JAMAICA

ENERGY REPORT CARD (ERC) FOR 2022

CCREEE
CARIBBEAN CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

AN INSTITUTION OF CARICOM

INTRODUCTION

This is the Energy Report Card (ERC) for 2022 for the Jamaica.

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

If a substantive error is detected after the ERC is disseminated, the CCREEE will make correction and issue an errata notice, or other notification as appropriate. Also, the information contained within the ERC may be revised, after initial dissemination to reflect more complete information or other significant changes in the underlying data. The ERC may, from time to time, include information that is preliminary and is expected to be revised, or information that is revised from previously disseminated versions. In such instances, those cases are clearly noted.

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, under the subject: **REQUEST FOR CORRECTION TO ERC 2022 FOR JAMAICA.**

Acknowledgements

The CCREEE acknowledges the contributions of the Ministry of Science, Energy, Telecommunications and Transport, Jamaica, and thanks Kemmehi Lozer, Senior Economist in the Energy Division of the Ministry, for his supervision of the intern, Ms. Dominique Houslin, who supported the preparation of the ERC.

ENERGY SECTOR SUMMARY

SOCIOECONOMIC POLICIES

Vision 2030 Jamaica National Development Plan [6]
National Development Plan/ Overall Country Development Strategy

Jamaica's National Energy Policy (NEP) 2009-2030 [7]
National Energy Policy

Draft National Renewable Energy Policy 2009-2030: Creating a Sustainable Future [8]
Renewable Energy (RE) Policy

SOCIOECONOMICS

Population Census/ Projection	2,738,100[2]
GDP (USD)	$16,564,245,474
GDP (USD) Per Capita	$6,049.54
Gross National Income (GNI) Per Capita (USD)	$5,670[3]
Debt as % of GDP	83.6%[4]
RE Target	50% by 2030 [9]

Total Oil Import (BBLs) per day	62,895.04 [1] [12]
Total Oil Export (BBLs) per day	12,182.95 [12]
Total Installed Conventional Capacity (MW)	859
Total Installed RE (MW)	218.7
Electricity System Losses (%)	28.45% [2]
Energy Use (kWh) Per Capita	1157.88

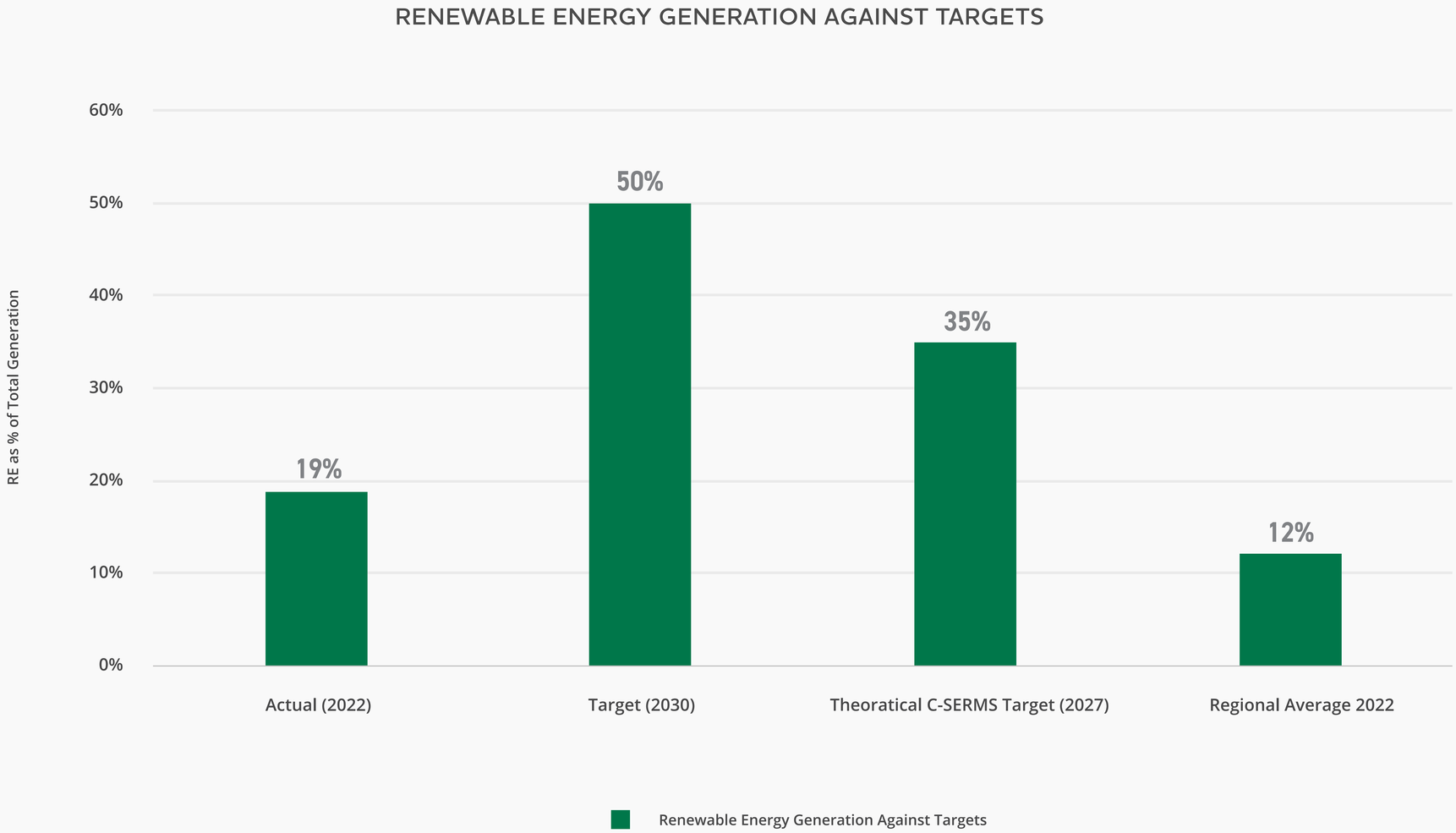
Energy Intensity (BTU/$)	Not Available
Fuel and Oil Imports as % of GDP	15.28%
Oil Imports as % of GDP	4.27%
Electric Vehicle Stock	150
National Repository for Energy Data	Energy Information System of Jamaica (sieJamaica)[3]

OTHER ENERGY SECTOR SUB-POLICIES

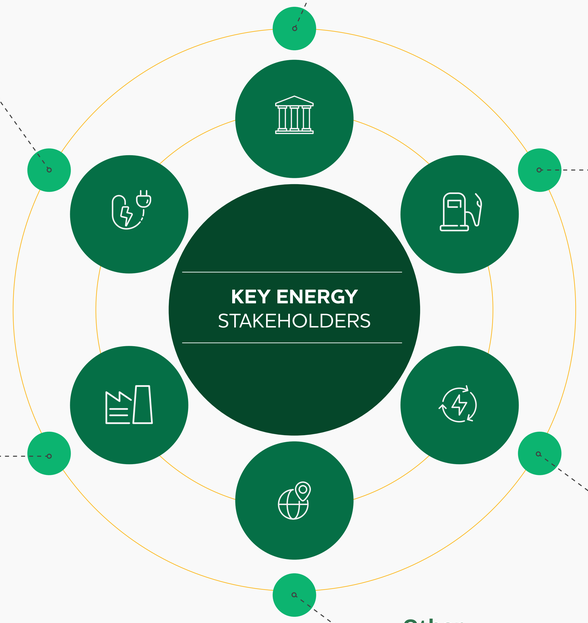
Climate Change Policy	Climate Change Policy Framework for Jamaica [10]
National Determined Contributions (NDC)	25.4% reduction relative to business-as-usual emissions in 2030 without international support (unconditional) 28.5% reduction relative to business-as-usual emissions in 2030 conditional upon international support (conditional)
Energy Performance Standards/Appliance Labelling	Energy Efficiency Labelling Program as part of the Energy Efficiency Programme [11] • JS178 - Specification for Determination of Energy Consumption and Other Performance Characteristics of Household Refrigerator Freezers and Wine Chillers. • JS179 - Specification for Room Air Conditioner, Energy and other Performance Testing. • JS1 Part 21 - Specification for The Labelling of Commodities - Energy Labelling of Appliances and Products.

