



2017 ENERGY REPORT CARD

BARBADOS

This document presents Barbados' Energy Report Card (ERC) for 2017 and was prepared using multiple online resources (see list of References), as the Member State did not submit any data/information in support of the ERC. The ERC provides an overview of energy sector performance in Barbados by focusing on two priority sub-sectors: Electricity and Transportation. The ERC also includes energy efficiency, climate change, energy sector workforce, training and capacity building information, subject to the availability of data.

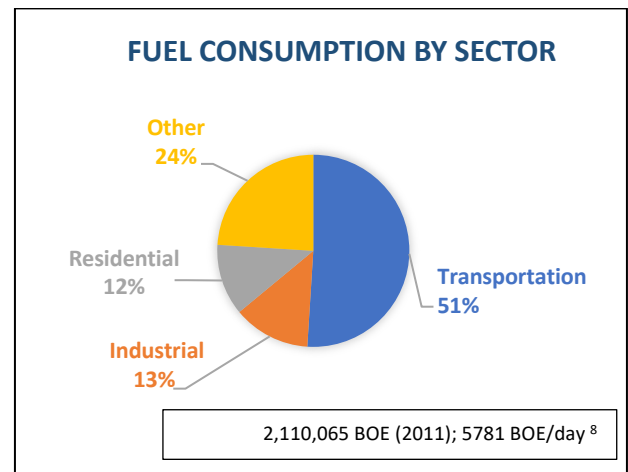
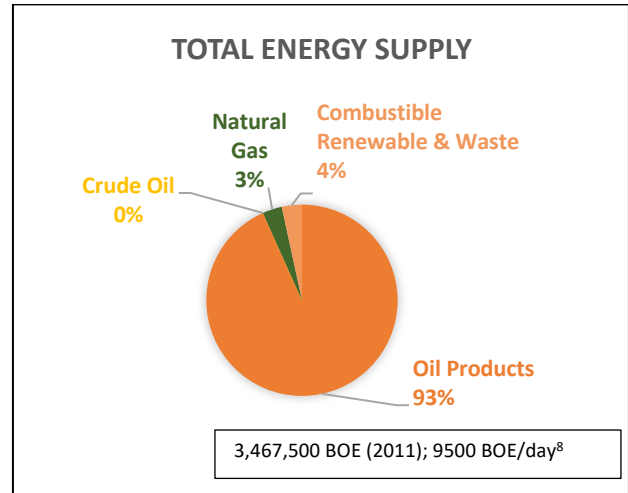
December 2018

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“AT-A-GLANCE” SUMMARY OF THE ENERGY SECTOR IN BARBADOS

KEY DATA & INFORMATION – ENERGY SECTOR IN BARBADOS	
Population	292,336 (2017) ¹
GDP (USD) Per Capita	18,600 (2017) ²
Debt as a % of GDP	157.3% of GDP (2017) ²
Human Development Index	0.8 (2017) ³
National Development Plan/ Overall Country Development Strategy	Yes (2007) ^{4,5}
National Energy Policy	Yes (2017) ⁶
Renewable Energy (RE) Policy	
RE Target	50% increase in renewable energy and Bridging Fossil Fuels (BFF) by 2027 ⁶
Energy Performance Standards/Appliance Labelling	Yes ⁷
Number of Persons Employed in Energy Sector	
Total Oil Imports (BOE) per day	8,870 (2011) ⁸
Total Oil Export (BOE) per day	790 (2011) ⁸
Total Installed Capacity (MW)	249 (2017) ⁹
Total Installed RE (MW)	10 (2017) ⁹
Electricity System Losses (%)	6.2% (2012) ⁷
Energy Use (kWh) Per Capita	3,310 ¹⁰
Energy Intensity	
Fuel & Oil Imports as % of GDP	6.9% (NREL 2015) ⁷
Climate Change Policy	Yes (2012) ¹¹
National Determined Contributions (NDC)	Yes (2015) ¹²
National Repository for Energy Data	Energy Division



