0
Total Installed Generation Capacity		26.0
Peak Demand		13.7

As indicated in Table 2, at the end of 2018, utility scale power generation was reported as being solely provided by diesel fuel generation units. Previously, a small percentage of power generation in Anguilla was provided by grid connected solar PV facilities, but these were reportedly destroyed by Hurricane Irma in 2017.

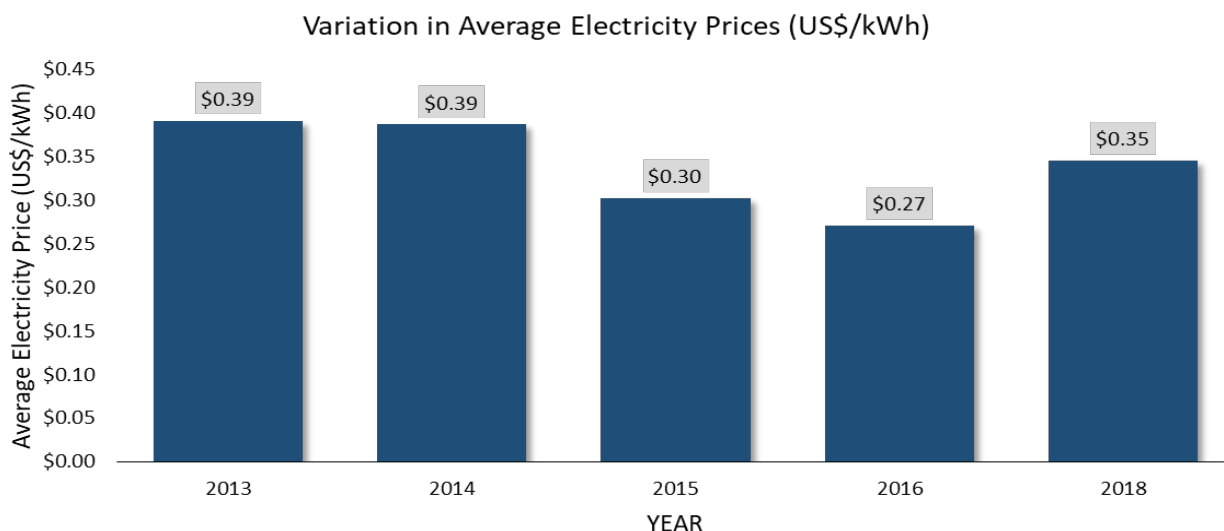
1.1.2.3 Access to Electricity

Access to electricity in Anguilla was reported as being 100% in 2020.

1.1.2.4 Average Price of Electricity

Based on information available to GGGI, the average price of electricity, covering all customer classes, for the years 2013 – 2016 and 2018 is shown in Figure 2 below.

Figure 2: Variation in Average Electricity Prices in Anguilla (2013 - 2016, 2018)



* - Please note that 2017 data was not available at the time of developing this report.

1.2 Antigua and Barbuda Electricity Sector

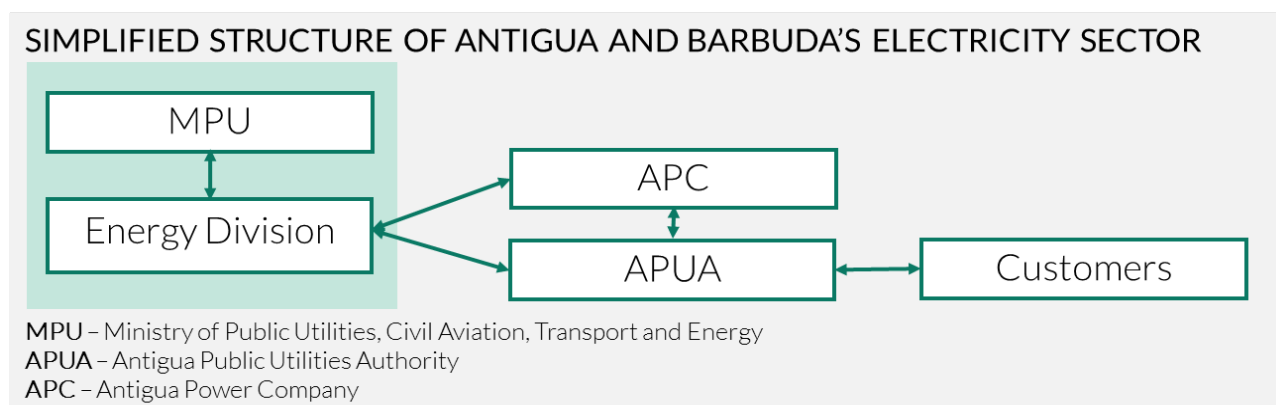
1.2.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Antigua and Barbuda are:

1. The Ministry of Public Utilities, Civil Aviation, Transport and Energy (MPU)
 - The Energy Division within the MPU handles issues that involve policy development in the energy sector in Antigua and Barbuda
2. The Antigua Public Utilities Authority (APUA)
 - A government statutory agency established under Antigua and Barbuda's Public Utilities Act No. 10 of 1973.
 - APUA provides telecommunications, water and electricity services.
 - With respect to electricity, APUA is involved in generation, transmission, distribution, and supply.
3. The Antigua Power Company (APC)
 - Independent power producer
4. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 3 below.

Figure 3: Simplified Structure of the Antigua and Barbuda's Electricity Sector



As presented in Figure 3 above, the governance structure for the electricity sector in Antigua and Barbuda does not include an independent regulatory body. A notable feature of the electricity sector, however, is the presence of an independent power producer (IPP) – the Antigua Power Company, which contributes a large share of the conventional power generation capacity for the country.

While the entities identified previously represent the major stakeholders in the electricity sector in Antigua and Barbuda, the documents listed below are important reference documents as they provide overall policy direction, indicates specific targets with regards to the integration of renewable energy into the electricity generation mix, and give details on specific activities within the electricity sector in Antigua and Barbuda.

1. The Antigua and Barbuda National Energy Policy
 - o Dated August 2011
 - o Indicates a target of achieving 15% renewable energy in the electricity supply mix by 2030.
2. Antigua and Barbuda Updated Nationally Determined Contribution
 - o Dated September 2021
 - o Indicates a target of 86% renewable energy generation, from local resources, in the electricity sector by 2030.
3. The Antigua and Barbuda Sustainable Energy Action Plan
 - o Dated March 2013
 - o The Sustainable Energy Action Plan is intended to serve as a roadmap for the energy future in Antigua and Barbuda from 2010 until 2030. It contains short (1 – 5 years), medium (5 – 10 years) and long (10 – 20 years) term actions designed to enhance the implementation of the policies and goals of Antigua and Barbuda's National Energy Policy.
4. APUA's Interconnection Policy Statement and Interconnection Procedures Guideline
 - o Effective date of Interconnection Policy Statement: December 1, 2011
 - o Applies to the interconnection of renewable energy sourced generating facilities with a rated capacity up to and including 50kW.

1.2.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Antigua and Barbuda are provided below.

1.2.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on electricity sales and gross generation for 2020 is provided in Table 3 below.

Table 3: Antigua and Barbuda Electricity Sector – Sales & Gross Generation (2020)

ANTIGUA AND BARBUDA ELECTRICITY SECTOR – SALES & GROSS GENERATION (2020)		
Customer Class	Consumption/ Sales (MWh)	Gross Generation (MWh)
Residential	103,000	
Commercial	180,000	
Industrial	6,000	
Streetlight	2,780	
Barbuda	1,900	
Other	13,510	
Total	307,190	342,490

As indicated in Table 3 above, commercial customers account for the highest proportion of electricity sales across customer classes in Antigua and Barbuda for the year 2020 – 180,000MWh or about 58.6% of total sales. However, while no information on customer count was found, it is expected that despite the sales figures, residential customers account for the highest proportion of customers across rate classes by a significant margin, as is typical in electric utilities across the OECS region.

1.2.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 4 below.