[1] Calculated from a Preliminary figure.
[2] As a % of Net Generation
[3] Not Active

ENERGY SECTOR PERFORMANCE [14]



KEY ENERGY STAKEHOLDERS



Government Ministries, Departments and Agencies

Ministry of Science, Energy and Technology [4] [15]
- Energy Division [16]

Ministry of Economic Growth and Job Creation
- Portfolio Areas of Environment and Climate Change

Petrojam Limited [17]
- Petrojam Ethanol Limited [5] [18]

Government Electrical Regulator (GER) [6] [40]
Ministry of Transport & Mining [7] [19]
Transport Authority of Jamaica [20]

Electricity Regulator

Office of Utilities Regulation [39]

Fuel Importers & Suppliers

Corporate Petroleum Service Ltd. [21]
New Fortress Energy [22]
Rubis Energy Jamaica [23]
IGL Blue Jamaica Limited [24]
GB Energy (Texaco Jamaica) [25]
Cool Oasis [26]
Future Energy Source Company Limited (FESCO) [27]

CWH Gas [28]
Massy Gas Products Limited
- GasPro [29]

Phoenix Fuels & Accessories Limited
Total Energies Jamaica [30]

Independent Power Producer

Wigton Windfarm Limited (Wigton I, II, & III) [32]
Eight Rivers Energy Company Limited
WRB Enterprises (WRB Solar) (Content Solar) [33]
InterEnergy [34]
Subsidiary companies:
- Jamaica Energy Partners [35]
- West Kingston Power Partners (WKPP) [35]
- Jamaica Private Power Company [35]

NFE South Power Holding (JAMALCO) [36]
BMR Jamaica Wind Limited Energy [37]
South Jamaica Power Company [38] [12]

Electric Utility

Jamaica Public Service (JPS) Company [31]

Other

Jamaica Society for Energy Engineers (JSEE)
Jamaica Renewable Energy Association

4. The ministry was renamed the Ministry of Science, Energy, Telecommunications and Transport in May 2023.
5. A subsidiary of PETROJAM Limited
6. A division of the Ministry of Science, Energy, Telecommunications and Transport
7. Transportation was made a division within the Ministry of Science, Energy, Telecommunications and Transport as of May 2023
8. In 2022 the Sol Group has acquired all of the Jamaican assets held by GB Energy.
9. JPS affiliate company
10. Affiliate company of Jamaica Energy Partners
11. Managed by Jamaica Energy Partners
12. A JPS affiliate

POLICY, LEGAL AND REGULATORY (PLR) FRAMEWORK

POLICIES RELEVANT TO THE ENERGY SECTOR

2004

National Road Safety Policy [48] ●

A policy aimed to prioritise the road safety of Jamaica in accordance with internationally accepted standards. The policy encourages the coordination and collaboration of different ministries and organisations to maximise resources and reduce duplicated efforts.

2007

National Transport Policy [49] ●

The National Transport Policy prioritised private sector participation and inter-agency coordination, increasing transportation access, and supporting the reduction in fuel importation. A policy theme of energy efficiency was included to ensure that transportation was efficient and cost effective.

2009

Jamaica Vision 2030 [6] ●

A strategic long-term roadmap for the development of Jamaica to be the place of choice to live, work, raise families and do business.

Jamaica's National Energy Policy 2009-2030 [7] ●

The policy supports the development plan outlined in Jamaica Vision 2030, particularly in relation to energy security and efficiency through modernisation, diversification, and environmental sustainability. The policy also aims to improve energy security through fuel diversification and the development of renewable energy.

2010

National Renewable Energy Policy 2009 – 2030 Creating a Sustainable Future [8] ●

This policy supports the National Energy Policy to provide affordable and accessible energy and focuses solely on the development of renewables in the energy sector.

National Energy Conservation and Efficiency Policy [50] ●

Complementing the National Energy Policy, the National Energy Conservation and Efficiency Policy aims to develop and use conservation and efficiency all sectors of the economy thereby reducing energy consumption.

National Energy-From-Waste Policy 2010-2030 [51] ●

The National Energy Policy 2009 – 2030 provided the overarching framework for the development of the Energy-from-Waste policy.

The policy is a sub-policy of the National Energy Policy and supports the other energy sub-polices, National Renewable Energy Policy 2010 – 2030 and the National Biofuel Policy 2010-2030 and aims to modernise the energy sector through efficient, diversified, sustainable energy supplies focusing on energy from waste.

National Biofuels Policy 2010-2030 [52] ●

A sub-policy of the National Energy Policy and linked to the National Energy-from-Waste Policy and the National Policy for the Trading of Carbon Credits, the Biofuels policy aims for sustainable development, governance through legislation and incorporation into the local energy supply.

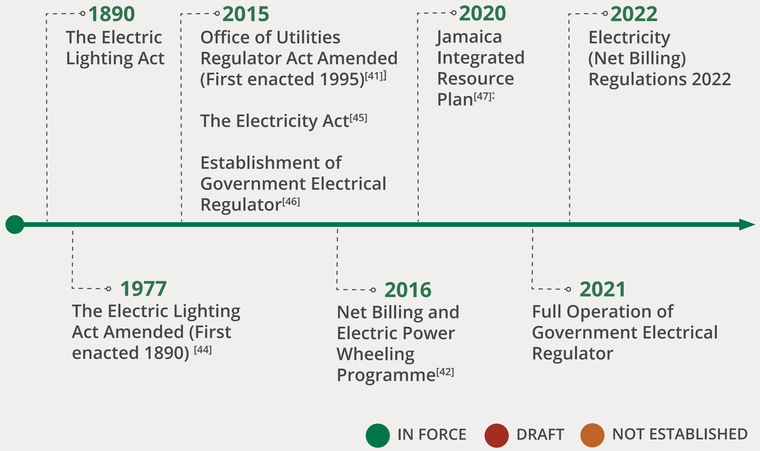
National Policy for the Trading of Carbon Credits 2010-2030 [53] ●

A sub-policy of the National Energy Policy, the National Policy for the Trading of Carbon Credits relates to the climate change strategy that facilitates reduction in Jamaica's greenhouse gas emission and carbon footprint.