BARBADOS' ENERGY SECTOR PERFORMANCE AGAINST TARGETS

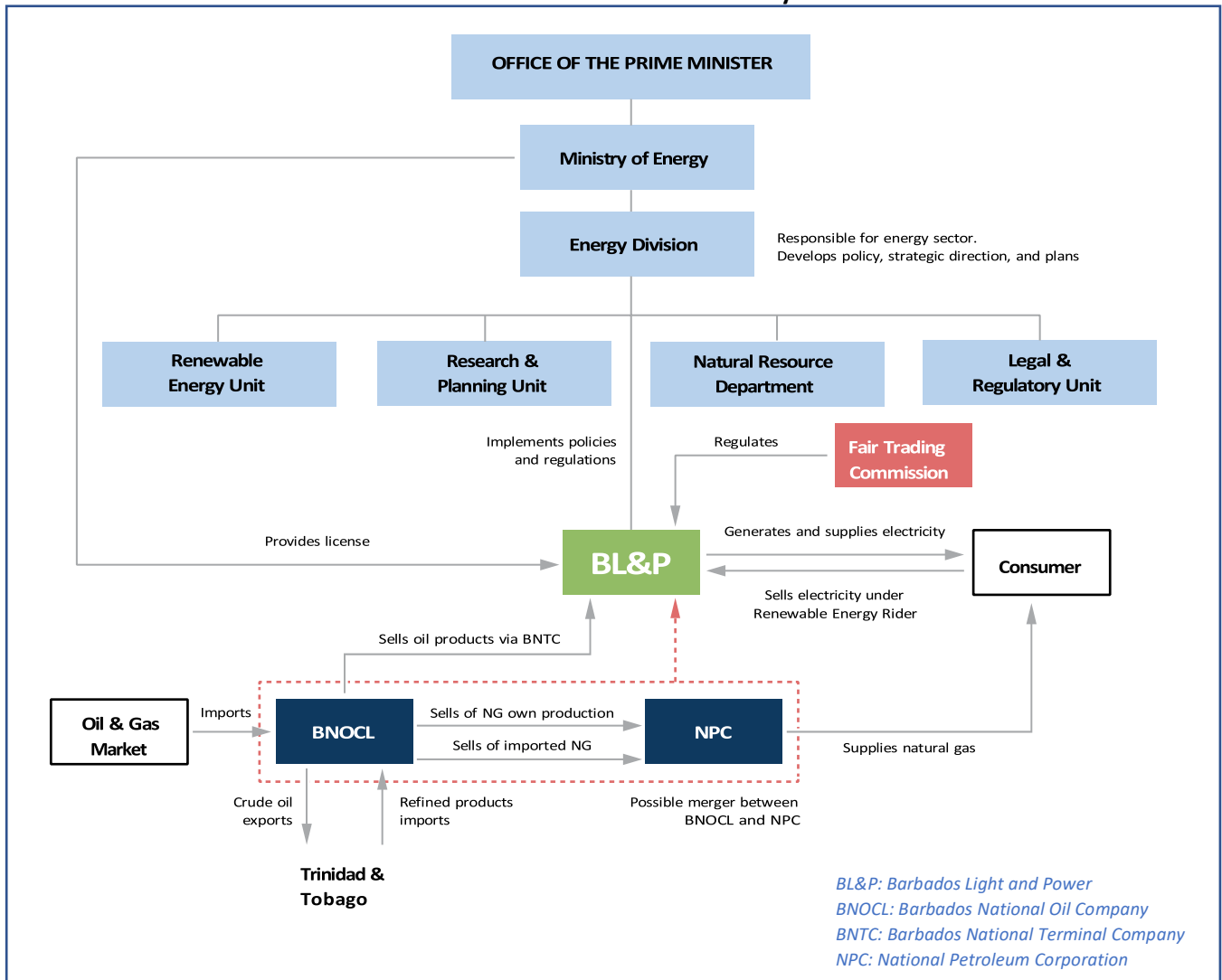
Indicator	Base /Current Performance (Year)	National Target	National Target (Proposed by CARICOM – CSERMS Report) ¹³	<i>Indicative RE Oil Displacement^{14,15} Potential Annually**</i>
RE as % of Installed Capacity	4% (2017)	50% (RE & BFF) by 2027 ⁶	67% by 2027	<ul style="list-style-type: none"> 1 MW wind displaces 1,760 barrels of oil equivalent (BOE) 1 MW hydro displaces 3,300 BOE 1 MW solar displaces 1,210 BOE
*Energy Intensity (BTU/US\$1 Unit of output)				<p>Energy Intensity (EI)¹⁶:</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.
% Reduction in Energy Sector Emissions (NDC)	1,820 Gg CO ₂ e (2008) ¹²	23% below 2008 levels by 2030 ¹²		