Table 4: Antigua and Barbuda Electricity Sector – Installed Capacity & Peak Demand (2020)

ANTIGUA AND BARBUDA ELECTRICITY SECTOR – INSTALLED CAPACITY & PEAK DEMAND		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	78.25
Interconnected Renewable Energy Generation Capacity	Solar PV	7.00
Total Installed Generation Capacity (Utility-Scale)		85.25
Peak Demand		50*

* - Represents peak demand reported for 2015

As presented in Table 4, at the end of 2020, total interconnected utility-scale generation capacity in Antigua and Barbuda stood at 85.25MW which satisfied a peak demand expected to be close to the peak demand reported for 2015 – 50MW. Diesel generation units accounted for a high percentage of utility-scale generation capacity at approximately 91.8%. However, a significant percentage of power generation was provided by solar PV by way of facilities located at two (2) sites on the island of Antigua.

1.2.2.3 Access to Electricity

Access to electricity in Antigua and Barbuda was reported in 2020 as being 100%.



1.3 Commonwealth of Dominica Electricity Sector

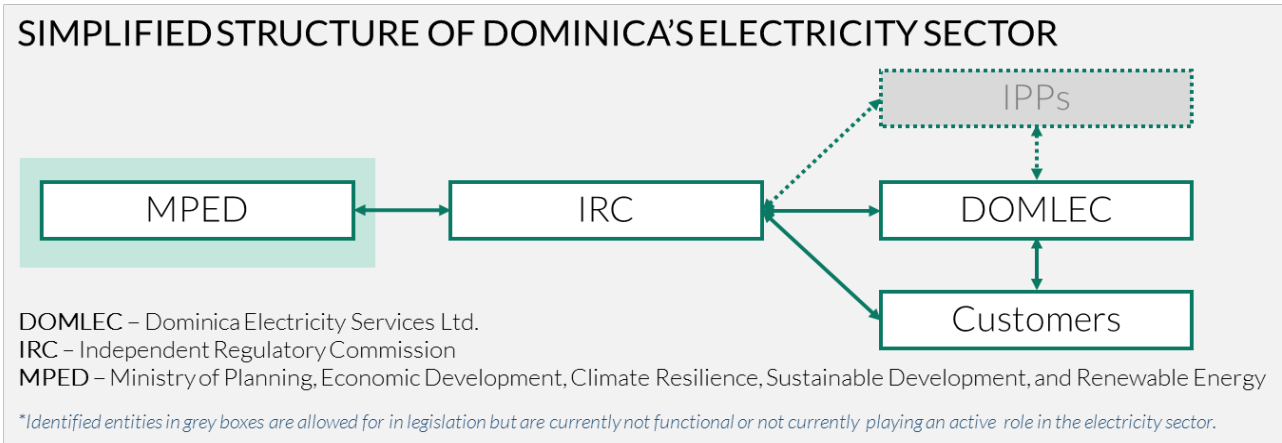
1.3.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in the Commonwealth of Dominica are:

1. The Ministry of Planning, Economic Development, Climate Resilience, Sustainable Development, and Renewable Energy (MPED)
2. Independent Regulatory Commission (IRC)
 - o Established by Dominica's 2006 Electricity Supply Act.
3. Dominica Electricity Services Ltd. (DOMLEC)
 - o Vertically integrated utility with responsibility for generating, transmitting, and distributing electricity.
 - o According to DOMLEC's 2021 Annual Report, the company's main shareholders are: Dominica Power Holding Limited, a subsidiary of Emera (Caribbean) Incorporated (52%); Dominica Social Security (20%); Individual Shareholders (28%).
4. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 4 below. While there are currently no IPPs in Dominica, Dominica's 2006 Electricity Supply Act makes allowances for IPPs, and they are therefore show as possible stakeholder in Figure 4 below.

Figure 4: Simplified Structure of the Dominica's Electricity Sector



As indicated in Figure 4 above, Dominica's electricity sector includes an independent electric utility regulator, the IRC. This therefore makes Dominica one of only three OECS territories that have a functioning independent utility regulator as part of their electricity sector governance framework. Paragraph 20. (1) of the 2006 Electricity Supply Act states duties of the IRC. These include the following:

“(a) encourage the expansion of electricity supply in Dominica where this is economic and cost effective and in the public interest.

(b) encourage the operation and development of a safe, efficient and economic electricity sector in Dominica.

(d) facilitate the promotion of sustainable and fair competition in the electricity sector where it is efficient to do so.

(g) ensure that the financial viability of efficient regulated electricity undertakings is not undermined.”

Functions of the IRC are also stated under paragraph 21. (1) of the 2006 Electricity Supply Act, which include the following:

“(b) issue, monitor and amend licences.;

(c) establish, maintain, review and amend as appropriate technical and performance standards for all types of facilities, including hydro facilities, in the electricity sector and shall monitor and enforce compliance with such technical standards;

(f) regulate prices charged to consumers of electricity where this is not supplied on a competitive basis, and the methods by which they are to be charged;

(g) approve, modify, monitor and enforce terms and conditions for the supply of electricity to consumers;

(k) advise the Minister on the generation, transmission, distribution and supply of electricity;”

While the entities identified previously represent the major stakeholders in the electricity sector in Dominica, the documents listed below are important reference documents as they provide overall policy direction, indicate specific targets with regards to the integration of renewable energy into the electricity generation mix, and give details on specific activities within Dominica's electricity sector.

1. The National Energy Policy
 - o Dated December 2020
 - o Indicates a target of achieving 100% renewable energy in electricity generation by 2030.
2. The Commonwealth of Dominica Updated Nationally Determined Contribution
 - o Dated July 2022
 - o Indicates a national target of 100% use of renewable energy in the energy sector by 2030.
3. The Sustainable and Resilient Energy Plan (S-REP) for Dominica
 - o Dated November 2019
 - o The goal of the S-REP was to assess multiple stakeholder-proposed options, and combinations of those options, to determine the most cost-effective, reliable and climate resilient electricity system.
4. The Distributed Renewable Energy Generation Policy
 - o Dated May 2016
 - o Describes the application and interconnection process for distributed renewable energy generation facilities up to 150 kW.

1.3.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Dominica are provided below.

1.3.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on customer count, electricity sales and gross generation for 2021 is provided in Table 5 below.

Table 5: Dominica Electricity Sector – Customer Count, Sales and Gross Generation (2021)

DOMINICA ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND GROSS GENERATION (2021)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Gross Generation (MWh)
Domestic	31,152	42,207	
Commercial	4,261	38,195	
Industrial	24	3,441	
Hotel	47	3,304	
Streetlight	218	2,110	
Total	35,702	89,257	100,783

As indicated in Table 5, the total number of electric utility customers in Dominica was reported to be 34,557 at the end of 2020. Most customers (about 88%) were classified as domestic customers, with commercial customers accounting for approximately 11% of the customer base. However, with respect to electricity sales, commercial customers account for much higher proportion at approximately 43%.

1.3.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 6 below.

Table 6: Dominica Electricity Sector – Installed Capacity & Peak Demand (2021)

DOMINICA ELECTRICITY SECTOR – INSTALLED CAPACITY & PEAK DEMAND		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	20.1
Interconnected Renewable Energy Generation Capacity	Run of River Hydro	6.64
Total Installed Generation Capacity (Utility-Scale)		26.74
Peak Demand		16.39

As at the end of 2021, it was reported that the total installed generation capacity in Dominica stood at 26.74MW which satisfied a peak demand of 16.39MW for the year. Diesel fueled generation units accounted for the majority of installed capacity at approximately 75%. However, a significant proportion of power generation was provided by renewable energy resources by way of run-of-river hydroelectric facilities located at three (3) sites across the island. These account for close to 25% of total interconnected power generation capacity.