**Table continues on the next page

	YEAR
Energy Policy and Energy Action Plan [7]: ●	
RE Target [9]: ●	2022
EE Target [8]: ●	2009
Electricity Regulator [41]: ●	1995
Net Billing/Net Metering [42]: ●	2016
Interconnection Policy/Standards [43]: ●	2016
Feed-in-tariff [13] [25] ●	
RE/EE Act: ●	

KEY ACHIEVEMENTS: PLR FRAMEWORK TIMELINE FOR ELECTRICITY SUB-SECTOR



13. The Office of Utilities Regulation (OUR), Regulatory Policy for the Addition of New Generating Capacity to the Public Electricity Supply System, published in June 2006, allows for, among other things, Power Purchase Agreement's for utility-scale capacity, and the procurement of small additions of renewable energy (i.e. 100kW or less) by way of a Standard Offer Contract. Within this framework, Distributed Generation Customers are compensated for the avoided cost of fuel. [87]

POLICY, LEGAL AND REGULATORY (PLR) FRAMEWORK

2017

National Policy on Environmental Management Systems (EMS) (Green Paper) [54] ●

Aims to reduce or mitigate environmental impacts in all sectors at a national and local level to facilitate the creation of a green economy

2020

Integrated Resource Plan (IRP): A 20 Year Roadmap to Sustain and Enable Jamaica's Electricity Future [47] ●

The IRP outlines the preferred diversified energy mix for Jamaica based on the objectives outlined in the energy policy for the period 2018 to 2037. It also allows for the management of the influx of new technologies for the electricity grid and grid upgrades to transmit the projected additional energy without sacrificing quality standards, improved interconnection.

The Strategic Framework for Electric Mobility in Jamaica [55] ●

The Strategy aims to reduce fossil fuel dependence in transportation and lower emissions and improve air quality. Electric mobility is encourages as an opportunity to increase renewable energy resources.

2021

Emissions Policy Framework [56] ●

Establishes the overarching direction for emission management while the country is engaging in a low carbon development pathway toward economic, social and environmental sustainability

LEGISLATION RELEVANT TO THE ENERGY SECTOR

● IN FORCE ● DRAFT ● NOT ESTABLISHED

1938

The Road Traffic Act (Last Amended 2015) ●

Establish the Island Traffic Authority as the authority for the regulation and control of traffic on roads to improve road safety and transport efficiency and reduce the cost of administering road transport and other connected matters.

1970

Petroleum and Oil Fuel (Landing and Storage) Act [57] ●

Establishes the rules and regulations for storage, importation and handling of petroleum and oil.

Public Passenger Transport (Rural Area) Act [60] ●

This Act outlines the operations for passenger travel within the rural areas of Jamaica for which operators are granted a license to transport passengers within the designated area.

1979

Petroleum Act [61] ●

Establishes ownership of any petroleum found within Jamaica and its waters, the operations of the Petroleum Corporation of Jamaica and the Petrocaribe Development Fund for the management of petroleum.

1987

The Transport Authority Act [60] ●

Establishes the Transport Authority and provides for the functions of the authority and its operations.

1990

Petroleum (Quality Control) Act [59] ●

Establishes the framework for the provision of licences, registration for retailers, haulage contractor and drivers, applications while outlining storage parameters for petroleum.

1995

Office of Utilities Regulation Act [41] ●

Repeals the Public Utility Commission Act which supervised the utility services and establishes the Office of Utilities Regulation.

2002

Public Passenger Transport (Kingston Metropolitan Transport Region) Act [62] ●

Outlines the operations for licensees operating within the Kingston Metropolitan Transport Region to transport passengers.

2015

Electricity Act [45] ●

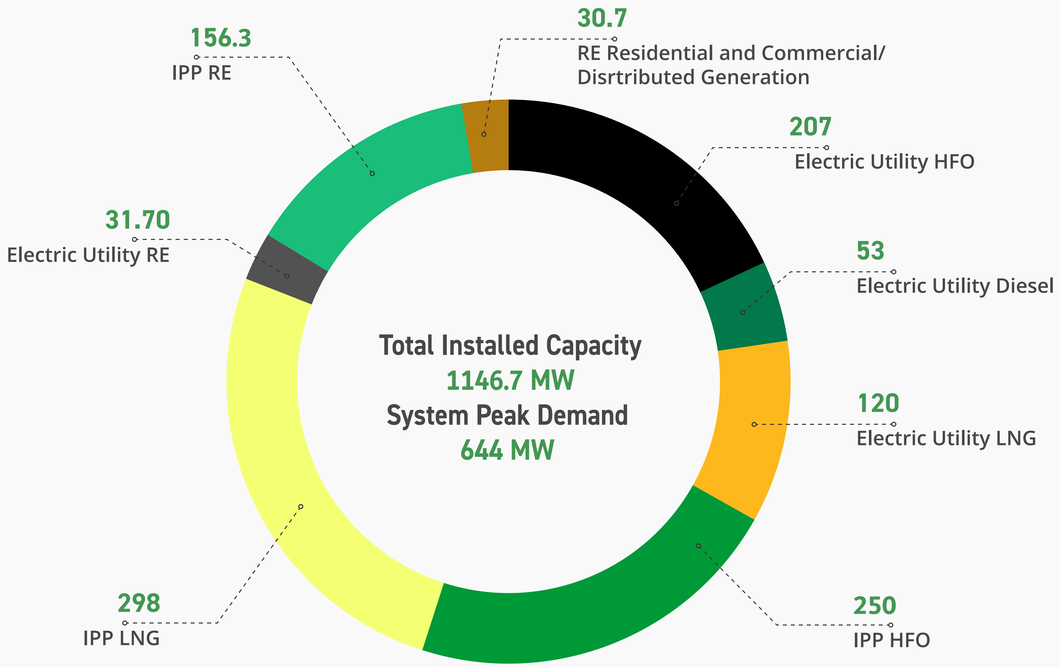
This Act repeals the Electric Lighting Act, and the Electricity (Frequency Conversion) Act. It consolidates and modernises the laws relating to the generation, transmission, distribution, supply, dispatch, and use of electricity, and connected matters. Part V relates to the duties of self-generators, independent power producers, procurement of new generating capacity, and renewable energy.

Motor Vehicle Emissions Standard (Drafted 2015) [63] ●

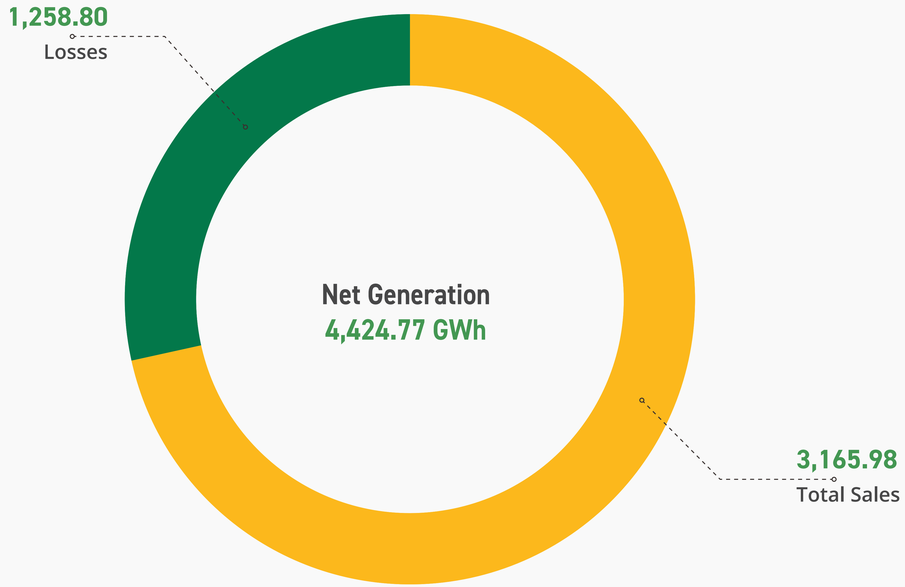
Outlines the emission standards for the country for imported heavy duty vehicles and existing vehicles in the countries inclusive of older gasoline and diesel vehicles.

