

Energy Snapshot Jamaica

This profile provides a snapshot of the energy landscape of Jamaica, an island nation located in the north Caribbean Sea. Jamaica’s utility rates are approximately \$0.39 per kilowatt-hour (kWh),¹ above the Caribbean regional average of \$0.33/kWh. Like many island nations, Jamaica is highly dependent on imported fossil fuels—more than 94% of the island’s electricity is generated from petroleum-based fuels—leaving it vulnerable to oil price and currency exchange fluctuations that directly impact the cost of electricity.



Jamaica’s Renewable Energy Goals:

- 12.5% by 2015
- 20% by 2030⁴

Population	2,930,050
Total Area	10,991 square kilometers
Gross Domestic Product (GDP)	\$25.13 billion U.S. dollars (USD)
Share of GDP Spent on Fuel and Imports	Electricity – 3% ¹ Total – 9% ²
GDP Per Capita	\$9,000 USD
Urban Population Share	52% ³

Government and Utility Overview

Government Authority	Ministry: Ministry of Science, Technology, Energy and Mining	
	Key Figure: Minister Phillip F. Paulwell	
Designated Institution for Renewable Energy	Ministry of Science, Technology, Energy and Mining	
Regulator	Office of Utilities Regulation (OUR)	
Utilities	Name: Jamaica Public Service Company Limited	Mixed ownership (foreign companies 80%, government 19%, other 1%) ⁵

Electricity Sector Data

Jamaica Public Service Company Limited (JPS) is the sole electric distribution utility in Jamaica, providing power to customers from its own generation fleet and through purchases from the island’s independent power producers (IPPs). In 2013, JPS delivered 57% of its energy needs from its own generation and purchased the remaining 43% from IPPs.¹ The Petroleum Corporation of Jamaica (PCJ) is also prominent in the electricity sector both as the owner of the Wigton Wind Farm and through its feasibility studies for small hydro, solar, and wind development. Finally, the sugar processing and

bauxite/alumina industries in Jamaica are major self-generators of electricity, but this power is only used to offset on-site demand and is not exported to the grid.⁶

Electrification rates in Jamaica are very high, reaching 98%,⁷ but operational challenges persist. For example, system losses consume 26% of electricity produced, exceeding the regulatory maximum of 17.5%. These system losses include both technical losses in transmission and distribution (9% of energy produced) and nontechnical factors such as energy theft (17% of energy produced),⁸ which imposed a cost of \$43.5 million on ratepayers in 2013.¹

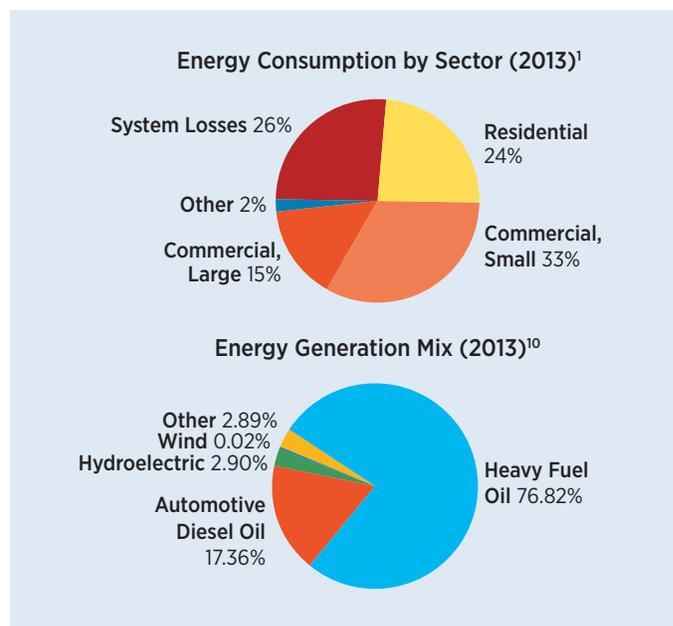
Electricity Sector Overview

Total Installed Capacity⁹ (2013)	923 megawatts (MW) (Total) 634 MW (JPS) 289 MW (IPP)	
Peak Demand⁹	644.4 MW	
Total Generation¹ (2013)	4,141,644 megawatt-hours	
Renewable Share (2013)	6%	
Proposed/Planned Renewable Projects	78 MW ^{11, 12}	
Average Electricity Tariffs (USD/kWh)¹³	Residential	\$0.32
	Commercial	\$0.39
	Industrial	\$0.29
	Public Lighting	\$0.40

Clean Energy Policy Environment

Jamaica published its National Energy Policy in 2009, its first comprehensive long-term energy plan. The policy set a number of targets in relation to renewable electricity generation, energy efficiency, and greenhouse gas emissions to be met by 2030. Of particular note is the country's aggressive target for energy intensity, which calls for a reduction of more than 50% from 2015 to 2030, from 12,700 British thermal units (Btu) per U.S. dollar GDP to 6,000 Btu per dollar.

