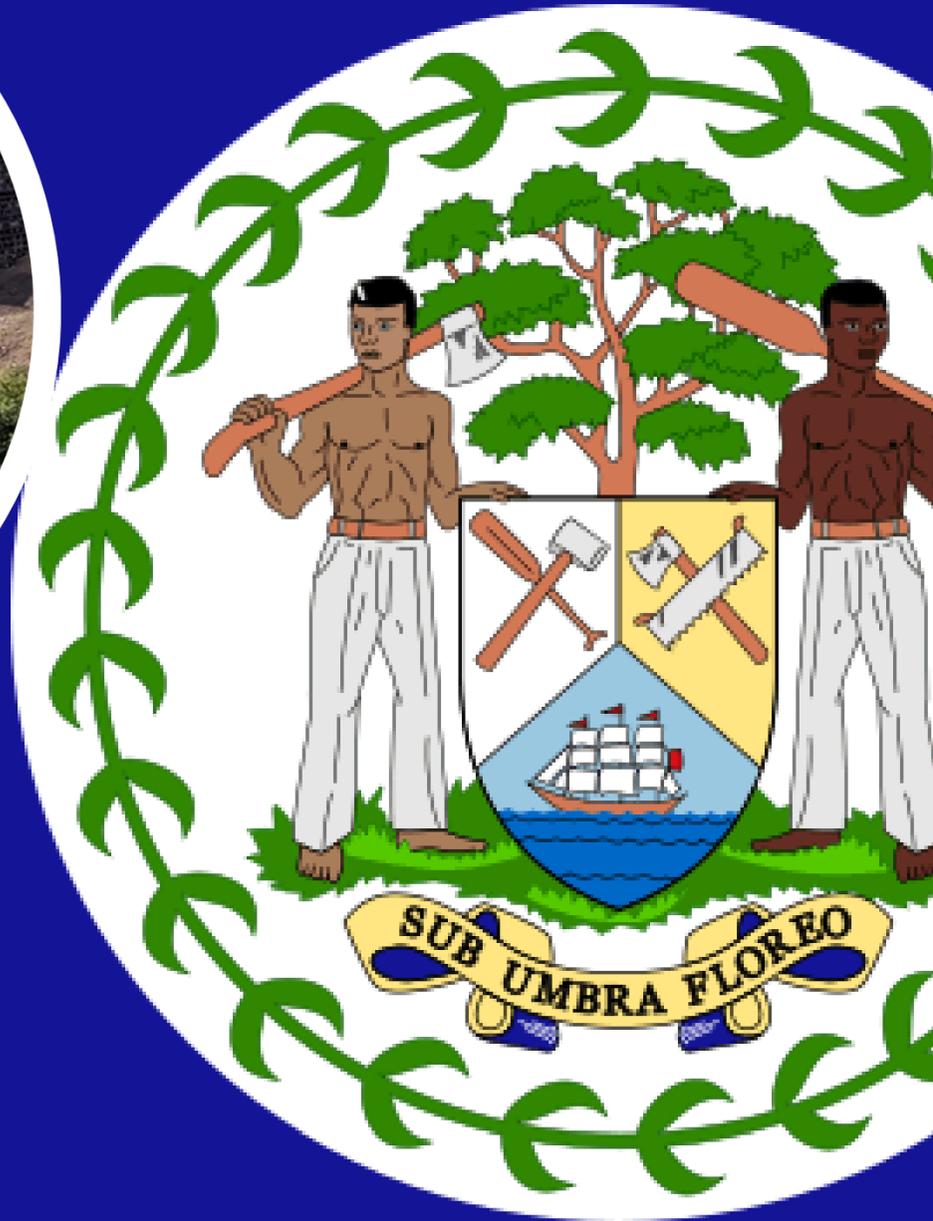


# 2023 ENERGY REPORT CARD BELIZE





# Introduction

This is the Energy Report Card (ERC) for 2023 for Belize.

The ERC provides an overview of the energy sector performance, highlighting the following areas:

- Installed Conventional and Renewable Power Generation Capacity
- Annual Electricity Generation, from Conventional and Renewable Plants
- Other Electricity Sector Metrics, such as Losses, Consumption, and Tariffs
- Renewable Energy Targets
- Renewable Energy Resource Potential

The ERC also includes sectoral data and information on policies and regulations; workforce; training and capacity building; and related areas.

The data and information that are available in the ERC were mostly provided by the government ministries, agencies, and departments, that have responsibility for statistics and planning, in general, and the energy sector and electricity subsector including the electric utilities, in particular. The data and information collected was supplemented by desk-based research and, in instances, information was generated from calculations and analyses that were performed by the CCREEE.

## Quality Assurance

The collection and treatment of data and information that is produced for the ERC is consistent with the International Recommendations for Energy Statistics (IRES), which provides a comprehensive methodological framework for the collection, compilation, and dissemination of energy statistics in all countries irrespective of the level of development of their statistical system. The ERC is produced in accordance with these performance standards that seek, as far as is possible, to ensure the quality (i.e., objectivity, utility, and integrity) of data and information that it disseminates to the public.

The CCREEE strives for transparency on the information and methods that are used within the production of the ERC, with a view to improve understanding on how the information should be treated and to facilitate reproducibility of the information. Nevertheless, the Centre recognizes that quality may be limited by the nature and source of the data and information disseminated.

