2017 ENERGY REPORT CARD
BAHAMAS

This document presents Bahamas' 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 Bahamas 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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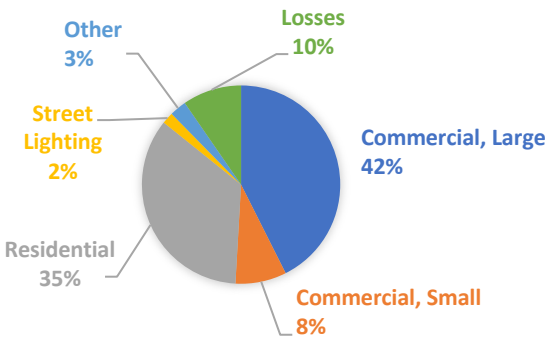
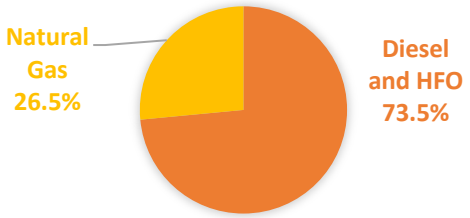
"AT-A-GLANCE" SUMMARY OF THE ENERGY SECTOR IN BAHAMAS

KEY DATA & INFORMATION	
Population	329,988 (2017)[1]
GDP Per Capita	32,400 (2017)[2]
Debt as a % of GDP	54.6% (2017)[2]
Human Development Index	0.807 (2017)[3]
National Development Plan/ Overall Country Development Strategy	Yes (draft)[4]
National Energy Policy	Yes (2013) [5]
Renewable Energy (RE) Policy	
RE Target	30% by 2030 [5,6]
Energy Performance Standards/ Appliance Labelling	
Number of Persons Employed in Energy Sector	
Total Oil Import per day	
Total Oil Export (BOE) per day	
Total Installed Capacity (MW)	536 MW (NREL 2015)[6]
Total Installed RE (MW)	
Electricity System Losses (%)	12.3% (NREL 2015)[6,7]
Energy Use (kWh) Per Capita	5,849[8]
Energy Intensity	
Fuel & Oil Imports as % of GDP	11.35% (NREL 2015)[6]
Climate Change Policy	Yes (2005) [9]
National Determined Contributions	Yes (2015)[10]
National Repository for Energy Data	

ENERGY CONSUMPTION BY SECTOR[6]



GENERATION BY FUEL TYPE[6]



BAHAMAS' ENERGY SECTOR PERFORMANCE AGAINST TARGETS

Indicator	Base /Current Performance (Year)	National Target	National Target (Proposed by CARICOM – CSERMS Report)[11]
RE as % of Installed Capacity	<0.1%[6]	30% by 2030	55% by 2027
*Energy Intensity (BTU/US$1 Unit of output)			
% Reduction in Energy Sector Emissions		30% reduction compared to Business as Usual by 2030[10]	

Typical RE Oil Displacement[12,13] Potential Annually*

- *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 (EI)[14]:

- *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.*

*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.[12]

KEY ENERGY SECTOR STAKEHOLDERS: BAHAMAS

Key electricity stakeholders include:

GOVERNMENT MINISTRIES, DEPARTMENTS AND AGENCIES[15]:	• Ministry of Environment and Housing
	  ○ Petroleum Unit
	  ○ The Bahamas Environment, Science & Technology (BEST) Commission
	• Bahamas Bureau of Standards and Quality
	• National Energy Policy Committee
	• Ministry of Finance
	• Ministry of Public Works

ELECTRIC UTILITY(IES)[6]:	• Bahamas Electricity Corporation (BEC)
	  ○ Bahamas Power & Light Company Limited (wholly owned subsidiary of BEC)
	  ○ PowerSecure International Inc.[16],
	• Grand Bahama Power Company (GBPC)

INDEPENDENT POWER PRODUCER(S):	
REGULATOR:	• Utilities Regulation and Competition Authority [15] • Grand Bahama Port Authority[17]

Key Stakeholders: Road Transportation Sub-sector[15]:
• Ministry of Transport and Local Government • Ministry of Housing and Environment • Ministry of Finance

POLICY, LEGAL AND REGULATORY FRAMEWORK: BAHAMAS

Electricity Sector: Policy, Legal and Regulatory (PLR) Framework [6,11]

✓ Finalized 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 | Not yet started/ Not established

Key Achievements: PLR Framework Timeline for the Electricity Sector[9,18]

- 2006: •National Climate Adaptation Policy
- 2009: •Utilities Regulation and Competition Authority (URCA) Act
- 2013: •National Energy Policy
- 2015: • The Electricity Rate Reduction Bond Act; •The Electricity Act; •URCA Act (amended)
- 2018: •Electricity Amendment Act