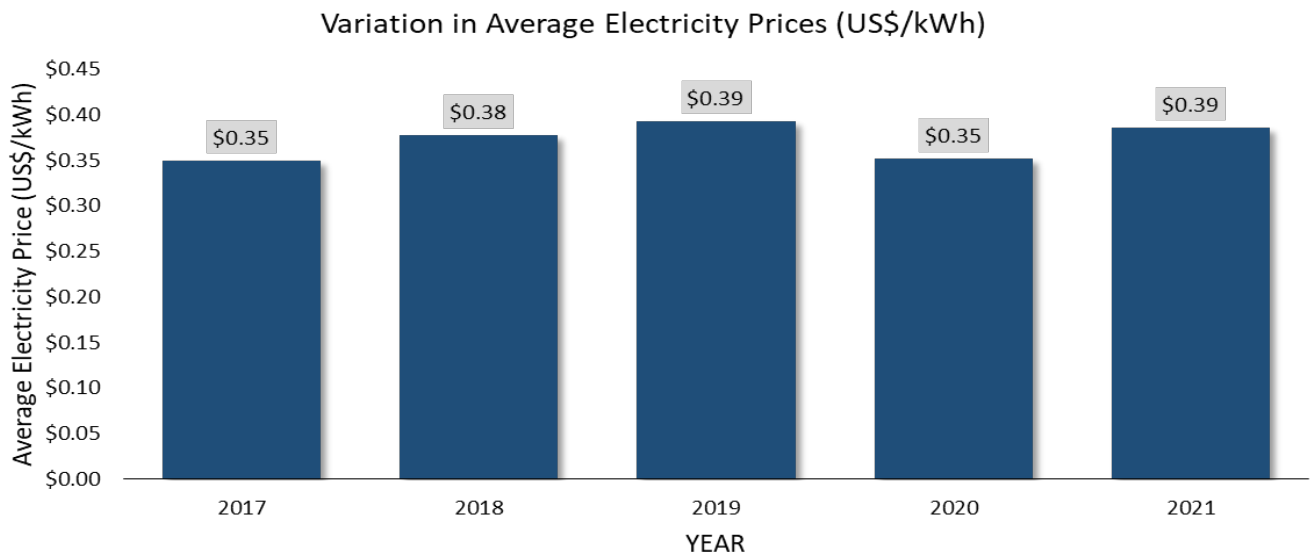
1.3.2.3 Access to Electricity

Access to electricity in Dominica was reported in 2020 as being 100%.

1.3.2.4 Average Price of Electricity

Based on information available to GGGI, the average price of electricity, covering all customer classes, for the years 2017 – 2021 is shown in Figure 5 below.

Figure 5: Variation in Average Electricity Prices in Dominica (2017 - 2021)





1.4 Grenada Electricity Sector

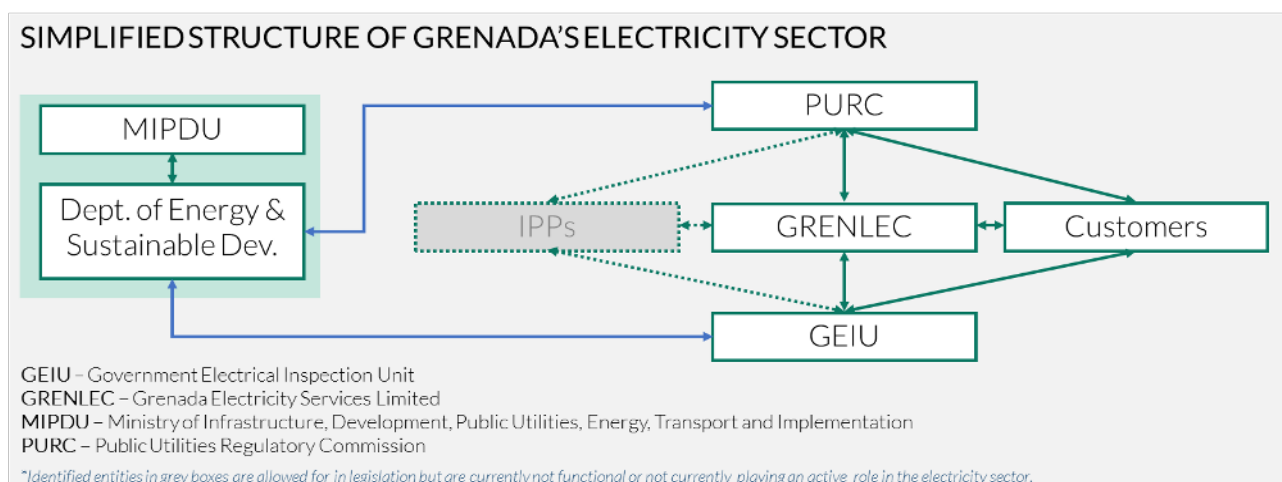
1.4.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Grenada are:

1. The Ministry of Infrastructure, Development, Public Utilities, Energy, Transport and Implementation (MIDPU)
 - o The Department of Energy and Sustainable Development handles issues that involve the energy sector in Grenada.
2. The Public Utilities Regulatory Commission (PURC)
 - o Independent regulator established in 2016, with responsibility for regulation of the electricity sector.
3. The Government Electrical Inspection Unit
 - o Resides within the MIDPU.
 - o Responsible for certifying electrical installations.
4. The Grenada Electricity Services Limited (GRENLEC)
 - o Vertically integrated electric utility with control over all aspects of the electricity system in Grenada, from generation to supply.
 - o According to GRENLEC's 2020 Annual Report, the company is majority owned by the Government of Grenada (71.4%). The annual report does not identify other shareholders.
5. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 6 below.

Figure 6: Simplified Structure of Grenada's Electricity Sector



As indicated in Figure 6 above, Grenada's electricity sector includes an independent electric utility regulator, the PURC. Functions of the PURC, as stated under paragraph 4 of the 2016 Public Utilities Regulatory Commission Act, include the following:

“(a) act as the economic regulator of the electricity sector and in particular:

(i) Set the rates that are chargeable by licensees for the supply of electricity and other services;

(ii) determine the rates that are payable by a network licensee to a self-generator for the purchase of excess electricity generated by the self-generator from its generation facilities; and

(iii) approve the rate provisions contained in any power purchase agreement proposed to be concluded between a network licensee and an independent power producer;

(b) without prejudice to the Minister's powers for the granting, modification, extension, suspension and revocation of licences and any other function, duty or power assigned to the Minister under this Act or the regulations, the enforcement of every licensee's compliance with the terms and conditions of its licence, its sustainability programme, and with the requirements for quality of service to consumers, and the rates that a licensee is authorised to charge;”

While the entities identified previously represent the major stakeholders in the electricity sector in Grenada, the main document guiding energy sector policy is the Grenada National Energy Policy dated November 2011. The stated purposes of Grenada's 2011 National Energy Policy are as follows:

- Create an appropriate, enabling and dynamic incentive regime, both regulatory and institutional, to achieve a more diversified and sustainable energy sector.
- Place energy sector management and development within the framework and principles of sustainable development to facilitate the transition to sustainable energy production and use.
- Use energy as a tool for sustainable development and build resilience into a newly restructured economy to guarantee citizens a sustainable quality of life.

The 2011 Grenada National Energy Policy indicates a 2020 renewable energy target of 20%, with respect to energy usage in the electricity and transport sectors. It does not appear, however, that this target was achieved.

In addition to the National Energy Policy, another document offering overall policy direction is the Grenada Second Nationally Determined Contribution dated November 2020. While this document does not provide a specific target with respect to the contribution of renewable energy to electricity generation, it indicates an overall target of 40% reduction in greenhouse gas emissions by 2030, compared to 2010 levels. This includes emissions reductions in the energy sector.

1.4.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Grenada are provided below.

1.4.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on customer count, electricity sales and gross generation for 2020 is provided in Table 7 below.

Table 7: Grenada Electricity Sector – Customer Count, Sales, and Net Generation (2020)

GRENADA ELECTRICITY SECTOR – CUSTOMER COUNT, SALES, AND NET GENERATION (2020)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Net Generation (MWh)
Domestic	46,030	84,380	
Commercial	7,254	104,620	
Industrial and Streetlight	53	11,140	
Total	53,337	200,140	212,470

As indicated in Table 7, the total number of electric utility customers in Grenada was reported to be 53,337 at the end of 2020. Most customers (about 86%) were classified as domestic customers, with commercial, industrial and streetlight customers accounting for the remaining percentage of the customer base. However, with respect to electricity sales, commercial, industrial and streetlight customers accounted for the higher proportion at approximately 58%.

1.4.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 8 below.