## Disclaimer

The ERC includes data and information that is contained in a variety of public sources and, though every effort is made to validate the accuracy and validity of the contents, reliance on the information herein is strictly at the user's risk.

## Correction of Errors

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## Requests for Correction

The CCREEE has established administrative mechanisms to allow persons to seek and obtain, where appropriate, legitimate correction(s) to information maintained and disseminated through the ERC. Any request for corrections should be sent to: [energyreportcard@ccreee.org](mailto:energyreportcard@ccreee.org), under the subject: REQUEST FOR CORRECTION TO ERC 2023 FOR BELIZE

## Acknowledgements

The CCREEE acknowledges the contributions of the Ministry of Public Utilities, Energy, Logistics, and E-Governance, Belize, and thanks Ms. Areli Sutherland Energy Officer, in the Energy Unit of the Ministry, for her supervision of the intern, India Choco, who supported the preparation of the ERC.



# Energy Sector Summary

<b>Population (Estimation)</b>	404,198 [1] <sup>1</sup>
<b>GDP (USD)</b>	\$ 3,041,687,151.17 [2]
<b>GDP (USD) Per Capita</b>	\$ 6,289.41 [2]
<b>Gross National Income (GNI) Per Capital (USD)</b>	\$ 13,710 [3]
<b>Debt as % of GDP</b>	46% [2]
<b>Human Development Index</b>	0.700 (2022) [4]
<b>National Development Plan/Overall Country Development Strategy</b>	Horizon 2030 Belize: Planning Our Future Together 2010 – 2030 [5]  Plan Belize Medium-term Development Strategy 2022 - 2026 [6]
<b>National Energy Policy</b>	Belize National Energy Policy (2023) [7] <sup>2</sup>
<b>Renewable Energy (RE) Policy</b>	None <sup>3</sup>
<b>Renewable Energy Target</b>	Increase renewable energy electricity penetration to 75% by 2030. [8]

<b>Energy Efficiency Target</b>	Reduce energy consumption by 10%, with projection to reduce energy intensity to 0.141 toe/USD000s of GDP [8]
<b>Total Installed Conventional Capacity (MW)</b>	108.3 MW [12] [13] [14]
<b>Total Installed RE (MW)</b>	81.38 MW [12] [13] [14]
<b>Electricity System Losses (%)</b>	12.3% [12] [13] [14]
<b>Energy Use (kWh) Per Capita</b>	1,636 kWh
<b>Energy Performance Standards/Appliance Labelling</b>	Belize Energy Efficiency Labelling Scheme (EELS) [10] [11] <sup>4</sup>
<b>National Repository for Energy Data</b>	Belize National Energy Information System (sieBelize) [13]
<b>Climate Change Policy</b>	Belize National Climate Change Policy, Strategy, and Master Plan (BNNPSMP) (2021) [9]
<b>National Determined Contributions (NDC)</b>	A 63% increase in GHG removals related to the Agriculture, Forestry and Other Land Use (AFOLU) sector and an increase of renewable energy projects for grid connected electricity generation.

1 - Estimated Mid-Year Population by the Statistical Institute of Belize.

2 - The Belize National Energy Policy was updated in November 2023. The previous policy was Belize National Energy Policy Framework (2012) [68].

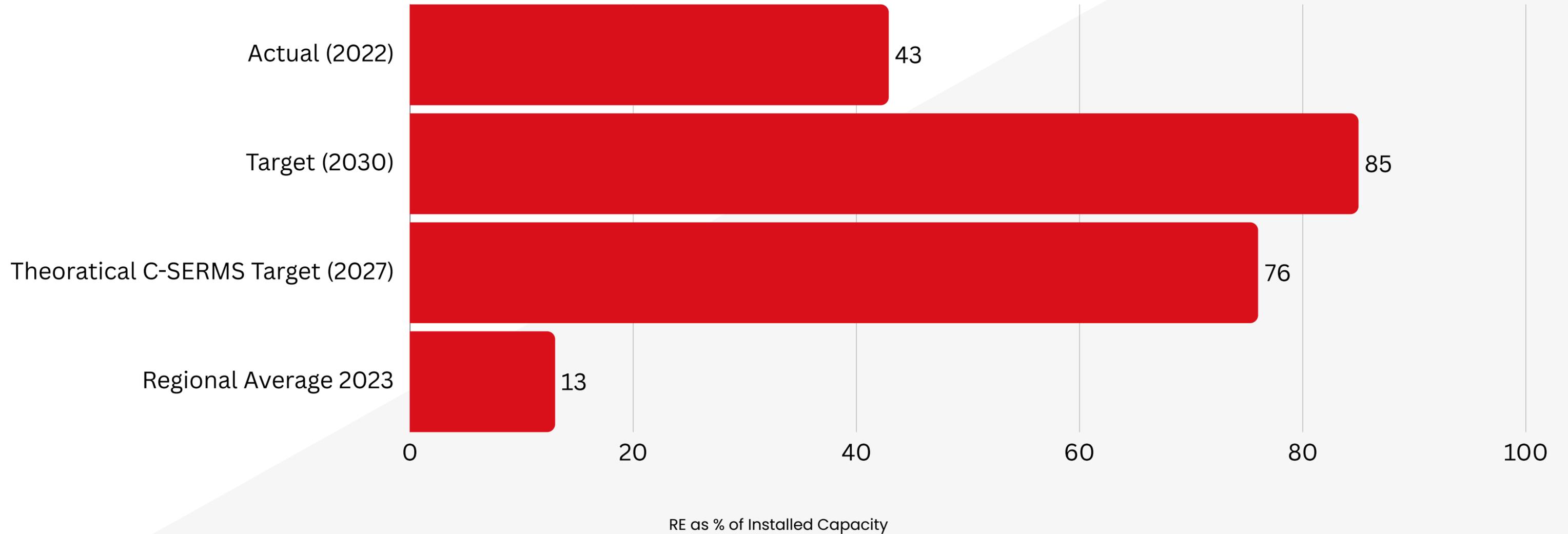
3 - Belize does not have a National RE Policy, however the Belize Sustainable Energy Strategy and Action Plan lays out plans and actions to unlock Belize's RE and EE potential.