ELECTRICITY & ENERGY EFFICIENCY [14] [65] [66]

INSTALLED CAPACITY (MW)

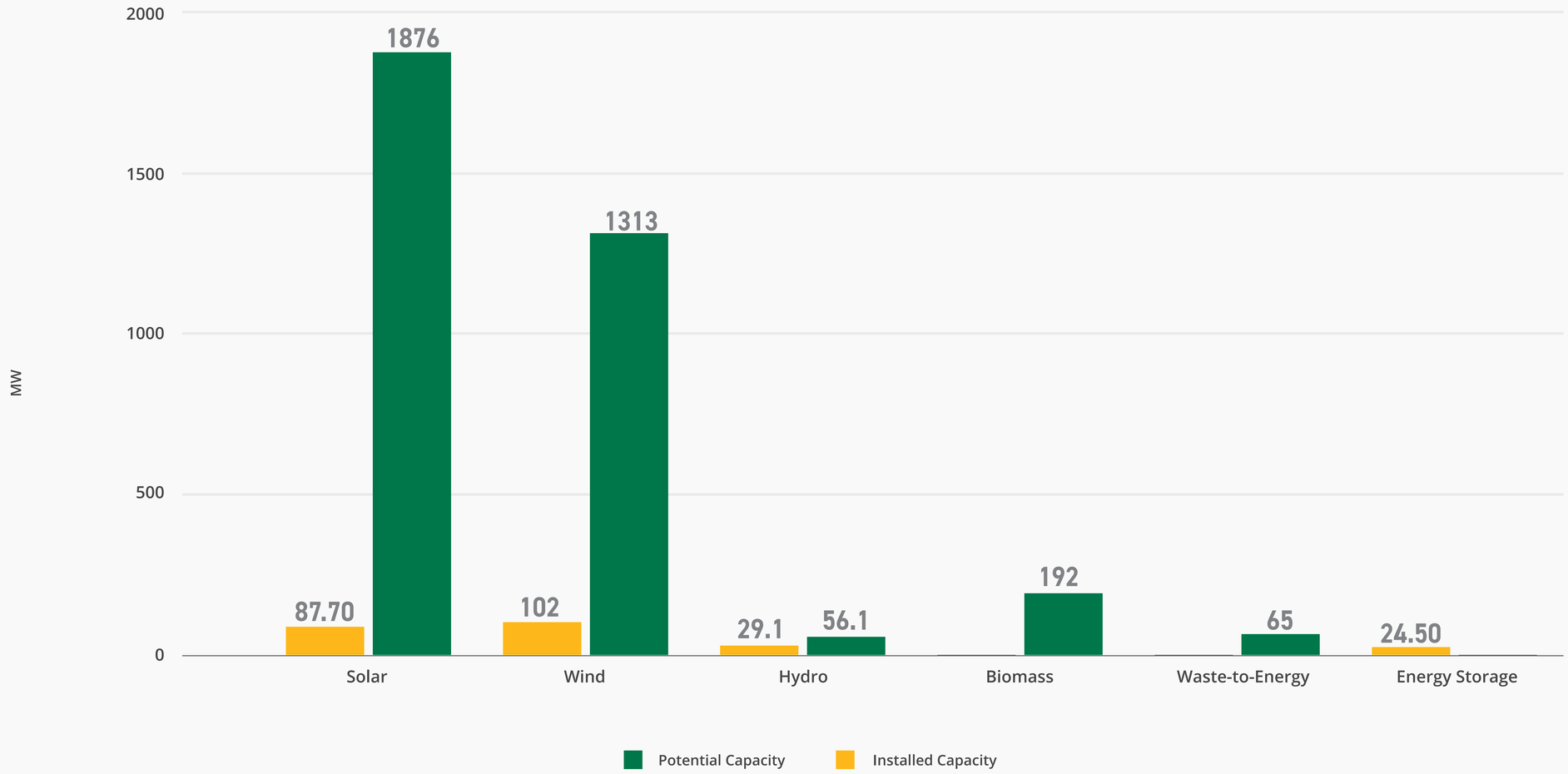


ENERGY CONSUMPTION (GWh)



ELECTRICITY & ENERGY EFFICIENCY [14] [65] [66]

RENEWABLE ENERGY RESOURCES



ELECTRICITY TARIFFS [14] [67]

Rate Category	Usage	Monthly	Energy Charge (US$/kWh)				Demand Charge (US$/kVA)			
			STD	Peak	Partial Peak	Off Peak	STD	Peak	Partial Peak	Off Peak
Rate 10 - STD	0-100	3.71	0.05							
	>100	3.71	0.15							
Rate 10 - Pre-paid	0-117		0.10							
	> 117		0.15							
Rate 10 - TOU	0 - 300 kWh									
	300 - 500 kWh									
	500 - 800 kWh									
	> 800kWh									
Rate 20 - STD	-	7.92	0.06							
Rate 20 - Pre-Paid	0 - 10		0.86							
	> 10		0.06							
Rate 20 - TOU		-		-	-	-				
Rate 40 - STD		55.80	0.04				18.05			
Rate 40 - TOU		55.80		0.04	0.04	0.04	-	10.66	7.87	2.28
Rate 50 - STD		55.80	0.03				12.51			
Rate 50 - TOU		55.80		0.03	0.03	0.03	-	8.22	6.09	2.17
Rate 60 Street Lights		22.50	0.09							
Rate 60 Traffic Signal		22.50	0.08							
Rate 70 - STD		55.80	0.03				16.58			
Rate 70 - TOU		55.80		0.04	0.03	0.03		9.31	6.08	2.18
Electric Vehicles				0.42	0.08	0.06				

14. TOU has not been implemented by the utility for residential customers.

PROJECTS IN PIPELINE

PROGRAMMES

Donor Funding and Technical Assistance Landscape	Donor Organization & Banks	Technical Assistance Providers	Funding Awards (USD)	Year
Implementation and Technical Support for the Energy Sector in Jamaica [68]	Inter-American Development Bank		$400,000	2022
Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica [69]	Global Environment Facility United Nations Development Programme	Global EV Programme Ministry of Economic Growth & Job Creation Ministry of Transport, Works, & Mining	Total $13,259,362 UNDP - $1,784,862.00 Co-financing - $11,474,500	2019
Modernizing Jamaica's Transport Sector to Improve Sustainability, Safety and Efficiency [70]	Inter-American Development Bank	Ministry of Transport and Mining	$200,000.00	2020
Supporting the Recovery of the Energy Sector in Jamaica from the COVID-19 Pandemic [71]	Inter-American Development Bank	Ministry of Science, Energy and Technology Jamaica Public Service (JPS)	$200,000	
Building a Sustainable Electric Mobility Ecosystem for Inclusion and Access [72]	Inter-American Development Bank	JPS Foundation	$1,920,000.00	2019
Sustainable Transport and Renewable Energy-Powered Electromobility Support to Jamaica [73]	Inter-American Development Bank	Ministry of Science, Energy and Technology Ministry of Transport and Mining Ministry of Economic Growth & Job Creation	$565,000.00	2019
EcoMicro - COK Sodality Green Finance for Renewable Energy and Energy Efficiency for MSMEs and Low-Income Households [74]	Inter-American Development Bank Global Affairs Canada	COK Sodality Credit Union Co-operative Credit Union Ltd	$500,000.00	2018
Government of Jamaica (GOJ) EV Trial Programme	Inter-American Development Bank Government of Japan	Flash-Motors Jamaica Stewart's Automotive Group Government of Jamaica	$1,500,000.00	2019
Energy Management and Efficiency Programme [75]	Inter-American Development Bank	Petroleum Corporation of Jamaica Ministry of Science, Energy and Technology	$10,000,000	2017
Energy Management and Efficiency Programme [76]			$30,000,000 IDB - $15,000,000 Co-Financing / Country - $15,000,000	2016

PROJECTS IN PIPELINE

ENERGY EFFICIENCY PROJECTS

There were no Energy Efficiency Projects reported for 2022.