Table 8: Grenada Electricity Sector – Installed Capacity & Peak Demand (2020)

GRENADA ELECTRICITY SECTOR – INSTALLED CAPACITY & PEAK DEMAND (2020)	
Generation Type	Installed Capacity (MW)
Conventional	54.48
Utility Owned Renewable Energy	1.1
Total Installed Utility Scale Generation Capacity	55.58
2020 Peak Demand	31.86

As at the end of 2020, it was reported that the total installed utility owned generation capacity in Grenada stood at 55.58MW with a peak demand of 31.86MW for the year. Diesel fueled generation units accounted for the majority of utility owned installed capacity at approximately 98%. In addition to utility owned generation capacity, GRENLEC reports that, as at the end of 2020, 2.48MW of customer owned renewable energy capacity was interconnected with the grid.

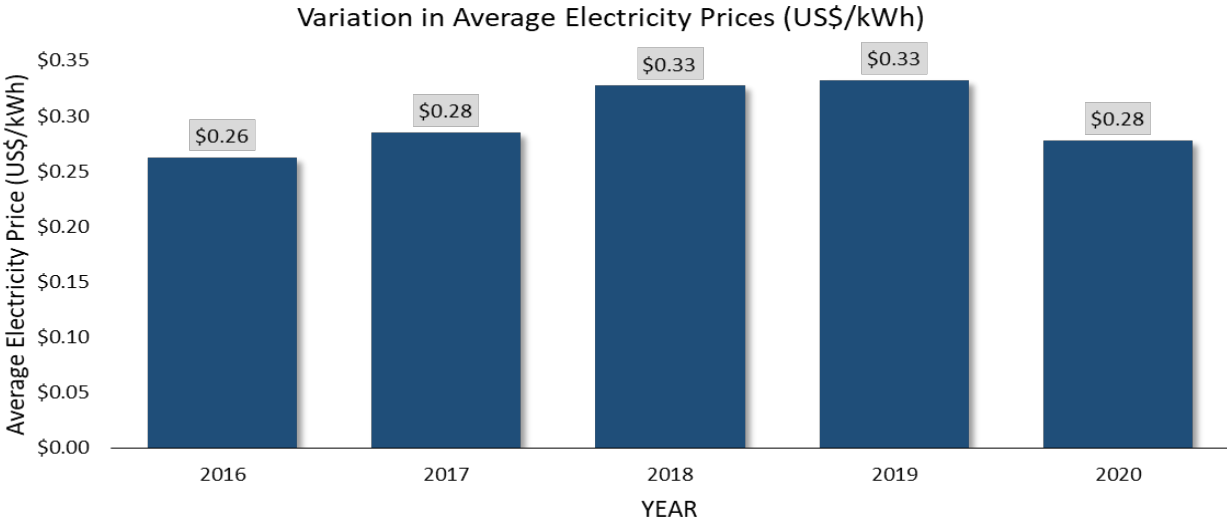
1.4.2.3 Access to Electricity

Access to electricity in Grenada was reported in 2020 as being 95%.

1.4.2.4 Average Price of Electricity

Based on information available to GGGI, the average price of electricity, covering all customer classes, for the years 2016 – 2020 is shown in Figure 7 below.

Figure 7: Variation in Average Electricity Prices in Grenada (2016 - 2020)



1.5 Montserrat Electricity Sector

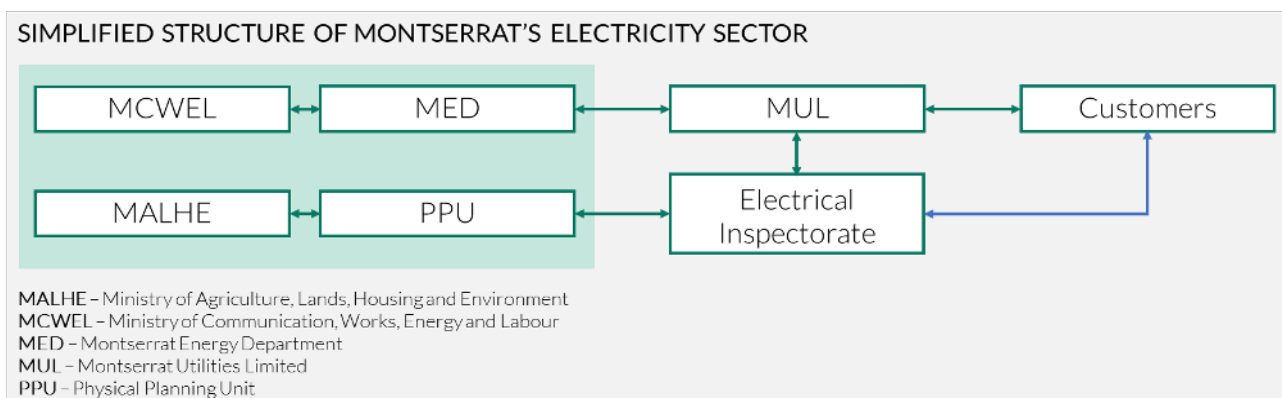
1.5.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Montserrat are:

1. The Ministry of Communication, Works, Energy and Labour (MCWEL)
 - o The Montserrat Energy Department, which is a part of the MCWEL, handles issues that involve the energy sector in Montserrat.
2. The Montserrat Utilities Limited (MUL)
 - o A vertically integrated government owned utility with responsibility for generation, transmission, and distribution of electricity in Montserrat.
 - o In addition to serving as an electric utility, MUL also serves as the water and sewerage utility for Montserrat.
3. The Electrical Inspectorate
 - o A part of the Physical Planning Unit of the Ministry of Agriculture, Lands, Housing and Environment
 - o Undertakes electrical inspections on renovated or recently constructed buildings.
 - o Issues electrical licences.
4. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 8 below.

Figure 8: Simplified Structure of Montserrat's Electricity Sector



As can be deduced from Figure 8 above, the governance structure for the electricity sector in Montserrat does not include an independent regulatory body. Currently, activities that would be the domain of an independent regulator are handled directly by the government. MUL tariff increases, for example, are only made effective after approval is given by Cabinet.

With respect to the development and promulgation of energy policy, the Montserrat Energy Department, which resides within the MCWEL, spearheads these efforts. The core functions of the Montserrat Energy Department include the following:

- To advise and to make recommendations regarding measures necessary to ensure efficient management of energy in the public interest.

- To facilitate and accelerate the development and implementation of indigenous energy resources.
- To facilitate the implementation and periodic updating of the Montserrat National Energy Policy and Action Plan.
- To execute research into all sources of energy for the generation of electricity and securing more efficient utilization of energy and sources of energy.

While the entities identified previously represent the major stakeholders in the electricity sector in Montserrat, the reference document that provides overall policy direction for Montserrat’s electricity sector is the Montserrat National Energy Policy dated January 2016. This policy applies to the period 2016 – 2020 and indicates an intention by the government minister with responsibility for the energy sector to achieve 100% renewable energy electricity generation by 2020. Since publication of the National Energy Policy, the timeline for achieving 100% renewable energy in electricity generation has been revised by Cabinet to 2030.

1.5.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Montserrat are provided below.

1.5.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on customer count, electricity sales and gross generation for 2020 is provided in Table 9 below.

Table 9: Montserrat Electricity Sector – Customer Count, Sales & Gross Generation (2020)

MONTSERRAT ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND GROSS GENERATION (2020)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Gross Generation (MWh)
Domestic	3,055	5,875.06	
Commercial	749	5,584.18	
Industrial	5	5.73	
Own Use/ Internal Consumption	13	588.29	
Streetlight	25	194.43	
Total	3,847	12,247.69	14,074.98

As indicated by the figures presented in Table 9, the electricity network in Montserrat is very small, even when compared to electricity networks in other OECS territories. At the end of 2020, the total number of electricity customers in Montserrat was reported to be 3,847. Most customers (about 79%) were classified as domestic customers, with commercial customers accounting for approximately 19% of the customer base. However, with respect to electricity sales, commercial customers account for much higher proportion at approximately 46%.

1.5.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 10 below.