Jamaica has taken a number of steps to advance energy efficiency on the island, such as tax exemptions for energy efficiency equipment, energy labeling for refrigerators and freezers, and utility-led energy audit programs.¹⁴ In addition, the government has targeted a 30% reduction in energy costs for public buildings.¹⁴ In the private building sector, the National Building Codes were updated in 2009 to incorporate the International Building Codes, which contain specific requirements for energy consumption and conservation.¹⁵ While this change established the first-ever building energy efficiency standards in Jamaica, the updated codes will continue to remain voluntary until affirmed by an act of Parliament.¹⁶

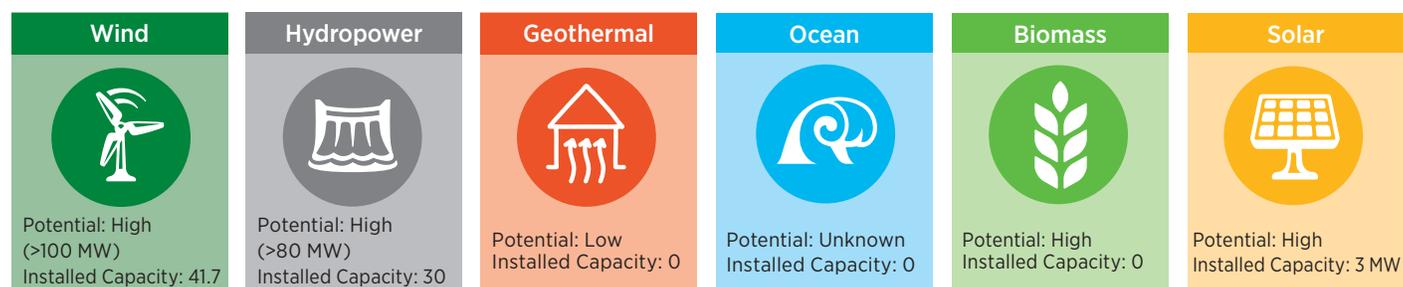


Existing Policy and Regulatory Framework

Renewable Energy	
Feed-in Tariff ¹⁹	
Net Metering/Billing ²⁰	●
Interconnection Standards ²⁰	●
Renewables Portfolio Standard/Quota	
Tax Credits	
Tax Reduction/Exemption ¹⁴	●
Public Loans/Grants	
Green Public Procurement ²¹	●
Energy Efficiency	
Energy Efficiency Standards ¹⁴	■
Tax Credits	
Tax Reduction/Exemption ¹⁴	●
Public Demonstration ¹⁴	●
Restrictions on Incandescent Bulbs	■
Appliance Labeling Standards	■
Targets	
Renewable Energy ²²	●
Energy Efficiency	

● In Place ■ In Development

Renewable Energy Status and Potential ^{9, 29}



Renewable energy generation in Jamaica benefits from several key policies, including a tax exemption for imports of renewable generating equipment. Also, JPS's Net Billing program provides bill credits at the utility's avoided cost rate for any excess energy exported to the grid by customer-sited generation. To date, 80 systems have been installed, with a total nameplate capacity of 1.4 MW, and the Office of Utilities Regulation has approved more than 250 participants in the Net Billing program.^{17,18} However, other policy options have been bypassed: a feed-in tariff bill that had been progressing through the Jamaican Parliament was tabled in 2012 and was not revisited.¹⁹

Energy Efficiency and Renewable Energy Projects

Jamaica currently boasts 41.7 MW of wind power and 30 MW of hydroelectric power.²⁴ The wind capacity is split between the independent Wigton Wind Farm Phases I (20.7 MW) and II (18 MW) and JPS's Munro Wind Farm (3 MW).⁹ The hydroelectric capacity is provided by nine different plants, the newest of which is the 7.2-MW Maggoty hydroelectric facility, commissioned in March 2014.^{9, 25}

Solar power in Jamaica has yet to see large-scale development, with no utility-scale facilities installed to date. Notable solar installations include the 1.6-MW rooftop array at the Grand Palladium Jamaica Resort & Spa²⁶ and the combined 500 kW installed across 32 facilities by the Jamaica Broilers Group.²⁶

In November 2012, JPS issued a request for proposals (RFP) for 115 MW of renewable capacity, of which 78 MW was to be contracted as energy only and the remaining 37 MW to supply firm capacity.²⁷ In September 2014, JPS finalized

contracts with three counterparties for the energy-only portion of the RFP. The winning projects were:

- BMR Wind Jamaica, which will install 34 MW of wind at a cost of \$90 million
- Wigton Wind Farm, which will build 24 MW as Phase III of its existing facility for \$46 million
- WRB Enterprises, which will construct a 20-MW solar facility for \$60 million.²⁸

Opportunities for Clean Energy Transformation

Jamaica has a strong framework for expanding the adoption of clean energy, as evidenced by the long-term vision of the National Energy Policy and the success of utility-scale renewables. To build on this work, there are several next steps that can provide important economic and environmental benefits, which could include an act of Parliament to make the new National Building Codes mandatory and speeding-up approvals in the Net Billing program by reducing regulatory complexities.