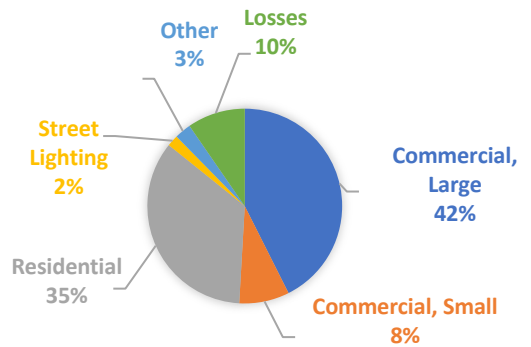
Policies and Legislation Relevant to the Transportation Sector, Bahamas	
Policies	National Energy Policy, 2013-2033
Legislation & Regulation	Petroleum Regulations Liquefied Petroleum Gas Regulations Civil Aviation (Air Navigation) Regulations

Climate Change Framework - Bahamas	
Climate Change Policy	Yes (2005)[9]
National Determined Contributions	Yes (2015)[10]
Emissions Reduction Target	
Priority Sectors for NDC	Energy and Forestry [10]
National Communications (NC) to the UNFCC	NC1 submitted in 2001; NC2 in 2015 [19]
Greenhouse Gas (GHG) Inventory	

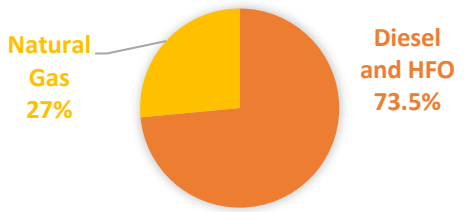
ELECTRICITY SUBSECTOR & ENERGY EFFICIENCY: BAHAMAS

KEY DATA & INFORMATION	
CONVENTIONAL ENERGY	
1. Fuel Consumption – Electricity Subsector (BOE)	
2. Total Installed Capacity (MW)	438 MW (BEC); 98 MW (GBPC) (NREL 2015)[6]
3. Installed Conventional Capacity – Electric Utility (MW)	
4. Installed Conventional Capacity – IPPs (MW)	
5. Base Load (MW)	
6. System Peak Demand (MW)	234 MW (BEC); 74 MW (GBPC) (NREL 2015)[6]
7. Total Generation (MWh)	1,641 GWh (BEC); 289 GWh (GBPC) (NREL 2015)[6]
8. Total Sales (MWh)	
9. Total Number of Customers	95,000 (BEC); 19,000(GBPC) (NREL 2015)[6]
RENEWABLE ENERGY	
10. Total Installed RE Capacity (MW)	
11. RE Capacity – Electric Utility (MW)	
12. RE Capacity – IPPs (MW)	
13. RE as % of Total Installed Generating Capacity	<0.1% (NREL 2015)[6]
14. RE Target	30% by 2030 [5]
TARIFFS	
15. Residential Tariff (US$/kWh)	0.316 (NREL 2015)[6]
16. Commercial (US$/kWh)	0.374 (NREL 2015)[6]
17. Industrial/Large Power (US$/kWh)	None (NREL 2015)[6]
18. Street Lights (US$/kWh)	
EFFICIENCY	
19. Electricity System Heat Rate	
20. Electricity System Losses (%)	12.3% (NREL 2015)[6]
21. Energy Use (kWh) Per Capita	5,849[8]
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	

FUEL USE



GENERATION BY FUEL TYPE[1]



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

RE as % of installed Power Capacity = 0%

RE Resource Potentials	Potential Capacity (MW)	Assessment Conducted?
Wind	200 (NREL 2015)[6]	
Solar	60 (NREL 2015)[6]	
Hydro		
Geothermal		
Biomass/ WTE	1 (NREL 2015)[6]	
Total	261 MW	

TRANSPORTATION SUBSECTOR: BAHAMAS

Key Transportation Data and Information	
Fuel Consumption, Transportation (BOE)	
Energy-related transportation targets?	
Sustainable /Alternative fuels used?	
Total Imports for Alternative Fuels	
Conventional Vehicle Stock/Vehicle Registration	
Trucks	
Cars	
Buses	
SUVs	
Hybrid vehicle stock	
Electric vehicle stock	
Fuel Quality Standards?	