*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.¹⁴

KEY ENERGY SECTOR STAKEHOLDERS: BARBADOS

Governance Structure for the Electricity Sector⁸



Key Stakeholders: Road Transportation Sub-sector¹⁷:

- Ministry of Transport, Works and Maintenance
- Ministry of Energy and Water Resources
- Barbados Transport Board

POLICY, LEGAL AND REGULATORY FRAMEWORK: BARBADOS

Electricity Sector: Policy, Legal and Regulatory (PLR) Framework ^{7,8}

✓ Energy Policy and Energy Action Plan		
✓ RE Target		
✓ EE Target		
✓ Electricity Regulator		
✓ Net billing/Net metering		
✓ 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 ^{6,7,8}



Policies and Legislation Relevant to the Transportation Sector

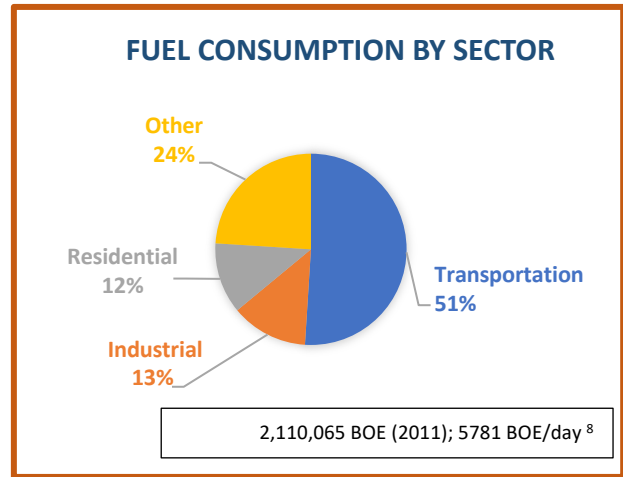
Policies	National Energy Policy 2017-2037
Legislation & Regulation	Transport Board Act

Climate Change Framework - Barbados

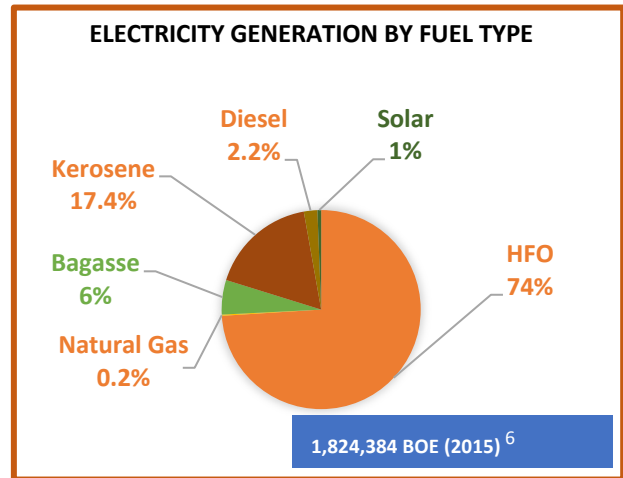
Climate Change Policy	Yes (2012) ¹¹
National Determined Contributions	Yes (2015) ¹²
Emissions Reduction Target (NDC)	23% below 2008 level (1,820 Gg CO ₂ e) by 2030 ¹²
Priority Sectors for NDC	Energy (including domestic transport); Industrial Process and Product Use; Waste; Agriculture; Land Use, Land Use Change and Forestry ¹²
National Communications (NC) to the UNFCCC	NC1 submitted in 2001; NC2 submitted in 2018 ¹⁸
Greenhouse Gas (GHG) Inventory	Yes (2018, for the period 2000-2010) ¹⁹