Table 10: Montserrat Electricity Sector – Installed Capacity, Energy Storage & Peak Demand (2020)

MONTSERRAT ELECTRICITY SECTOR – INSTALLED CAPACITY, ENERGY STORAGE & PEAK DEMAND		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	7.215
Interconnected Renewable Energy Generation Capacity	Solar PV	1.000
Total Installed Generation Capacity		8.215
Energy Storage	Battery Energy Storage	2.500 (1.088MWh)
Peak Demand		2.300

As at the end of 2020, it was reported that the total installed utility owned generation capacity in Montserrat stood at 8.2MW with a peak demand of 2.3MW for the year. Despite having a small electricity network, even compared to other OCS territories, the electricity system in Montserrat displays features which are not yet evident in many other OECS territories, such as a significant percentage (12.2%) of the installed generation capacity utilizing solar PV technology, and the interconnection of a battery energy storage system with the electric grid which should provide beneficial services to the grid such as frequency regulation or spinning reserve support.

1.5.2.3 Access to Electricity

Access to electricity in Montserrat was reported in 2020 as being 100%.



1.6 Nevis Electricity Sector

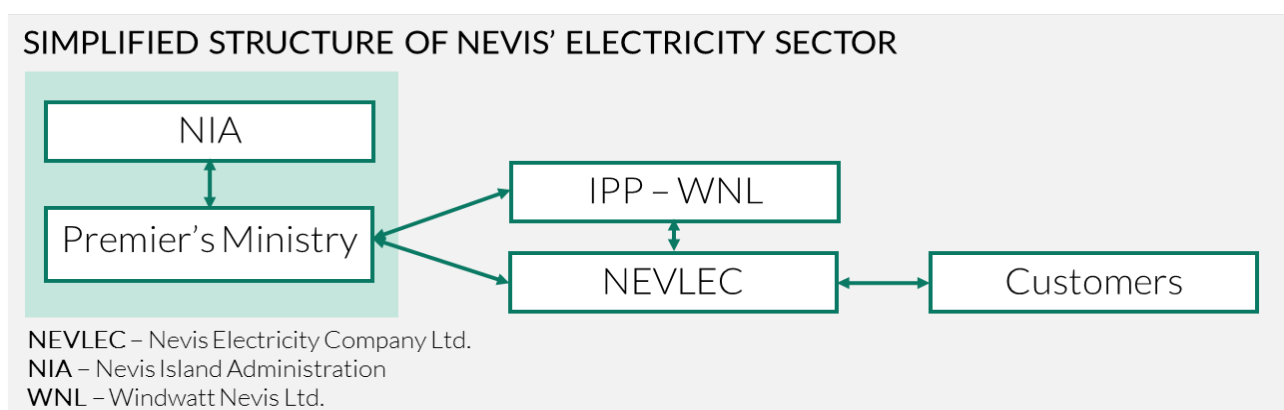
1.6.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Nevis are:

1. The Nevis Island Administration (NIA)
 - o The Premier's Ministry, under the NIA, has responsibility for several portfolios including public utilities and the energy sector.
2. Nevis Electricity Company Ltd. (NEVLEC)
 - o Vertically integrated utility, established in September 2000, with responsibility for generation, transmission and distribution of electricity throughout Nevis.
 - o NEVLEC is a fully owned subsidiary of the NIA.
3. Independent Power Producers (IPPs)
 - o Only IPP currently in operation is Windwatt Nevis Ltd. (WNL), which owns and operates the Maddens windfarm (2.2MW).
4. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 9 below.

Figure 9: Simplified Structure of Nevis' Electricity Sector



Like Montserrat, the governance structure for the electricity sector in Nevis does not include an independent regulatory body. Currently, activities that would be the domain of an independent regulator are handled directly by the Nevis Island Administration.

A notable feature of the electricity sector in Nevis is the participation of an independent power producer in utility-scale power generation on the island. While having one of the smaller electricity networks in the OECS region, besides the British Overseas Territories, Nevis appears to be one of only two territories in the OECS region with this feature.

While the entities identified previously represent the major stakeholders in the electricity sector in Nevis, the latest reference document that provides overall policy direction for Nevis' electricity sector is the Saint Kitts and Nevis National Energy Policy dated April 2011. This policy is based on the principle that energy services must become cleaner, more reliable, and affordable by employing the following strategies:

1. Increased diversification in the energy mix, through increased utilization of indigenous or regional renewable energy sources.
2. Promoting smarter, efficient and innovative approaches to energy use and supply.

No renewable energy targets are specified in the 2011 Saint Kitts and Nevis National Energy Policy. However, the St. Kitts and Nevis Updated Nationally Determined Contributions dated October 2021 indicate a target of 100% renewable energy power generation by 2030.

1.6.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Nevis are provided below.

1.6.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on electricity sales and gross generation for 2019 is provided in Table 11 below.

Table 11: Nevis Electricity Sector – Customer Count, Sales and Gross Generation (2019)

NEVIS ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND GROSS GENERATION (2019)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Gross Generation (MWh)
Total	N/A	48,139*	60,400

* - Based on a reported system losses figure of 20.3%

1.6.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 12 below.

Table 12: Nevis Electricity Sector – Installed Capacity & Peak Demand (2019)

NEVIS ELECTRICITY SECTOR – INSTALLED CAPACITY & PEAK DEMAND		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	18.4
Interconnected Renewable Energy Generation Capacity	Wind	2.2
Total Installed Generation Capacity		20.6
Peak Demand		9.5

As indicated in Table 12, it was reported that in 2019 the total installed generation capacity in Nevis stood at 20.6MW which satisfied a peak demand of 9.5MW for the year. Diesel fueled generation units accounted for most of the installed capacity at approximately 89%. However, the remaining installed capacity is accounted for by a wind turbine power generation facility at Maddens windfarm owned by an IPP - Windwatt Nevis Ltd. This facility was commissioned in 2010. As indicated in Table 11, no information was found regarding customer count.

1.6.2.3 Access to Electricity

Access to electricity in Saint Kitts and Nevis was reported in 2020 as being 100%.



1.7 Saint Kitts (Saint Christopher) Electricity Sector

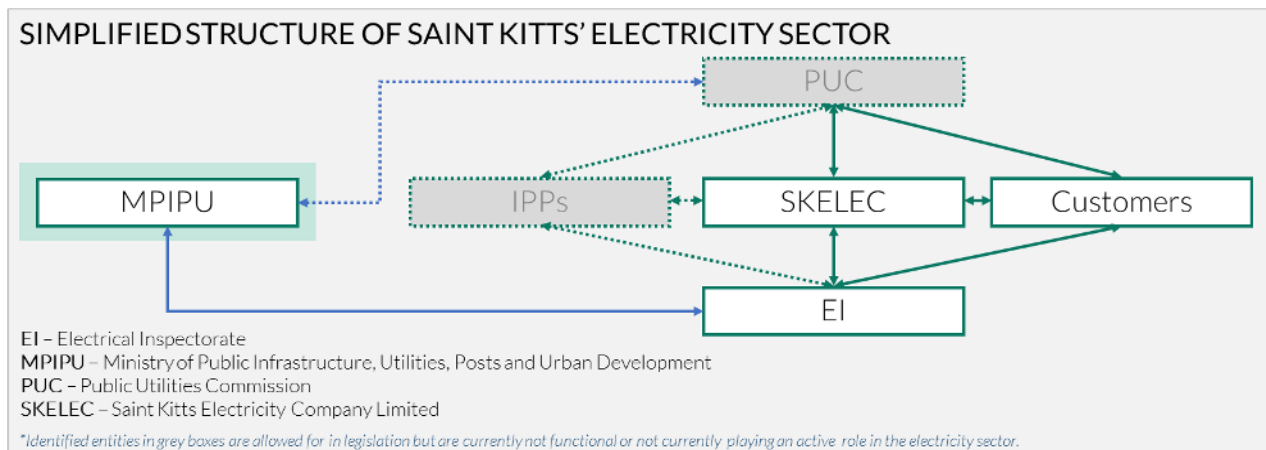
1.7.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Saint Kitts are:

1. The Ministry of Public Infrastructure, Post and Urban Development (MPIPU)
2. Public Utilities Commission (PUC)
 - Established by the Public Utilities Act (as revised, dated 31 December 2002).
 - The Public Utilities Act authorizes the PUC to regulate electricity services, and the conveyance or transmission of messages or communications by telephone.
 - Despite the PUC being established by the Public Utilities Act, it reportedly is not functional.
3. Electrical Inspectorate
 - The role and functions of electricity inspectors are outlined in the Saint Christopher Electricity Supply Act (as revised, dated 31 December 2017).
 - Responsible for certifying electrical installations.
 - Reports to the MPIPU.
4. The Saint Kitts Electricity Company Limited (SKELEC)
 - Vertically integrated electric utility with control over all aspects of the electricity system in Saint Kitts, from generation to supply.
 - Fully government owned, and under the direct responsibility of the MPIPU.
5. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 10 below.