4 - The EELS Product Registration System became mandatory with the establishment of the compulsory standard effective March 2025.



# Energy Sector Performance [15] [13] [12]

## Renewable Energy Capacity Against Targets





## Government Ministries, Departments and Agencies

Ministry of Public Utilities, Energy, Logistics and E-Governance [16]

- Energy Unit [17]

Ministry of Sustainable Development, Climate Change and Disaster Risk Management [18]

- Department of Environment [19]
- National Climate Change Office [20]
- Sustainable Development Unit [21]

Ministry of Finance, Economic Development & Investment

- Climate Finance Unit [22]<sup>5</sup>

Ministry of Blue Economy and Civil Aviation [23]

Ministry of Youth, Sports, and Transport

- Department of Transport

Belize Port Authority [24]

The Belize Bureau of Standards [25]

Social Security Board<sup>6</sup> [26]<sup>6</sup>

## Fuel Importers & Suppliers

Belize Natural Energy (BNE)

National Gas Company (Belize) Limited [27]

Puma Energy Bahamas S.A. [28]

UNO Belize

SOL Belize Limited [29]

## Independent Power Producer

Belize Co-Generation Energy Limited (BELCOGEN) [31]

Blair Athol Power Company (BAPCoI) [32]

Fortis Belize Limited [33]

Farmers Light Plant Corporation Limited [31]

Santander Sugar Energy Limited [34]

Hydro Maya Limited [31]

Japan International Cooperation Agency (JICA) Solar

Farm in Partnership with University of Belize [31]

Comisión Federal de Electricidad, Mexico [31]<sup>7</sup>

## Electricity Regulator

Public Utilities Commission Belize [35]

## Electric Utility

Belize Electricity Limited (BEL)



5 - The Climate Finance Unit is tasked with streamlining Belize's access to climate finance by aligning it with other key sustainable development priorities.

6 - Shareholder in the Electric Utility

7 - Electricity is imported from Comisión Federal de Electricidad in Mexico.



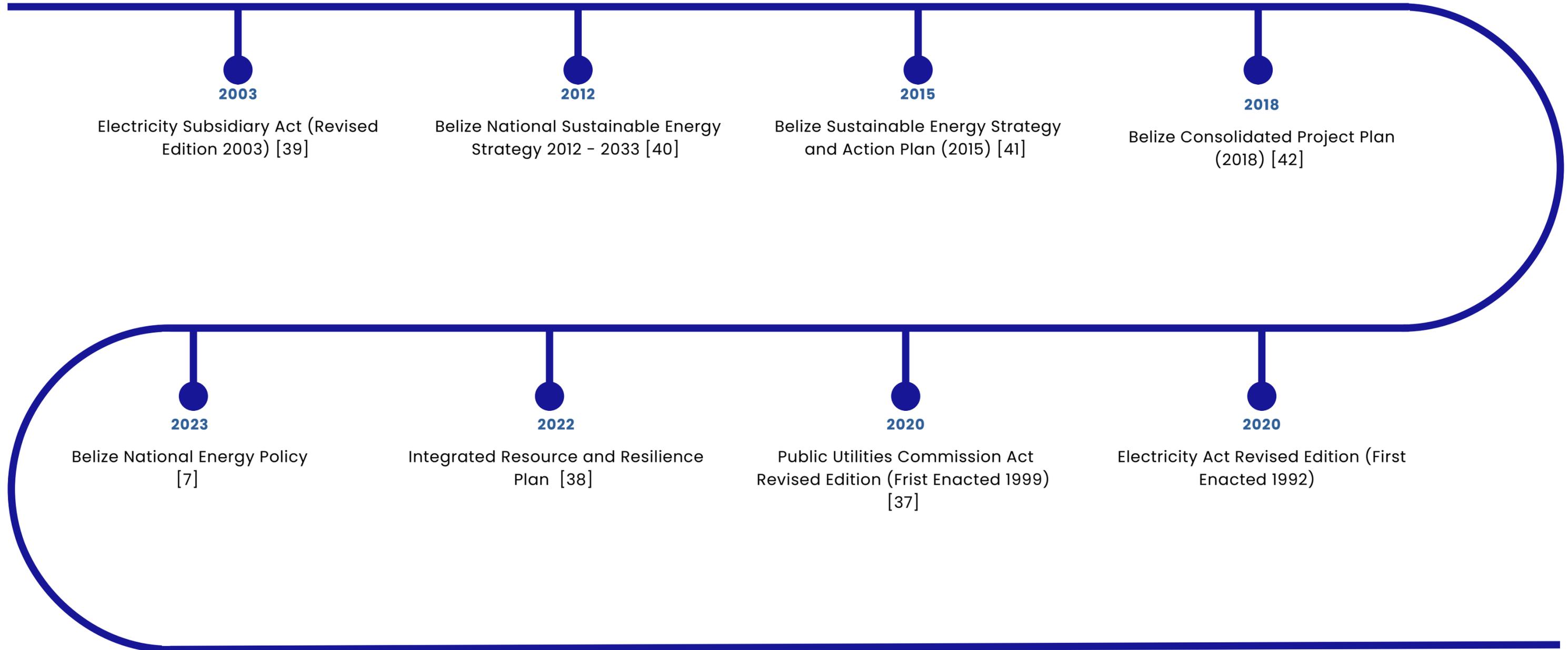
## Policy, Legal and Regulatory (PLR) Framework