RENEWABLE ENERGY PROJECTS

There were no Renewable Energy Projects reported for 2022. [15]

15. In May 2023, the Generation Procurement Entity (GPE) published an Expression of Interest (EoI for the supply of up to Net 100 MW of the Electricity Generation from Renewable Energy Based Power Generation Facilities on a Build, Own and Operate (BOO) Basis. [88]

TERTIARY PROGRAMMES OFFERED

PROGRAMMES

Name of Education Programme Provider	Vocational Certificate	Associate Degree	Bachelor's Degree	Post Graduate Certificate	Master's Degree	Mphil/PhD	Certification by a Professional Body	Programme Link
University of West Indies, Mona Campus			Energy & Environmental Physics[16]					https://www.mona.uwi.edu/programmes/view/1817
			Electronics and Alternative Energy Systems[17]					https://www.mona.uwi.edu/physics/electronics-and-alternative-energy-systems
			Electrical Power Engineering[18]					https://www.mona.uwi.edu/engineering/programmes/bsc-electrical-power-engineering
					Renewable Energy Management			https://www.mona.uwi.edu/physics/renewable-energy-management-msc
					Renewable Energy Technology			https://www.mona.uwi.edu/physics/taught-masters-programmes
			Essentials of Renewable Energy Technologies & Solutions[19]					https://www.mona.uwi.edu/physics/physics/courses/phys2701/essentials-renewable-energy-technologies-and-solutions-0
			Advanced Renewable Energy Technologies & Solutions[20]					https://www.mona.uwi.edu/physics/physics/courses/phys3701/advanced-renewable-energy-technology-and-solutions
			Fundamentals of Energy Statistics[21]					https://www.mona.uwi.edu/physics/physics/courses/phys2000/fundamentals-energy-statistics
			Energy Information Management[21]					https://www.mona.uwi.edu/physics/physics/courses/phys3000/energy-information-management
			Energy Systems Laboratory[21]					https://www.mona.uwi.edu/physics/physics/courses/elet3600/energy-systems-laboratory
					Applied Physics			https://www.mona.uwi.edu/physics/graduate-programme
					Electrical Power Engineering			https://www.mona.uwi.edu/engineering/programmes/mphil-and-phd-engineering

16. Includes the courses Solar Power and Wind and Hydro Power and Introducing Alternative Energy
17. Includes the courses Renewable Energy System Design and Modelling, Integrating Alternative Energy and Solar Power as core courses.
18. Includes courses on Renewable Energy Systems and Integration of Renewable Energy Systems
19. Offered as an elective course for those not completing a degree in Physics.
20. Offered as an elective course for those not completing a degree in Physics.
21. Offered as an elective course for those not completing a degree in Physics.

TERTIARY PROGRAMMES OFFERED

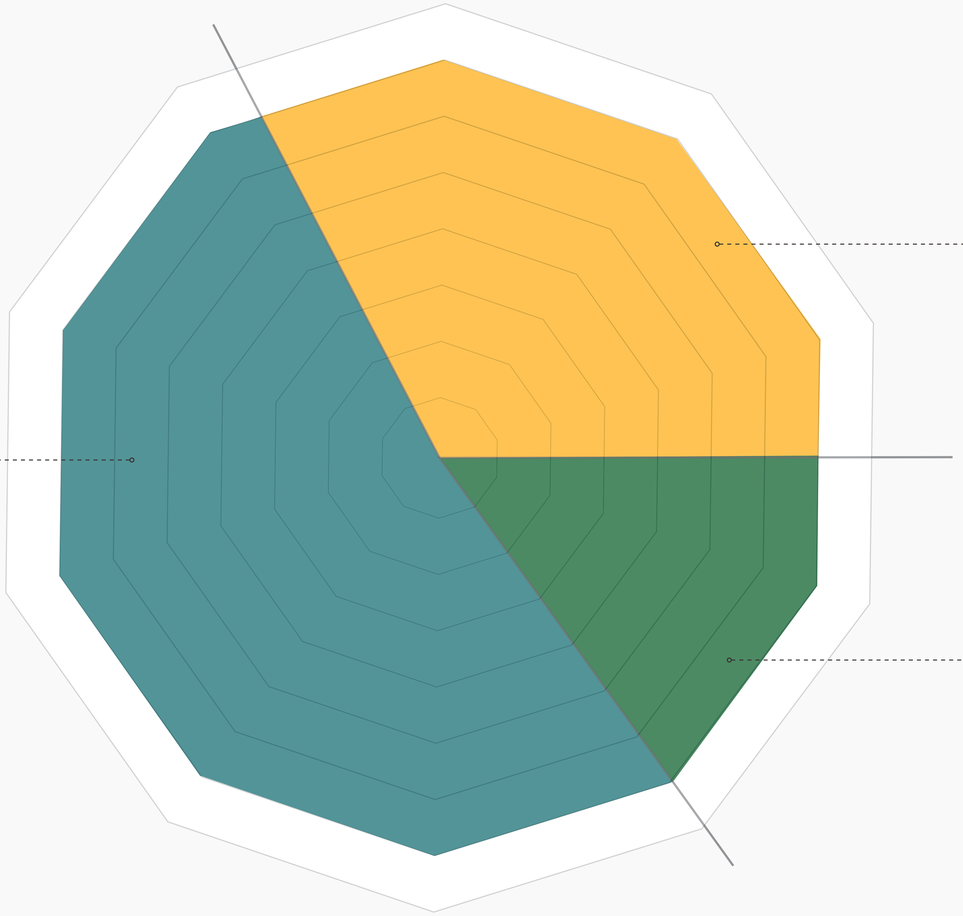
Name of Education Programme Provider	Vocational Certificate	Associate Degree	Bachelor's Degree	Post Graduate Certificate	Master's Degree	Mphil/PhD	Certification by a Professional Body	Programme Link
University of Technology			Agricultural Engineering [22]					https://www.utech.edu.jm/admissions/prospective-students/prospective-undergraduate-students/entry-requirements/faculty-of-engineering-and-computing
					Sustainable Energy and Climate Change			https://www.utech.edu.jm/cseii/courses.html
					Engineering Management[23]			https://www.utech.edu.jm/academics/colleges-faculties/fenc/engineering/courses-of-study/graduate/mss-engineering
						Built Environment[24]		https://www.utech.edu.jm/academics/colleges-faculties/fobe/mphil-phd-be
	Introduction to Energy Efficiency Audits							https://www.utech.edu.jm/academics/colleges-faculties/fenc/engineering/professional-short-courses-1
Excelsior Community College		Renewable Energy						https://ecc.edu.jm/associate-of-applied-science-degree-in-renewable-energy/
Vector Technology Institute	Solar Photovoltaic Installer Level 1							https://vti.edu.jm/certificates-for-professional-development/photovoltaic-installer-levels-1/
HEART Trust/ NFTA	Renewable Energy Level 2							https://ndar.heart-nta.org/programmes.aspx
	Renewable Energy Level 3							
The Wigton Renewable Training Lab	Solar thermal Energy						City and Guilds	https://wwfja.com/training/
	Solar Photovoltaic							
	Wind Energy							
	Concentrated Solar Power							
	Energy Consumption And Measurement							
	Small Hydro							
	Bio-Energy							

22. Includes an option that focuses on Water, Waste, Energy and the Environment.
23. Includes specialisation in Renewable Energy Engineering.
24. Includes Environmental Sustainability and Climate Change as an area of specialisation.
25. Students are automatically qualified to sit the external Electronics Technicians Association's international certification examination

TRANSPORTATION SECTOR[12]

QUANTITY OF FUEL USED IN THE TRANSPORTATION SECTOR (BOE)

No vehicular data was available for 2022.