Figure 10: Simplified Structure of Saint Kitts' Electricity Sector



While the 2002 Public Utilities Act establishes the Public Utilities Commission to act as an independent regulator for the utility sectors, including electricity, this has yet to be operationalized. While the entities identified represent the major stakeholders in the electricity sector in Saint Kitts, the latest reference document that provides overall policy direction for Saint Kitts' electricity sector is the Saint Kitts and Nevis National Energy Policy dated April 2011. This policy is based on the principle that energy services must become cleaner, more reliable, and affordable by employing the following strategies:

1. Increased diversification in the energy mix, through increased utilization of indigenous or regional renewable energy sources.
2. Promoting smarter, efficient and innovative approaches to energy use and supply.

No renewable energy targets are specified in the Saint Kitts and Nevis National Energy Policy. However, the St. Kitts and Nevis Updated Nationally Determined Contributions dated October 2021 indicate a target of 100% renewable energy power generation by 2030.

1.7.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Saint Kitts are provided below.

1.7.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on electricity sales and gross generation for 2019 is provided in Table 13 below.

Table 13: Saint Kitts Electricity Sector – Customer Count, Sales and Gross Generation (2019)

SAINT KITTS ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND GROSS GENERATION (2019)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Gross Generation (MWh)
Total	N/A	144,503*	174,100

* - Based on a reported system losses figure of 17%

1.7.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 14 below.

Table 14: Saint Kitts Electricity Sector – Installed Capacity & Peak Demand (2019)

SAINT KITTS ELECTRICITY SECTOR – INSTALLED CAPACITY & PEAK DEMAND (2019)		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	45.4
Interconnected Renewable Energy Generation Capacity	Solar	1.5
Total Installed Generation Capacity		46.9
Peak Demand		26.0

As indicated in Table 14, it was reported that in 2019 the total installed generation capacity in Saint Kitts stood at approximately 46.9MW which satisfied a peak demand of 26MW for the year. Diesel fueled generation units accounted for most of the installed capacity at approximately 97%, with the remaining generation provided by Solar PV. As indicated in Table 14, no information was found regarding customer count.

1.7.2.3 Access to Electricity

Access to electricity in Saint Kitts and Nevis was reported in 2020 as being 100%.



1.8 Saint Lucia Electricity Sector

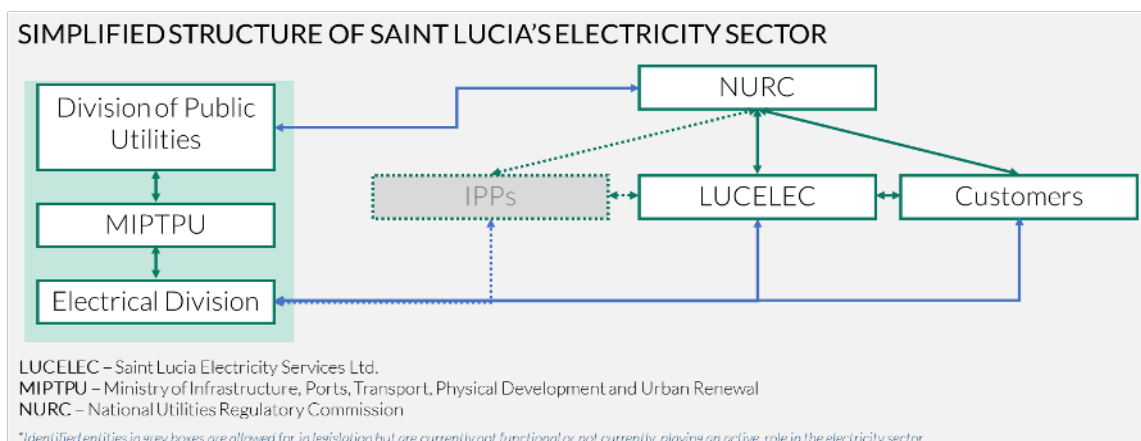
1.8.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Saint Lucia are:

1. Ministry of Infrastructure, Ports, Transport, Physical Development and Urban Renewal (MIPTPU)
 - o The Division of Public Utilities which is a part of the MIPTPU handles issues that involve the energy sector in Saint Lucia.
2. The National Utilities Regulatory Commission (NURC)
 - o Independent utility regulator established in 2016 by the National Utilities Regulatory Commission Act.
 - o The NURC has responsibilities for the regulation of the water supply service, sewerage service and electricity supply service in Saint Lucia.
3. The Electrical Division
 - o Resides within the MIPTPU.
 - o Chief electrical inspector and assistant electrical inspectors appointed by the Public Service Commission.
 - o Inspectors are required to inspect installations, electrical plant, apparatus, works, and to perform such other duties as may be prescribed.
4. The Saint Lucia Electricity Services Limited (LUCELEC)
 - o Vertically integrated utility with control over all aspects of the electricity system, from generation to supply.
 - o According to LUCELEC's 2021 Annual Report, the company's main shareholders are: Emera (St. Lucia) Limited (20%); First Citizens Bank Ltd. (20%); National Insurance Corporation (20%); Castries Constituencies Council (15.50%); the Government of Saint Lucia (10.05%); and Individual Shareholders (14.45%).
5. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 11 below.

Figure 11: Simplified Structure of Saint Lucia's Electricity Sector



As indicated in Figure 11 above, Saint Lucia's electricity sector includes an independent electric utility regulator, the NURC. As such, Saint Lucia is one of only three OECS territories that have a functioning independent utility regulator as part of their electricity sector governance framework. Functions of the NURC, as stated under paragraph 6-(1) of the 2016 National Utilities Regulation Commission Act, include the following:

- “(b) to promote the efficient and economic development of the utility supply services sector;*
- (d) to ensure compliance with the Government’s international and regional obligations relating to utility supply services;*
- (f) to receive, consider and determine applications for service licences to provide utility supply services pursuant the Regulatory Acts;*
- (g) to establish, approve, monitor and review tariff schemes and tariffs in accordance with any Regulatory Act;”*

It should be noted that, as a means of reforming the electricity sector in Saint Lucia and bringing its operations in greater alignment with regulatory practices in more developed electricity markets, the Government of Saint Lucia has embarked on updating its electricity sector legislation and regulations. These, when enacted, will further empower the NURC, as it pertains to regulation of the electricity sector in Saint Lucia.

While the entities identified previously represent the major stakeholders in the electricity sector in Saint Lucia, the documents listed below are important reference documents as they provide overall policy direction, indicate specific targets with regards to the integration of renewable energy into the electricity generation mix, and lay out specific requirements with regards to the functioning of Saint Lucia's electricity sector.

1. The National Energy Policy
 - o Dated January 2010
 - o A key objective of this policy is to create an enabling environment for the introduction of indigenous renewable energy into the national energy mix.
 - o Indicates the following targets for the incorporation of indigenous renewable electricity generation into the electricity generation: 2013 – 5%, 2015 – 15%, 2020 – 30%.
2. Saint Lucia's Updated Nationally Determined Contribution
 - o Dated January 2021
 - o Indicates a target of 7% reduction of greenhouse gas emissions in the energy sector by 2030, compared to 2010 levels.
3. The Saint Lucia National Energy Transition Strategy (NETS)
 - o Dated August 2017
 - o The objectives of the NETS included exploring options for least cost energy production and consumption while balancing the interest of stakeholders.
 - o The NETS included the results of an integrated resource plan (IRP), which identifies the optimal set of investments that will improve reliability; facilitate cost containment and support energy independence, including meeting RE targets for Saint Lucia.
4. The Saint Lucia Electricity Grid Code
 - o The Grid Code, when adopted, will establish a comprehensive framework regulating all material technical aspects of the development, planning, maintenance, and operation of Saint Lucia's electricity grid, the operation of generating facilities and the interconnection of system user facilities and electric lines.
 - o When adopted, the Grid Code is enforceable under Saint Lucia's Electricity Supply Amendment Act, the NURC Act and the proposed Electricity Act, when passed into law.