	Year	Status
Energy Policy [7]	2023	In Force
Energy Action Plan		Not Established
RE Target [36]	2023	In Force
EE Target [36]	2023	In Force
Electricity Regulator [37]	1999	In Force
Net Billing/Net Metering		Draft in Progress
Interconnection Policy/Standards		Draft in Progress
Feed-In-Tariff		Draft in Progress
Integrated Resource and Resilience Plan [38]	2022	In Force
RE/EE Act		Not Established



# Policy, Legal and Regulatory (PLR) Framework

## Key Achievements: PLR Framework Timeline for Electricity Sub-Sector





## Policy, Legal and Regulatory (PLR) Framework

### Policies Relevant to the Energy Sector

Year	Name	Status	Description
2011	National Energy Policy Framework [43]	In Force	This policy framework outlines a path to an efficient energy sector within the context of Belize's particular strengths and constraints.
2012	Ministry of Energy, Science and Technology, and Public Utilities Strategic Plan 2012 - 2017 [44]	In Force	This plan outlines the path to transitioning the energy sector and economy toward low carbon development.
2015	Belize Sustainable Energy Strategy Volume 1 and 2 [41]	In Force	This Strategy aims to improve energy efficiency and conservation in order to transform to a low carbon economy by 2033.
2016	Growth and Sustainable Development Strategy (2016-2019) [45]	In Force	Goals include facilitating the development or emergence of other types of employment-generating opportunities, including activities related to renewable energy.
2016	Belize Consolidated Project Plan (CPP)	In Force	The Plan seeks to identify opportunities within the electricity sector that offer significant economic, social, and environmental benefits for Belizeans.
2018	Comprehensive National Transportation Master Plan for Belize [46]	In Force	The Plan facilitates better sector planning and a more efficient and effective transport of freight and people within Belize, and between Belize and its main trading partners. It includes actions to: <ul style="list-style-type: none"> <li>• implement regulations on heavy-duty vehicle emissions,</li> <li>• facilitate energy efficiency in light-duty vehicles,</li> <li>• introduce electric vehicles and,</li> <li>• consider biofuels as an alternative for fossil fuels in the transport sector.</li> </ul>
2022	Integrated Resource and Resilience Plan [38]	In Force	The Plan outlines how the country can supply their future electricity demand (demand forecasting), ensuring reliable sources of power, minimising the negative impacts on the environment, and enhancing the resilience of power systems to hazards and risks, while minimizing costs to consumers. The preferred plan allows for the expansion of the generating capacity through independent power producers using solar PV, gaseous fuels, hydro power, biomass and wind power.



# Policy, Legal and Regulatory (PLR) Framework

## Policies Relevant to the Energy Sector

Year	Name	Status	Description
2023	Belize National Energy Policy [7]	In Force	The Policy outlines a strategic framework to transition Belize's energy sector toward sustainability, energy security, and economic growth. It emphasizes renewable energy development, energy efficiency, and reducing greenhouse gas emissions. The policy sets goals to diversify energy sources, promote investment in clean energy technologies, and enhance access to affordable and reliable energy services. It also aligns with global climate commitments and prioritizes resilience in energy infrastructure to support Belize's sustainable development.



# Policy, Legal and Regulatory (PLR) Framework

## Legislation Relevant to the Energy Sector

Year	Name	Status	Description
1992	The Petroleum Act Chapter 225 [47]	In Force	The Act covers the various aspects of petroleum exploration to include operation rights, surface rights, government revenue, the type and nature of contracts.
1932	Petroleum Regulation [48]	In Force	The Petroleum Regulations implement the provisions made in the Petroleum Act and regulate the exploration and exploitation of petroleum resources as it relates to environment and pollution control, drilling practices, reporting on activities, application for exploration or exploitation licenses, bidding, etc.
1992	Environmental Protection Act (CAP 328) (Revised 2000) [49]	In Force	Establishes protection for the environment which includes water, coasts, seas, air and land and the interacting relationship from adverse effects of activities.
2000	Belize City Council Act (CAP 85) (Revised 2000) [50]	In Force	The Act outlines the constitution, operation, procedure and duties of the appointed urban authorities. The legislation also outlines the maintenance of Belize City.
2001	Belize Port Authority Act (CAP 233) (Revised 2000) [51]	In Force	Enables the Belize Port Authority to regulate and control uses of the ports and facilities.
2011	Motor and Vehicles and Road Traffic Act (Revised 2011) [52]	In Force	This Act covers rules for vehicular use on the roads of Belize, and the management and operations of the Transport Board.
2011	Public Roads Act (CAP 232) (Revised 2011) [53]	In Force	This Act outlines procedures for road maintenance and construction.