ELECTRICITY SUBSECTOR & ENERGY EFFICIENCY: BARBADOS

KEY DATA & INFORMATION	
CONVENTIONAL ENERGY	
1. Fuel Consumption – Electricity Subsector (BOE)	
2. Total Installed Capacity (MW)	249 (2017) ⁹
3. Installed Conventional Capacity – Electric Utility (MW)	239 (2017) ⁹
4. Installed Conventional Capacity – IPPs (MW)	
5. Base Load (MW)	
6. System Peak Demand (MW)	155.2 (2015) ⁸
7. Total Generation (MWh)	967,800 (2015) ⁸
8. Total Sales (MWh)	915,200 (2015) ⁸
9. Total Number of Customers	129,000 (2017) ⁹
RENEWABLE ENERGY	
10. Total Installed RE Capacity (MW)	10MW (2017) ⁹
11. RE Capacity – Electric Utility (MW)	10MW (2017) ⁹
12. RE Capacity – IPPs (MW)	
13. RE as % of Total Installed Generating Capacity	4%
14. RE Target	50% by 2027 ⁶
TARIFFS	
15. Residential Tariff (US\$/kWh)	0.28 ⁷
16. Commercial (US\$/kWh)	0.30 ⁷
17. Industrial/Large Power (US\$/kWh)	0.27 ⁷
18. Street Lights (US\$/kWh)	
EFFICIENCY	
19. Electricity System Heat Rate	
20. Electricity System Losses (%)	6.2% (2012) ⁷
21. Energy Use (kWh) Per Capita	3,310 ¹⁰
22. Energy intensity index (EII) BTU/US\$1 Unit of output	
23. EE Target	
MANAGEMENT OF ENERGY DATA/KNOWLEDGE	
24. Name of Energy Knowledge Management System	
25. Name of Energy Data Management System	



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RE Resource	Installed Capacity (MW)	Year Commissioned
Wind		
Solar	10 ⁹	2016
Hydro		
Geothermal		
Biomass/ WTE		
Total	10	

RE as % of installed Power Capacity = 4%

RE Resource Potentials	Potential Capacity (MW)	Assessment Conducted?
Wind	40 ¹³	
Solar	39.7 ¹³	
Hydro		
Geothermal		
Biomass/ WTE	23.5 ¹³	
Total	103.2	

TRANSPORTATION SUBSECTOR: BARBADOS

Key Transportation Data and Information		Breakdown of Fuel Use in the Transportation Sector		
Fuel Consumption, Transportation (BOE)		Type of Fuel/s	Quantity (BOE)	Purpose (Road, Railway, Aviation, Marine)
Energy-related transportation targets?				
Sustainable /Alternative fuels used?		Gasoline		
Total Imports for Alternative Fuels		Diesel		
Conventional Vehicle Stock/Vehicle Registration				
Trucks				
Cars				
Buses				
SUVs				
Hybrid vehicle stock				
Electric vehicle stock	>100 (2015) ²⁰			
Fuel Quality Standards?				

WORKFORCE: ENERGY SECTOR, BARBADOS

Number of Persons Employed in the Energy Sector

NAME OF ENTITY	PRIVATE OR PUBLIC?	NUMBER OF PERSONS EMPLOYED	BREAKDOWN BY GENDER AND EMPLOYMENT LEVEL	
Barbados Light and Power Company	Electric Utility (Private)	330 (2015) ²⁰	Females: Managerial Level: Supervisor: Technical: Administrative:	Males: Managerial Level: Supervisor: Technical: Administrative:

Number of Persons Trained in the Energy Sector in 2017

NAME OF ENTITY	PRIVATE OR PUBLIC?	NUMBER OF PERSONS TRAINED	BREAKDOWN BY GENDER AND EMPLOYMENT LEVEL	
			Females: Managerial Level: Supervisor: Technical: Administrative:	Males: Managerial Level: Supervisor: Technical: Administrative:

Indicative Number and Type of Tertiary level and vocational training SE Programmes Offered in-Country

Name of Education Programme Provider	Name of Programme	Number of persons enrolled	Type of Programme			
			Certificate	B.Sc	M.Sc	Ph.D

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- ¹³Worldwatch 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
- ¹⁴Ministry 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
- ¹⁵Sustainable 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

¹⁶ J.M.K.C. Donev et al. (2018). *Energy Education - Energy intensity*. Retrieved from https://energyeducation.ca/encyclopedia/Energy_intensity.

¹⁷ Barbados Integrated Government (2018). *Ministries: Listing of All Ministries*. Retrieved from <https://www.gov.bb/ministries>

¹⁸ United Nations Framework Convention on Climate Change. (2018). *Process and Meetings: National Communication submissions from Non-Annex I Parties*. Retrieved from <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-update-reports-non-annex-i-parties/national-communication-submissions-from-non-annex-i-parties>

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