1.8.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Saint Lucia are provided below.

1.8.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on customer count, electricity sales and gross generation for 2021 is provided in Table 15 below.

Table 15: Saint Lucia Electricity Sector – Customer Count, Sales and Gross Generation (2021)

SAINT LUCIA ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND GROSS GENERATION (2021)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Gross Generation (MWh)
Domestic	63,222	137,541	
Commercial	7,412	186,399	
Industrial	88	18,743	
Streetlight	22	10,190	
Total	70,744	352,874	390,218

As indicated in Table 15, the total number of electric utility customers in Saint Lucia was reported to be 70,744 at the end of 2021. The majority of customers (about 89%) were classified as domestic customers, with commercial customers accounting for approximately 10.5% of the customer base. However, with respect to electricity sales, commercial customers account for the highest proportion at approximately 53%.

1.8.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 16 below.

Table 16: Saint Lucia Electricity Sector – Installed Capacity & Peak Demand (2021)

SAINT LUCIA ELECTRICITY SECTOR – INSTALLED CAPACITY & PEAK DEMAND		
	Technology	Installed Capacity (MW)
Conventional Generation Capacity	Diesel	88.4
Interconnected Renewable Energy Generation Capacity	Solar	3.0
Total Installed Generation Capacity		91.4
Peak Demand		60.9

As at the end of 2021, it was reported that the total installed generation capacity in Saint Lucia stood at 91.4MW which satisfied a peak demand of 60.9MW for the year. Diesel fueled generation units accounted for the majority of installed capacity at approximately 96.7%, with the remainder of utility-scale power generation provided by a single 3MW solar PV facility located at La Tourney in the south of Saint Lucia.

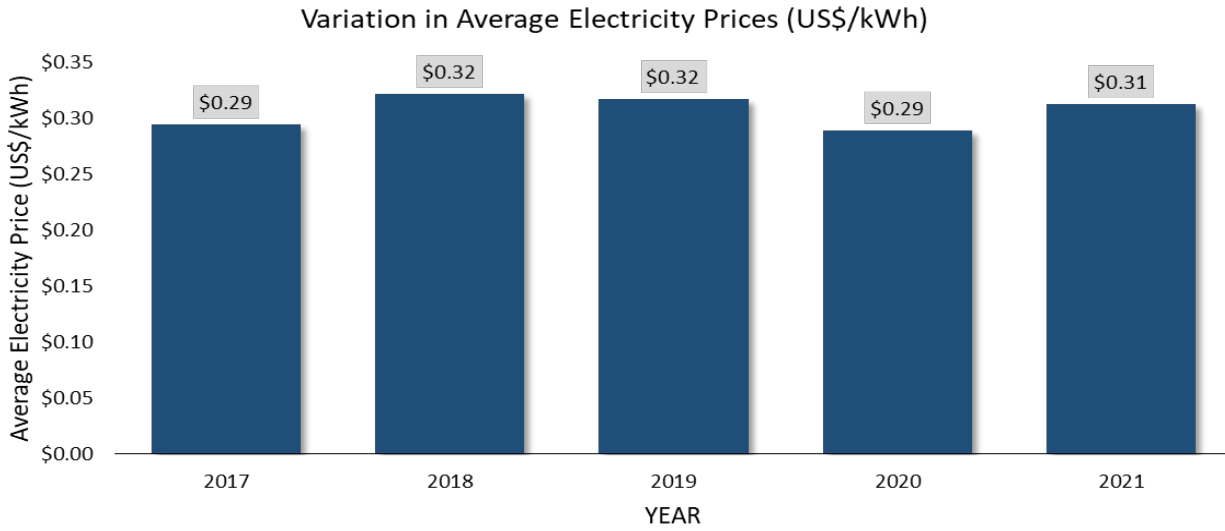
1.8.2.3 Access to Electricity

Access to electricity in Saint Lucia was reported in 2020 as being 99%.

1.8.2.4 Average Price of Electricity

Based on information available to GGGI, the average price of electricity, covering all customer classes, for the years 2017 – 2021 is shown in Figure 12 below.

Figure 12: Variation in Average Electricity Prices in Saint Lucia (2017 - 2021)





1.9 Saint Vincent and the Grenadines Electricity Sector

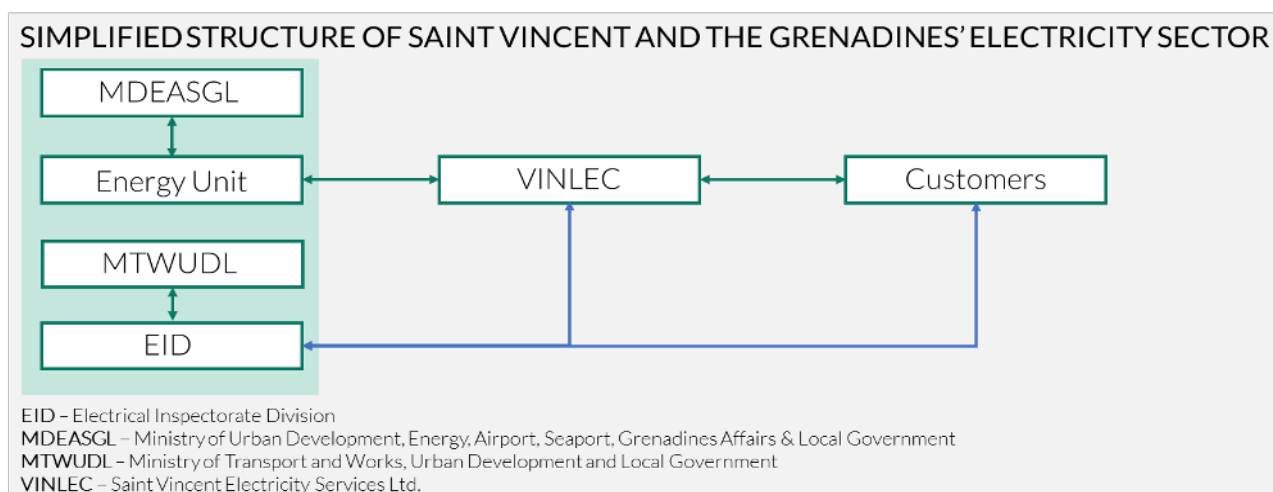
1.9.1 Electricity Sector Governance Framework

The major stakeholders in the electricity sector in Saint Vincent and the Grenadines are:

1. The Ministry of Urban Development, Energy, Airport, Seaport, Grenadines Affairs & Local Government (MDEASGL)
 - o Saint Vincent and the Grenadines' Energy Unit, which is a part of the MDEASGL, handles issues that involve the energy sector in Saint Vincent and the Grenadines.
2. Electrical Inspectorate Division
 - o Resides within the Ministry of Transport and Works, Urban Development and Local Government (MTWUDL).
 - o Responsible for certifying electrical installations.
3. Saint Vincent Electricity Services Limited (VINLEC)
 - o A vertically integrated utility with responsibility for generating, transmitting and distributing electricity.
 - o According to VINLEC's website, the company is 100% state-owned.
4. Electric utility customers

A simplified illustration of the relationship between these stakeholders is presented in Figure 13 below.

Figure 13: Simplified Structure of Saint Vincent and the Grenadines' Electricity Sector



The governance structure for the electricity sector in Saint Vincent and the Grenadines does not include an independent regulatory body. Currently, activities that would be the domain of an independent regulator are handled directly by the Energy Unit within the MDEASGL.