## Policy, Legal and Regulatory (PLR) Framework

### Legislation Relevant to the Energy Sector

Year	Name	Status	Description
2011	Harbours and Merchant Shipping Act (CAP 234) (Revised 2011) [54]	In Force	This Act makes provisions for the maritime navigation of waters of Belize inclusive of the harbours and rivers and overseeing same.
2011	Belize Airport Authority Act (CAP 238) (Revised 2011) [51]	In Force	The Belize Airport Authority Act establishes the Belize Airport Authority to manage and administer prescribed airports and provide all essential services and facilities necessary for their efficient operations.



## Policy, Legal and Regulatory (PLR) Framework

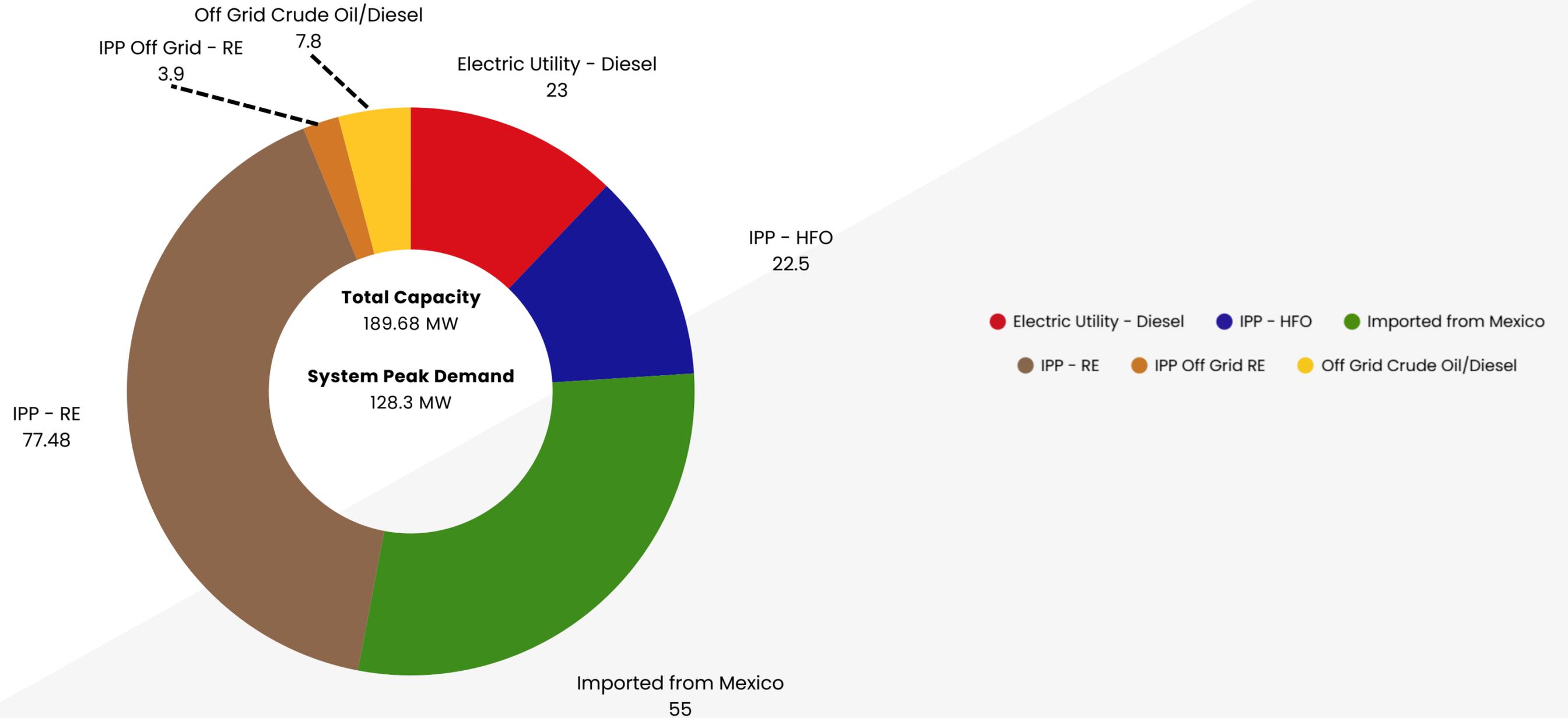
### Renewable Energy and Energy Efficiency Incentives

Year	Name	Status	Description
2022	Fiscal Incentive Act [56] Amended 2023	In Force	The Fiscal Incentive Act seeks to streamline the fiscal incentive programme to improve the regulatory functions to allow foreign companies to apply for incentives; to offer new fiscal incentives; to improve access to incentives for MSMEs. The Belize Fiscal Incentives Act, amended in March 2023, includes benefits for renewable energy projects, offering exemptions from import duties, revenue replacement, and excise duties, as well as business tax, to encourage investment in this sector.