Breakdown of Fuel Use in the Transportation Sector

	Quantity (BOE)	**Type of Fuel/s**
Road		
Railway		
Aviation		
Marine		

WORKFORCE: ENERGY SECTOR, BAHAMAS

Number of Persons Employed in the Energy Sector

NAME OF ENTITY	PRIVATE OR PUBLIC?	NUMBER OF PERSONS EMPLOYED	BREAKDOWN BY GENDER AND EMPLOYMENT LEVEL	
			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 Bahamas

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

References

[1] Central Intelligence Agency. (2018). *The World Factbook 2017.* Retrieved from https://www.cia.gov/library/publications/download/download-2017/index.html

[2] Central Intelligence Agency. (2018). *The World Factbook: Central America – The Bahamas.* Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/bf.html

[3] United Nations Development Programme. (2018). *Human Development Reports: Table 2. Human Development Index Trends, 1990-2017.* Retrieved from http://hdr.undp.org/en/composite/trends

[4] Government of the Commonwealth of Bahamas (2016). *Working Draft of The National Development Plan of The Bahamas For Public Consultation*. Retrieved from http://www.vision2040bahamas.org/media/uploads/Draft__National_Development_Plan_01.12.2016_for_public_release.pdf

[5] Government of the Commonwealth of Bahamas (2013). *National Energy Policy, 2013-2033.* Retrieved from: https://breef.org/wp-content/uploads/2015/07/NatlEnergyPolicy.pdf

[6] National Renewable Energy Laboratory. (2015). *Energy Transition Initiative: Islands Energy Snapshot - Bahamas*. Retrieved from https://www.nrel.gov/docs/fy15osti/62691.pdf

[7] Transmission and distribution losses.

[8] Calculated using generation of 1,930,000,000 kWh (NREL 2015) and 2017 population of 329,988.

[9] Government of the Commonwealth of Bahamas. (2005). *National Policy for the Adaptation to Climate Change*. Retrieved from http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/laws/8485.pdf https://higgsjohnson.com/wp-content/uploads/2017/11/Electricity.pdf

[10] The Government of the Bahamas. (2015). Intended Nationally Determined Contribution (INDC) Under the United Nations Framework Convention On Climate Change. Retrieved from https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Bahamas/1/Bahamas%20INDC%20Submission.pdf

[11] Worldwatch 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

[12] Ministry 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

[13] Sustainable 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

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

[15] Government of the Commonwealth of Bahamas (2013). *All Contacts*. Retrieved from https://www.bahamas.gov.bs/wps/portal/public/gov/government/contacts/!ut/p/b1/vZDLkqIwFIafxQeYJgECYRmJXOSm3

AQ2lCgi0iheIT5969Qsuqaqu2cx3SerU_UlX_6fy7iEy_bLW10tL_Vhv3x97pmUC0B3CBGxoyMgATOa2WQmGzzW0ANIPwY8EXx1f8ElRnod6NnsKYnzbRDvsmk5nzipdfQvdbEto6u1bKwWafkG147Ny80gOs6UHro6P9C1fBVKT6pP1qGPbcGErEuygtpsEwgBjRhKW2Pf3JqcuayqFMSKrVfYcK37Mq6MyxC2zFurd5wiVo-NcrWQ8lfqjt1-NPqTDXww5B-yZZ8hnsV_ATzr-w188of0AcjvXghjAEwIiB_AOcA-4kIuAWIe7Fhn3pu7vwOD6zQ9cOy1CcPYdZtT7IYT6CgqdGnmwQawAIh3l8ZeuLPuZ5fO1rEfjQlRWZrKfws9PlQeQhVKVoRAoPPfLdSRhx8dyeGMIB4A9ceF8LuEuufM1Wel4fhZqWAYRLIFDMSfFkr_XTjlsrpoX_pV-wJeeAUgDLEg8TLAPOLiadorFJBeIzRXz25xCzeFr5vhErbN8ahNb3hqs5OShEaJxJhWVzoz9Ko6dHGQDXF09CxqLxKsDoF3nluXhiWbaK52IuzQ8Ovq19qEKsARLoKoOeiqwcu5WIpnGKx8aSusTowsFvx8BUacaxzakuva6GZLvnFP3p2SjN4AIqMrcQ!!/dl4/d5/L2dBISEvZ0FBIS9nQSEh/

[16] Higgs & Johnson - Counsel and Attorneys At Law. (2017). *Instituting a New Electricity Regime in the Bahamas*. Retrieved from https://higgsjohnson.com/wp-content/uploads/2017/11/Electricity.pdf

[17] Emera Incorporated. (2018*). 2017 Annual Report.* Retrieved from http://investors.emera.com/Cache/1001235103.PDF?Y=&O=PDF&D=&fid=1001235103&T=&iid=4072693

[18]The Office of the Attorney-General & Ministry of Legal Affairs. (2018). *Bahamas Laws On-Line*. Retrieved from http://laws.bahamas.gov.bs/cms/en/

[19] 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