3,080,897.00
Diesel (Road)

4,946,248.00
Gasoline (Road)

1,434,965.00
Turbo Fuel (Road/Aviation)

CLIMATE CHANGE FRAMEWORK

Climate Change Policy	Climate Change Policy Framework for Jamaica [10]
National Determined Contributions/ Emissions Reduction Target [13]:	25.4% reduction relative to business-as-usual emissions in 2030 without international support (unconditional)
	28.5% reduction relative to business-as-usual emissions in 2030 conditional upon international support
Priority Sectors for NDC [13]	Land-use and forestry Agriculture Waste to energy
National Communications (NC) to the UNFCCC:	Jamaica National Communication to the United Nations Framework Convention on Climate Change (2000) [77]
	The Second National Communication of Jamaica to the United Nations Framework Convention on Climate Change (2011) [78]
	Third National Communication of Jamaica to the United Nations Framework Convention on Climate Change (2018) [79]

SUMMARY OF JAMAICA'S GHG EMISSIONS AND REMOVALS (Gg) FOR 2012 [79]

Source	Gg						
	Carbon Dioxide (CO^2)	Methane (CH_4)	Nitrous Oxide (N_2O)	(NOx)	Carbon Monoxide (CO)	NMVOCs	Sulphur Dioxide (SO_x)
Energy	6909.33	1.41	0.24	33.58	69.06	9.88	15.99
Industrial Processes	436.56	0	-	0		3.08	
Solvent and Other Prod-uct Use	0	0	-	0	-	14.01	
Agriculture	0	12.87	20.88	10.09	8.07	1.67	-
Land-Use Change and Forestry	-1625.88	-	-	0	0	0	0
Waste	38.62	26.3	0.15	0.31	5.33	1.01	0.01
Other	0	0	-	0	0	0	0
Total	**5758.63**	**40.58**	**21.27**	**43.98**	**82.46**	**29.65**	**16**

BIBLIOGRAPHY

[1] The World Bank Group, “Jamaica,” The World Bank Group, 2023. [Online]. Available: https://data.worldbank.org/country/JM. [Accessed 27 June 2023].

[2] “Economic and Social Survey Jamaica 2022”.

[3] The World Bank Group, “GNI per capita, Atlas method (current US$),” The World Bank Group, 2023. [Online]. Available: https://data.worldbank.org/indicator/NY.GNP.PCAP.CD. [Accessed 27 July 2023].

[4] Bank of Jamaica, “Financial Stability Report 2022,” 2022. [Online]. Available: https://boj.org.jm/wp-content/uploads/2023/03/FinStab-Annual-Report-2022.pdf. [Accessed 8 August 2023].

[5] United Nations Development Programme, “Human Developemnt Report 2021/2022,” 8 September 2022. [Online]. Available: https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf_1.pdf. [Accessed 14 September 2022].

[6] Planning Institute of Jamaica, “Vision 2030 Jamaica: National Devlopment Plan,” 2009. [Online]. Available: https://www.vision2030.gov.jm/wp-content/uploads/sites/2/2021/04/vision-2030-jamaica-national-development-plan-1.pdf. [Accessed 8 August 2023].

[7] Ministry of Energy and Mining, Jamaica, “Jamaica’s National Energy Policy 2009-2030,” 2009. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/National-Energy-Policy_0.pdf. [Accessed 8 August 2023].

[8] Ministry of Energy and Mining, “National Renewable Energy Policy (Draft),” 26 August 2010. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/Draft-Renewable-Energy-Policy_0.pdf. [Accessed 2 June 2023].

[9] Ministry of Science, Energy, and Technology, “Ministry of Science, Energy and Technology Sectoral Presentation 2022-2023,” 10 May 2022. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2022/05/MSET-Sectoral-Presentation-Full.pdf. [Accessed 15 June 2023].

[10] Government of Jamaica, “Climate Change Policy Framework for Jamaica,” September 2015. [Online]. Available: https://cdn.climatepolicyradar.org/navigator/JAM/2015/climate-change-policy-framework_567f30d5b55c6eb742036a9629980c5e.pdf. [Accessed 15 September 2023].

[11] Bureau of Standards Jamaica, “Energy Efficiency Programme,” [Online]. Available: https://www.bsj.org.jm/articles/energy-efficiency-programme. [Accessed 02 June 2023].

[12] Energy Economics and Planning Unit, Energy Division, Ministry of Science, Energy and Technology, “Jamaica Energy Statistics,” May 2023. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2021/07/JAMAICA-ENERGY-STATISTICS-2022.pdf. [Accessed 9 June 2023].

[13] Governmen tof Jamaica, “Updated Nationally Determined Contribution of Jamaica to the United Nationas Framework Convention on Climate Change,” June 2020. [Online]. Available: https://unfccc.int/sites/default/files/NDC/2022-06/Updated%20NDC%20Jamaica%20-%20ICTU%20Guidance.pdf. [Accessed 9 June 2023].

[14] A. Ochs , M. Konold, K. Auth, E. Musolino and P. Killeen, “Caribbean Sustainnable Energy Roadmap and Strategy (C-SERMS) Baseline Report and Assessment,” Worldwatch Intitue, Washington, D.C., 2015.

[15] Ministry of Science, Energy, Telecommunications and Transport, “Overview of the Ministry Of Science, Energy, Telecommunications and Transport,” Ministry of Science, Energy, Telecommunications and Transport, 2023. [Online]. Available: https:// www.mset.gov.jm/overview/. [Accessed 2 June 2023].

[16] Ministry of Science, Energy, Telecommunications and Transport, “Energy Division (ED),” Ministry of Science, Energy, Telecommunications and Transport, 2023. [Online]. Available: https://www.mset.gov.jm/energy-division/. [Accessed 1 June 2023].

[17] Petrojam Limited, “About Us,” Petrojam Limited, 2021. [Online]. Available: https://www.petrojam.com/about-us/. [Accessed 1 June 2023].

[18] Ministry of Science, Energy, Telecommunications and Transport, “Petrojam Ethanol Limited,” Ministry of Science, Energy, Telecommunications and Transport, 2023. [Online]. Available: https://www.mset.gov.jm/2019/07/02/petrojam-ethanol-limited/. [Accessed 9 September 2023].

[19] Government of Jamaica, “Transportation Division,” [Online]. Available: https://mtm.gov.jm/. [Accessed 2 June 2023].

[20] Ministry of Transport and Mining, “Who We Are,” Government of Jamaica, [Online]. Available: https://www.ta.org.jm/about. [Accessed 2 j/une 2023].

[21] Corporate Petroleum Services, “Who we are...,” Corporate Petroleum Services, 2021. [Online]. Available: https://www.corporatepetroleum.com/about. [Accessed 2 June 2023].

[22] New Fortress Energy, “About,” New Fortress Energy, 2023. [Online]. Available: https://www.newfortressenergy.com/about. [Accessed 2 June 2023].