# Electricity and Energy Efficiency [15] [12] [13] [14]

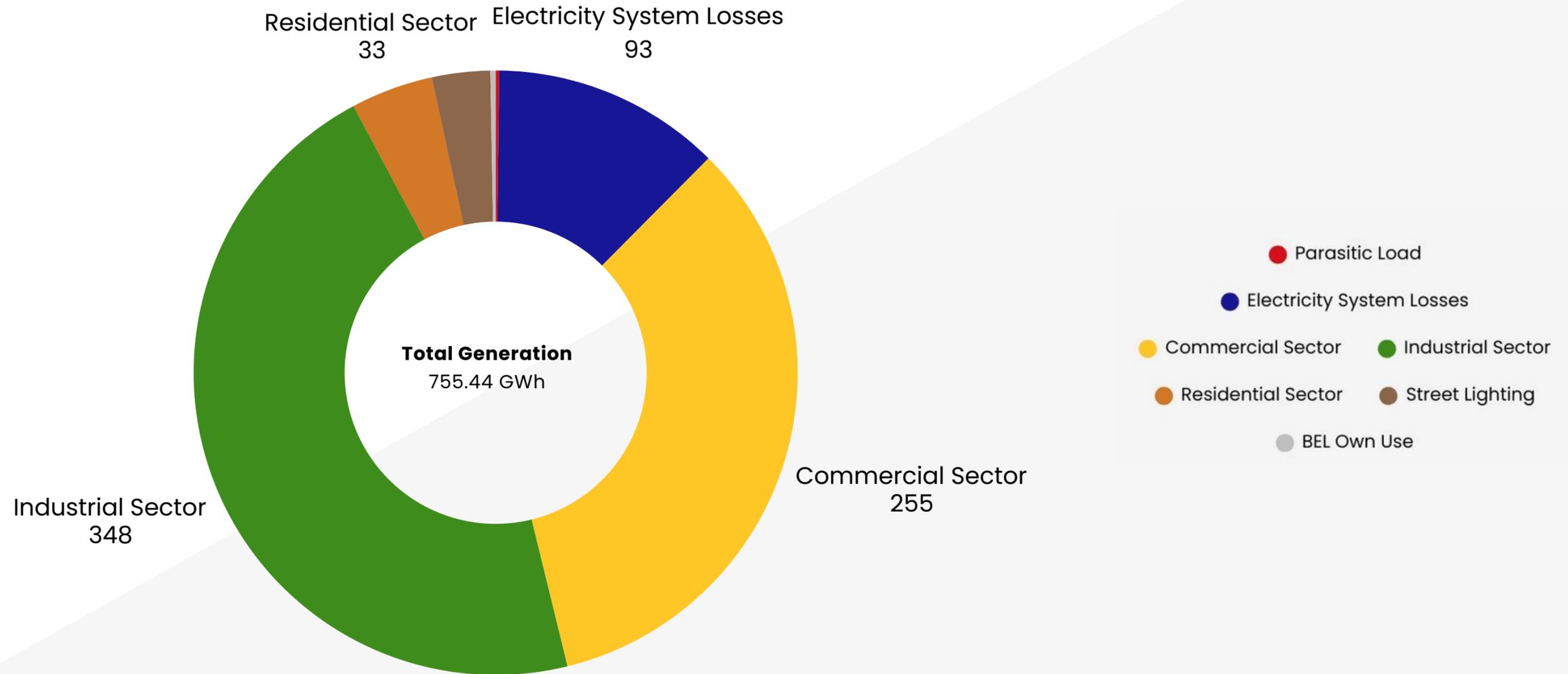
## Installed Capacity (MW)