While the entities identified previously represent the major stakeholders in the electricity sector in Saint Vincent and the Grenadines, the documents listed below are important reference documents as they provide overall policy direction and indicate specific targets with regards to the integration of renewable energy into the electricity generation mix in Saint Vincent and the Grenadines.

1. The National Energy Policy
 - o Dated March 2009
 - o One of the guiding principles of this policy is to take advantage of renewable, local energy resources, wherever this is possible from the aspects of availability (potential), energy demand, technical and social implications, economic feasibility, ecological harmony and sustainability.
2. St. Vincent and the Grenadines Intended Nationally Determined Contribution
 - o Dated November 2015
 - o No explicit target stated with respect to the contribution of renewable energy to electricity generation. However, an overall target of a 22% reduction in greenhouse gas emissions by 2025, compared to business-as-usual, is indicated. This will include emissions reductions in the electricity sector through development of geothermal power generation, improving efficiencies and capacities of hydroelectric generation, and encouraging the installation of small-scale solar PV facilities.
3. Saint Vincent and the Grenadines' Energy Action Plan (EAP)
 - o Dated January 2010
 - o The purpose of the EAP is to develop possible scenarios for Saint Vincent and the Grenadines' energy future from 2009 until 2030.
 - o The goal of the EAP with respect to the incorporation of renewable energy into electricity generation in Saint Vincent and the Grenadines is to deliver 30% of projected total electricity output from Renewable Energy Sources (RES) by 2015 and 60% by 2020.

1.9.2 Electricity Sector Statistics

Summary statistics for the electricity sector in Saint Vincent and the Grenadines are provided below.

1.9.2.1 Customer Count, Electricity Sales, and Gross Generation

Information on customer count, electricity sales and net generation for 2018 is provided in Table 17 below.

Table 17: Saint Vincent and the Grenadines Electricity Sector – Customer Count, Sales and Net Gen. (2018)

SAINT VINCENT AND THE GRENADINES ELECTRICITY SECTOR – CUSTOMER COUNT, SALES AND NET GEN (2018)			
Customer Class	Customer Count	Consumption/ Sales (MWh)	Net Generation (MWh)
Domestic	40,402	68,226.52	
Commercial	4,619	56,947.77	
Industrial	24	6,938.27	
Streetlight	46	3,003.35	
Total	45,091	135,115.91	146,199.18

As indicated in Table 17, the total number of electric utility customers in Saint Vincent and the Grenadines was reported to be 45,091 at the end of 2018. The majority of customers (just under 90%) were classified as domestic customers, with commercial customers accounting for approximately 10% of the customer base.

However, with respect to electricity sales, commercial customers account for a much greater proportion at approximately 42%.

1.9.2.2 Installed Capacity and Peak Demand

Information on electricity installed capacity and peak demand is provided in Table 18 below.

Table 18: Saint Vincent and the Grenadines Electricity Sector – Installed Capacity and Peak Demand (2018)

SAINT VINCENT AND THE GRENADINES ELECTRICITY SECTOR – INSTALLED CAPACITY AND PEAK DEMAND (2018)						
Technology	Installed Capacity per Island (MW)					
	St. Vincent	Bequia	Union Island	Canouan	Mayreau	Total
Diesel	37.06	4.15	1.24	4.04	0.14	46.63
Hydro	5.71	-	-	-	-	5.71
Solar	0.59	-	0.6	-	0.23	1.42
Total Installed Capacity	43.36	4.15	1.84	4.04	0.37	53.76
Historic Peak Demand	21.69	1.66	0.59	0.81	0.09	

As at the end of 2018, it was reported that the total installed generation capacity in Saint Vincent and the Grenadines stood at 53.76MW split across five islands as indicated in Table 18, with St. Vincent having the largest installed capacity of 43.36MW which satisfied a peak demand of 21.69MW for the year. Diesel fueled generation units accounted for the majority of installed capacity at approximately 86.7%, with the remainder of utility-scale power generation provided by hydroelectric and solar PV facilities.

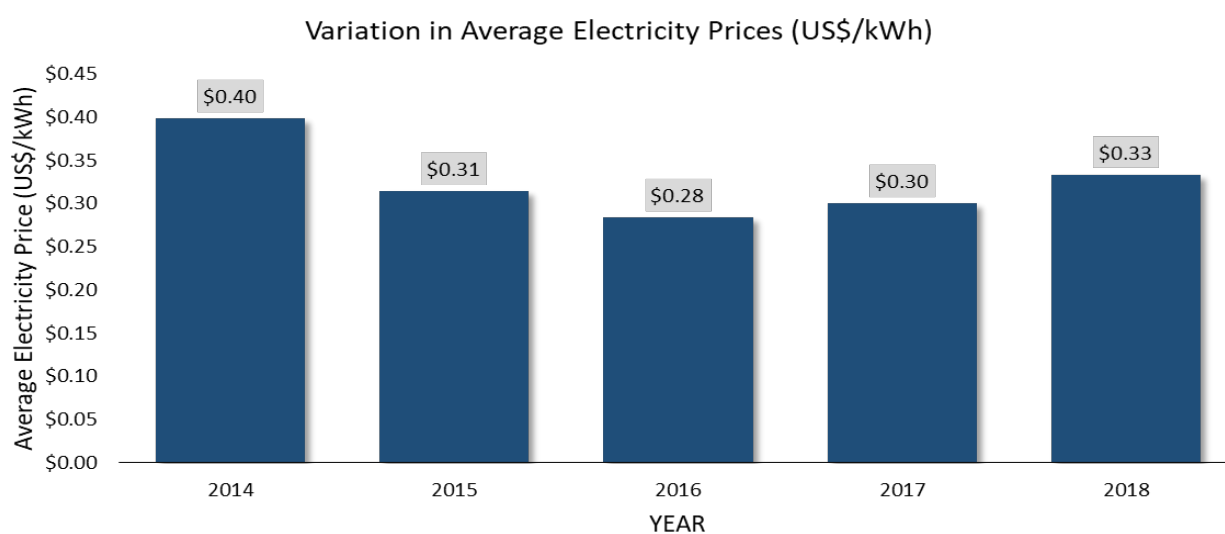
1.9.2.3 Access to Electricity

Access to electricity in Saint Vincent and the Grenadines was reported in 2020 as being 100%.

1.9.2.4 Average Price of Electricity

Based on information available to GGGI, the average price of electricity, covering all customer classes, for the years 2014 – 2018 is shown in Figure 14 below.

Figure 14: Variation in Average Electricity Prices in Saint Vincent and the Grenadines (2014 - 2018)





1.10 Similarities and Differences Across Member States

While electricity networks in OECS member states would all generally be considered to be small, significant diversity is exhibited when comparing characteristics of the respective networks, such as number of customers, peak load, annual sales, etc. as illustrated in information provided under sections 2.1 to 2.9. Diversity also exists when examining the governance framework for the electricity sector in the respective territories. A clear example of this would be the presence of an independent electric utility regulator in some territories, while this feature is absent in others.

Despite differences such as those highlighted above, there are several similarities in characteristics, challenges and development plans across member states. As all member states are islands, they each operate isolated electricity networks with no existing provisions for interconnection with other territories, thus requiring high levels of operating reserves in order to maintain reasonable system reliability. This, coupled with a heavy reliance on small, inefficient diesel generating units generally result in relatively high electricity tariffs that consequently impact other aspects of the respective economies. These challenges, coupled with similarities in climate, geography and natural resources (geothermal resources, for example) have factored into parallels in proposed strategies to address issues faced. A number of territories, therefore, have similar electricity sector transformation goals, with similar proposals to attain these goals. In the majority of OECS member states, for example, the development of geothermal resources and the proposed use of solar PV for electricity generation are part of proposed strategies for meeting renewable energy targets and achieving energy security goals.

However, despite these similarities, not all territories are on the same trajectory in meeting their goals, neither are immediate priorities the same. As such, these variations, in addition to those mentioned previously, have to be considered when developing strategies to address topics related to the increased use of renewable energy in electricity generation across the region.

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The Global Green Growth Institute

19F Jeongdong Building, 21-15, Jeongdong-gil,
Jung-gu, Seoul, Korea 04518

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