[23] Rubis Energy Jamaica, “ Rubis Energy Jamaica,” Rubis Energy Jamaica, 2021. [Online]. Available: https://rubisenergyjamaica.com/. [Accessed 2 June 2023].

[24] IGL Blue Jamaica, “About Us,” IGL Blue Jamaica, 2023. [Online]. Available: https://www.iglblue.com/about-us/. [Accessed 2 June 2023].

[25] Jamaica Observer, “Sol Group acquires Texaco operations in Jamaica,” Jamaica Observer, 2 July 2022. [Online]. Available: https://www.jamaicaobserver.com/business/sol-group-acquires-texaco-operations-in-jamaica/. [Accessed 15 September 2023].

[26] Cool GRoup, “Cool Oasis,” Cool GRoup, 2020. [Online]. Available: https://www.coolcorp.com/project/cool-oasis/ . [Accessed 2 June 2023].

[27] Future Energy Source Company Lt, “Home,” Future Energy Source Company Lt, 2023. [Online]. Available: https://www.fescoja.com/. [Accessed 2 June 2023].

[28] MyRewards, “CWH Gas Shopping,” MyRewards, 2023. [Online]. Available: https://cwhgas.com/index.php. [Accessed 2 June 2023].

[29] Massy Gas Products, “About,” Massy Gas Products, [Online]. Available: https://www.gasprojamaica.com/about/. [Accessed 2 June 2023].

[30] TotalEnergies, “TotalEnergies Jamaica,” TotalEnergies, 2023. [Online]. Available: https://totalenergies.com.jm/. [Accessed 2 June 2023].

[31] Jamaica Public Service Company Limited (JPS), “Our Story,” Jamaica Public Service Company Limited (JPS), 2023. [Online]. Available: https://www.jpsco.com/our-story/. [Accessed 2 June 2023].

BIBLIOGRAPHY

[32] Wigton Windfarm Limited, “Wigton Windfarm Limited,” Wigton Windfarm Limited, [Online]. Available: https://wwfja.com/wigton-windfarm/. [Accessed 2 June 2023].

[33] WRB Enterprises, “Welcome to WRB ENTERPRISES,” WRB Enterprises, 2016. [Online]. Available: https://wrbenterprises.com/. [Accessed 2 June 2021].

[34] InterEnergy, “InterEnergy,” InterEnergy, 2023. [Online]. Available: https://interenergy.com/. [Accessed 2 June 2023].

[35] Jamaica Energy Partners, “About Us,” Jamaica Energy Partners, 2023. [Online]. Available: https://www.jamenergy.com/about/. [Accessed 2 June 2023].

[36] Jamalco, “About US,” Jamalco, 2023. [Online]. Available: http://www.jamalco.com/about-us.html. [Accessed 2 June 2023].

[37] BMR Energy Limited, “BMR Energy’s Jamaica Wind Project Delivering Wind Energy to Jamaica,” BMR Energy Limited, 2023. [Online]. Available: https://bmrenergy.com/projects/jamaica-wind/. [Accessed 2 June 2023].

[38] Jamaica Public Service Company Limited, “Our Business,” Jamaica Public Service Company Limited, 2023. [Online]. Available: https://www.jpsco.com/our-business/ . [Accessed 24 July 2023].

[39] Office of Utilities Regulation, “Vision, Mission, Objectives and Core Values,” Office of Utilities Regulation, 2023. [Online]. Available: https://our.org.jm/about-us/vision-mission-objectives-and-core-values/. [Accessed 2 June 2023].

[40] Government Electrical Regulator, “Government Electrical Regulator,” Government Electrical Regulator, 2023. [Online]. Available: https://ger.gov.jm/. [Accessed 15 September 2023].

[41] Government of Jamaica, “The Office of Utilities Regulation Act,” 25 April 1995. [Online]. Available: https://laws.moj.gov.jm/library/statute/the-office-of-utilities-regulation-act. [Accessed 6 June 2023].

[42] Ministry of Science, Energy and Technology, “Net Billing, Electric Power Wheeling and Auxiliary Connections Grid-Interconnection Programme,” December 2016. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/06/Net-Billing-Power-Wheeling-etc-Programme.pdf. [Accessed 15 September 2023].

[43] Office of Utilities Regulation , “Jamaica Electricity Sector Book of Codes,” August 2016. [Online]. Available: https://our.org.jm/wp-content/uploads/2021/01/electricity_act_-_jamaica_electricity_book_of_codes_-_clean.pdf. [Accessed 15 September 2023].

[44] Government of Jamaica, “The Electric Lighting Act,” 1 January 1977. [Online]. Available: https://laws.moj.gov.jm/library/statute/the-electric-lighting-act. [Accessed 8 June 2023].

[45] Government of Jamaica, “The Electricity Act,” 2015. [Online]. Available: https://japarliament.gov.jm/attachments/article/341/The%20Electricity%20Act,%202015%20No.18.pdf. [Accessed 24 June 2023].

[46] Ministry of Science, Energy, Telecommunications and Transport, “Government Electrical Inspectorate (GEI),” Ministry of Science, Energy, Telecommunications and Transport, 2023. [Online]. Available: https://www.mset.gov.jm/2019/07/02/government-electrical-inspectorate-gei/. [Accessed 2 July 2023].

[47] Ministry of Science, Energy and Technology, “Integrated Resource Plan: A 20 Year Roadmap to Sustain and Enable Jamaica’s Electricity Future (Draft),” 20 January 2020. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2020/03/2018-Jamaica-Integrated-Resource-Feb-21-2020.pdf. [Accessed 8 June 2023].

[48] Jamaica Information Service, “Pickersgill Presents Draft Of National Road Safety Policy,” Jamaica Information Service, 29 January 2004. [Online]. Available: https://jis.gov.jm/pickersgill-presents-draft-of-national-road-safety-policy/. [Accessed 31 January 2004].

[49] Ministry of Transport and Mining, “National Transport Policy (Draft),” 2007. [Online]. Available: http://94.23.80.242/~aec/ivia/Nation%20Transport%20Policy%202007.pdf. [Accessed 8 June 2023].

[50] Ministry of Energy and Mining, “National Energy Conservation and Efficiency Policy,” 10 October 2010. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/Draft-Energy-Conservation-and-Efficiency-Policy_0.pdf. [Accessed 15 September 2023].

[51] Ministry of Energy and Mining, “National Energy-From-Waste Policy 2010-2030,” October 2010. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/Draft-Waste-to-Energy-Policy_0.pdf. [Accessed 8 June 2023].

[52] Ministry of Energy and Mining, “National Biofuels Policy 2010-2030 (Draft),” October 2010. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/Draft-Biofuels-Policy_0.pdf. [Accessed 8 June 2023].

[53] Government of Jamaica, “National Policy for the Trading of Carbon Credits 2010-2030,” 13 October 2010. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/Draft-Trading-of-Carbon-Credits-Policy_0.pdf. [Accessed 13 January 2024].

[54] Government of Jamaica, “National Policy on Environment Management Systems (Green Paper),” December 2017. [Online]. Available: https://japarliament.gov.jm/attachments/article/1927/2018%20Green%20Paper%202%20-%20National%20Policy%20on%20Environmental%20Management%20Systems.pdf. [Accessed 8 June 2023].

[55] Inter-American Development Bank, “The Strategic Framework for Electric Mobility in Jamaica (Draft),” April 2020. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2022/11/Electric-mobility-Strategic-Framework-DEF.pdf. [Accessed 8 June 2023].