# Electricity and Energy Efficiency [15] [12] [13] [14]

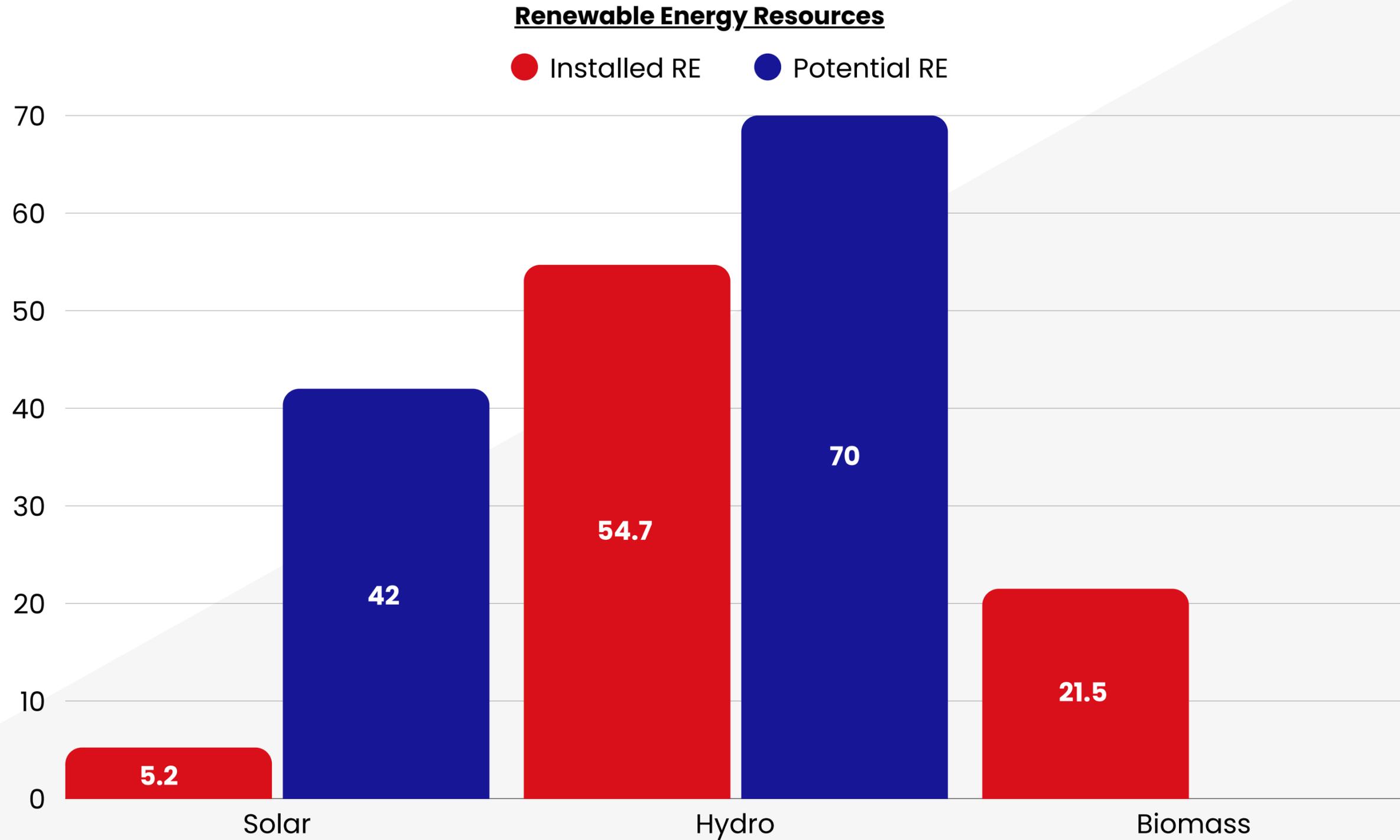
## Energy Generation (GWh) <sup>8</sup>



8 - The energy consumption breakdown reflects that of Belize Electricity Limited and does not include generation and self-consumption figures from IPPs and off-grid facilities.



## Electricity and Energy Efficiency [15] [12] [13] [14]





# Electricity and Energy Efficiency [57]

## Electricity Tariffs

Rate Class	kWh	Rate (US\$/kWh)
Customer Charge	1-60	US\$ 0.10
	Minimum Charge	US\$ 2.48
Residential	0-50	US\$ 0.16
	51-200	US\$ 0.18
	Above 200	US\$ 0.21
	Minimum Charge	US\$ 4.96
Commercial 1 <sup>9</sup>	0-50	US\$ 0.17
	51-200	US\$ 0.19
	Above 200	US\$ 0.22
	Minimum Charge	US\$ 5.00
Commercial 2 <sup>10</sup>	0-10,000	US\$ 0.20
	10,001-20,000	US\$ 0.19
	Above 20,000	US\$ 0.18
	Minimum Charge	US\$ 74.50
Industrial 1	Energy (per kWh)	US\$ 0.14
	Demand (per KVA)	US\$ 17.37
	Service Charge	US\$ 124.09
Industrial 2	Energy (per kWh)	US\$ 0.12
	Demand (per KVA)	US\$ 11.41
	Service Charge	US\$ 124.09
Street Lights		US\$ 0.23

9 - Commercial customers with average consumption less than 2,500 kWh. This category includes non-manufacturing business establishments, such as offices, hotels, resorts, motels, bed & breakfasts, boarding houses, restaurants, and wholesale businesses.

10 - Commercial customers who are not classified as Commercial 1 or Industrial. This category includes non-manufacturing business establishments, such as offices, hotels, resorts, motels, bed & breakfasts, boarding houses, restaurants, and wholesale businesses.



# Projects in the Pipeline

## Programmes

Programme Name	Technical Assistance Providers	Implementing Partner	Funding Awards	Funding Source
Supporting the implementation of NDCs in the Caribbean – transforming the transport and energy sectors towards a low-carbon and climate-resilient future (NDC-TEC) [58][59] <sup>11 12</sup>	Climate Analytics	National Climate Change Office Department of Transport	€ 19,999,489.00 <sup>13</sup>	Federal Ministry for Economic Affairs and Climate Action of Germany (BMWK) via the International Climate Initiative (IKI)
EDF 11 [13] [60]	GFA Consortium	Belize Bureau of Standards, United Nations Development Programme (UNDP)	€ 14 million	European Union

## Energy Efficiency Projects

Energy Efficiency	Project Name	Programme Name	Old/Existing Infrastructure	Change in Old/Existing Infrastructure Expected in Upcoming Calendar Year	Expected Change in Technology	Relative Difference in Operating Consumption/Costs
Lighting Transition	Bulb Exchange Program [13] [60]	EDF-11	€ 20 million	About 5000 bulbs (out of the original 9,000) still need to be distributed.	Encourage shift towards LEDs among the public.	Each 8 W LED bulb replaces a 60 W Incandescent or a 15 W CFL bulb (Estimated.)

11 - The programme Supporting the implementation of NDCs in the Caribbean – transforming the transport and energy sectors towards a low-carbon and climate-resilient future (NDC-TEC) is being undertaken in Antigua and Barbuda, Belize, Grenada, Jamaica, and Saint Lucia

12 - Executing Agency in country was Ministry of Agriculture, Fisheries, Forestry, the Environment and Sustainable Development, Coastal Zone Management Authority and Institute (CZMAI)

13 - This figure represents the entire project.



## Projects in the Pipeline

### Renewable Energy Projects

Renewable Energy Source	Project Name	Programme Name	System Size (kW)	Implementing Partner	Total Estimated Cost	Funding Source
Solar Photo-Voltaic [13]	Saudia Arabia Loan Solar PV Project	Not Applicable	60,000	To be determined	US\$ 77 million	Saudi Fund for Development (SFD)
	Rural Energy Access: Jalacte/San Vincente	EDF-11	200	Belize Electricity Limited	€ 4.5 million	European Union
	Rural Energy Access: San Benito Poite [13] [60]	EDF-11	105	Belize Electricity Limited		
	Solar Off-Grid Electrification: Corazon Creek [61] <sup>11</sup>	Not Applicable	72 kWp	Belize Electricity Limited Solar Energy Solutions Belize Limited Ministry of Public Utilities, Energy, Logistics, and E-Governance (MPUELE)	€ 470,000	CDW Stiftung gGmbH

114- This project was closed in 2024 [66].



## Projects in the Pipeline

### Transportation Projects

Project Name	Vehicles or Charging Infrastructure	System Size (kW)	Implementing Partner	Total Estimated Cost	Funding Source
Towards Low Carbon Transport: Piloting e-mobility within Belize's Public Transport System [62] [63]	5 e-buses & chargers	4125	Department of Environment	United Nations Development Programme (UNDP), Belize City Council (BCC), Department of Transport, Ministry of Public Utilities, Energy, Logistics, and E-Governance (MPUELE)	European Union (EU)



## Tertiary Programmes Offered

### Institute for Technical and Vocational Education and Training (ITVET)

#### Vocational Certificate

- Renewable Energy & Efficiency

### Galen University

#### Bachelor's Degree Programme

- Environmental Science

### Education Provider



### University of Belize

#### Associate Degree Programme

- Natural Resource Management

#### Bachelor's Degree Programme

- Natural Resource Management

#### Master of Philosophy / Doctoral Programme

- Natural and Environmental Sciences



# Climate Change Framework

<b>Climate Change Policy</b>	National Climate Change Policy, Strategy and Master Plan (2021) [9] <sup>12</sup>
<b>Nationally Determined Contributions Summary</b>	Targets included in this updated NDC are estimated to avoid a cumulative emissions total of 5,647 KtCO <sub>2</sub> e between 2021 and 2030 (peaking at 1,080 KtCO <sub>2</sub> e in avoided emissions in 2030). [36]
<b>Green House Reduction Target</b>	<b>Greenhouse Gas (GHG) reduction target of 20% by 2030</b> compared to the business-as-usual (BAU) scenario [36]
<b>Priority Sectors for NDC</b>	<ul style="list-style-type: none"> <li>• LUCF,</li> <li>• Agriculture</li> <li>• Energy</li> <li>• Waste management</li> </ul>
<b>National Communications (NC) to the UNFCCC</b>	Belize's First National Communications to the Conference of the Parties of the United Nations Framework Convention on Climate Change (2002) [64]
	Belize's Second National Communications to the Conference of the Parties of the United Nations Framework Convention on Climate Change (2011) [65]
	Belize's Third National Communications to the United Nations Framework Convention on Climate Change (2016) [66]
	Belize's Fourth National Communications prepared for the United Nations Framework Convention on Climate Change (2022) [67]

12 - The Master Plan presents a five-year programme to build the capacity of Belize to mitigate GHG emissions and adapt to the challenges of climate change in an inclusive manner in line with long-term national development goals.



# Climate Change Framework

**Summary of Belize's GHG Emissions and Removals (Gg) [13]**

Sources	Emissions CO <sub>2</sub> Equivalent (Gg)		
	Carbon Dioxide (CO <sub>2</sub> )	Methane (CH <sub>4</sub> )	Nitrous Oxide (N <sub>2</sub> O)
<b>Energy</b>	139.1	3.36	7.48
<b>Civil Aviation</b>	12.8	0.0020	0.11
<b>Road Transportation</b>	519.6	3.2600	7.68
<b>Residential</b>	144.8	4.6900	0.8800
<b>Fugitive Emissions from Fuels</b>	0.00094	0.000015	0.000005
<b>Marine International Bunker</b>	N/A	N/A	N/A
<b>Aviation International Bunker</b>	54.6	N/A	N/A



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