[56] Ministry of Housing, Urban Renewal, Environment and Climate Change, “Emissions Policy Framework,” 30 July 2021. [Online]. Available: https://japarliament.gov.jm/attachments/article/2450/2021-Ministry-Paper-61.pdf. [Accessed 21 July 2023].

[57] Government of Jamaica, “Petroleum and Oil Fuel (Landing and Storage),” 13 November 1925. [Online]. Available: https://laws.moj.gov.jm/legislation/subsids/P/Petroleum%20Oil%20Fuel%20(Landing%20and%20Storage)%20Act.pdf. [Accessed 8 June 2023].

[58] Government of Jamaica, “Road Traffic Act,” [Online]. Available: https://laws.moj.gov.jm/library/act-of-parliament/7-2022-the-road-traffic-amendment-act. [Accessed 15 September 2023].

[59] Government of Jamaica, “The Petroleum (Quality Control) Act,” 1990. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-petroleum-quality-control-act. [Accessed 8 June 2023].

[60] Government of Jamaica, “The Public Passenger Transport (Rural Area) Act,” 1970. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-public-passenger-transport-rural-area-act. [Accessed 8 June 2023].

[61] Government of Jamaica, “Petroleum Act 1979,” 15 June 1979. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2020/01/Petroleum-Act-1979.pdf. [Accessed 8 June 2023].

BIBLIOGRAPHY

[62] Government of Jamaica, “The Public Passenger Transport (Kingston Metropolitan Transport Region),” 2002. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-public-passenger-transport-kingston-metropolitan-transport-region. [Accessed 8 June 2023].

[63] Government of Jamaica, “Proposed Jamaican Motor Vehicle Exhaust Emission Standards,” 2015. [Online]. Available: https://www.nepa.gov.jm/sites/default/files/2019-12/motor_vehicle_exhaust_emission_standards.pdf. [Accessed 8 June 2023].

[64] Government of Jamaica, “Omnibus Incentive Legislation,” 2013. [Online]. Available: https://www.jacustoms.gov.jm/sites/default/files/docs/Legislation/Omnibus-Incentive-Legislation.pdf. [Accessed 13 June 2023].

[65] Jamaica Public Service Company Limited, “Annual Report 2022,” 2022. [Online]. Available: https://www.jpsco.com/wp-content/uploads/2023/07/JPS-AR-22-June-21-FINAL-V2.pdf. [Accessed 18 July 2023].

[66] Ministry of Science, Energy, Telecommunications and Transport, Electricity and Energy Efficiency Data, Kingston, Jamaica: Ministry of Science, Energy, Telecommunications and Transport, 2023.

[67] Jamaica Public Service Company, “JPS Rate Schedules 2022-2023,” 2022. [Online]. Available: https://www.jpsco.com/wp-content/uploads/2023/07/JPS-RATE-SCHEDULE-2022-2023-G-Full-Page-28.4x52cm_v2.pdf. [Accessed 16 July 2023].

[68] Inter-American Development Bank, “JA-T1206 : Implementation and Technical Support for the Energy Sector in Jamaica,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-T1206. [Accessed 11 September 2023].

[69] United Nations Development Programme, “Project title: Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica,” 2020. [Online]. Available: https://www.thegef.org/sites/default/files/documents/10289_Project_Document.pdf. [Accessed 14 June 2023].

[70] Inter-American Development Bank, “JA-T1187 : Modernizing Jamaica-s Transport Sector to Improve Sustainability, Safety and Efficiency,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-T1187. [Accessed 11 September 2023].

[71] Inter-American Development Bank, “JA-T1191 : Supporting the Recovery of the Energy Sector in Jamaica from the COVID-19 Pandemic,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-T1191. [Accessed 11 September 2023].

[72] Inter-American Development Bank, “JA-T1179 : Building a Sustainable Electric Mobility Ecosystem for Inclusion and Access,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-T1179. [Accessed 11 September 2023].

[73] Inter-American Development Bank, “JA-T1172 : Sustainable Transport and Renewable Energy-Powered Electromobility Support to Jamaica,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-T1172. [Accessed 11 September 2023].

[74] Inter-American Development Ban, “JA-T1159 : EcoMicro - COK Sodality Green Finance for Renewable Energy and Energy Efficiency for MSMEs and Low-Income Households,” Inter-American Development Ban, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-T1159. [Accessed 11 September 2023].

[75] Inter-American Development Bank, “JA-G1003 : Energy Management and Efficiency Programme,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-G1003. [Accessed 11 September 2023].

[76] Inter-American Development Bank, “JA-L1056 : Energy Management and Efficiency Programme,” Inter-American Development Bank, 2023. [Online]. Available: https://www.iadb.org/en/project/JA-L1056. [Accessed 11 September 2020].

[77] Government of Jamaica, “Jamaica National Communication to the United Nations Framework Convention on Climate Change,” 2000. [Online]. Available: https://unfccc.int/sites/default/files/resource/Jamaica%20INC_0.pdf. [Accessed 25 August 2023].

[78] Government of Jamaica, “The Second National Communication of Jamaica to the United Nations Framework Convention on Climate Change,” 2011. [Online]. Available: https://unfccc.int/sites/default/files/resource/snc2_Jamaica.pdf. [Accessed 28 August 2023].

[79] Government of Jamaica, “Third National Communication of Jamaica to the United Nations Framework Convention on Climate Change,” 2018. [Online]. Available: https://unfccc.int/sites/default/files/resource/TNC_Final_December132018.pdf. [Accessed 28 August 2023].

[80] Ministry of Science, Energy, Telecommunications and Transport, “Petroleum Corporation of Jamaica,” Ministry of Science, Energy, Telecommunications and Transport, 2023. [Online]. Available: https://www.mset.gov.jm/2019/07/02/petroleum-corporation-of-jamaica/. [Accessed 9 September 2023].

[81] National Road Safety Council, “National Road Safety Policy,” June 2004. [Online]. Available: http://www.nationalroadsafetycouncil.org.jm/pdf/NationalRoadSafetyPolicyDocument.pdf. [Accessed 8 June 2023].

[82] Government of Jamaica, “The Transport Authority Act,” 1988. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-transport-authority-act. [Accessed 8 June 2023].

[83] Government of Jamaica, “The Toll Roads Act,” 2003. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-toll-roads-act. [Accessed 8 June 2023].

[84] Government of Jamaica, “The Civil Aviation Act,” 1995. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-civil-aviation-act . [Accessed 8 June 2023].

[85] Government of Jamaica, “The Airports Authority Act,” 2004. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-airports-authority-act. [Accessed 8 June 2023].

[86] Government of Jamaica, “The Jamaica Railway Corporation Act,” 1973. [Online]. Available: https://laws.moj.gov.jm/library/subsidiary-legislation/the-jamaica-railway-corporation-act. [Accessed 8 June 2023].

[87] Office of Utilities Regulation, “Jamaica Public Service Company Limited Standard Offer Contract for the Purchase of As-Available Intermittent Energy from Renewable Energy Facilities up to 100kW,” 2012. [Online]. Available: https://www.mset.gov.jm/wp-content/uploads/2019/07/JPSCo-Standard-Offer-Contract-Determination-Notice.pdf. [Accessed 08 2023].

[88] Jamaica Information Service, “National and International Open Call for Expression of Interest within the Framework of the Electricity Act, 2015 and The Integrated Resource Plan (IRP) 2020 of Jamaica,” May 2023. [Online]. Available: https://jis.gov.jm/gpe-eoi/. [Accessed September 2023].