Jamaica has significant potential to expand wind, hydroelectric, and solar generation resources, as well as biomass generation technologies, to utilize the byproducts of the island's significant agricultural operations. While the power system will continue to require firm capacity and dispatchable operations, renewable energy and energy efficiency can significantly reduce Jamaica's reliance on imported oil. In the longer term, modern grid controls and communications coupled with energy storage could enable renewable energy to mimic the dispatchability of thermal resources and meet an even greater share of Jamaica's future energy demand.

Energy Transition Initiative

This energy snapshot was prepared to support the Energy Transition Initiative, which leverages the experiences of islands, states, and cities that have established a long-term vision for energy transformation and are successfully implementing energy efficiency and renewable energy projects to achieve established clean energy goals.

Through the initiative, the U.S. Department of Energy and its partners provide government entities and other stakeholders with a proven framework, objective guidance, and technical tools and resources for transitioning to a clean energy system/economy that relies on local resources to substantially reduce reliance on fossil fuels.



¹ <http://www.myjpsco.com/wp-content/uploads/JPS-Annual-Report-2013.pdf>.

² <http://comtrade.un.org/data/>. Year: 2013, Reporter: Jamaica, Partner: World, Trade Flows: Import, Commodity: 27 – Mineral Oils \$2.259 bill.

³ CIA World Factbook.

⁴ <http://ocs.mona.uwi.edu/public/conferences/12/schedConfs/11/energyPolicyOctober212009.pdf>.

⁵ <http://www.myjpsco.com/about-us/>.

⁶ <http://www.olade.org/sites/default/files/CIDA/OLADE%20Generation%20Diagnosis%20Jamaica.pdf>.

⁷ <http://www.worldwatch.org/system/files/Jamaica-Sustainable-Energy-Roadmap-112013.pdf>.

⁸ http://www.our.org.jm/ourweb/business_plans/ours-annual-report-2013-14.

⁹ http://www.our.org.jm/ourweb/sites/default/files/documents/sector_documents/our115mwrenewableenergyrfpfinal2012.pdf.

¹⁰ http://www.our.org.jm/ourweb/business_plans/ours-annual-report-2013-14.

¹¹ <http://www.elp.com/articles/2014/09/jamaica-aims-to-double-renewable-energy-capacity.html>.

¹² <https://www.mona.uwi.edu/physics/sites/default/files/physics/uploads/RE%20Development%20MSTEM.pdf>.

¹³ http://www.myjpsco.com/wp-content/uploads/2013_rate_schedule.pdf.

¹⁴ <http://www.worldwatch.org/system/files/Jamaica-Sustainable-Energy-Roadmap-112013.pdf>.

¹⁵ <http://jmb.gov.jm/html/wp-content/uploads/2009/08/the-new-national-building-code-of-jamaica.pdf>.

¹⁶ <http://www.jamaica-gleaner.com/article/news/20150123/earthquake-awareness-week-and-passing-jamaicas-new-national-building-act>.

¹⁷ http://www.jamaicaobserver.com/news/Gov-t-reports-strong-take-up-of-net-billing-licences_18351721.

¹⁸ Jamaica OUR Net Billing Data, “Active Capacity” tab.

¹⁹ <http://blogs.worldwatch.org/revolt/jamaica-two-steps-forward-one-step-back/>.

²⁰ <http://www.myjpsco.com/net-billing/>.

²¹ http://www.nepa.gov.jm/publications/reports/fr/08-09/nepa_fs_08-09.pdf, page 30; <http://www.cabinet.gov.jm/files/GoJ%20Policy%20Register%20as%20at%20July%202009.pdf>.

²² <http://www.nepa.gov.jm/Development-Invest-Man/Volume%206%20-%20Business%20Facilitation/Section%207%20-%20Jamaican%20Standards%20for%20Business%20Developers.pdf>.

²³ <http://ocs.mona.uwi.edu/public/conferences/12/schedConfs/11/energyPolicyOctober212009.pdf>.

²⁴ <http://www.myjpsco.com/about-us/exploring-renewables/>.

²⁵ <http://www.myjpsco.com/about-us/how-we-deliver-power-to-you/>; <http://www.myjpsco.com/about-us/exploring-renewables/>; <http://www.jamaicaobserver.com/news/JPS-opens-Maggotty-Hydroelectric-plant-today>; <http://www.waterpowermagazine.com/news/newsmaggotty-plant-commissioned-in-jamaica-4204839>.

²⁶ http://www.jamaicaobserver.com/environment/A-GRAND-solar-system_16779069.

²⁷ <http://blogs.worldwatch.org/revolt/jamaican-poultry-producer-not-chicken-about-solar-investment/>.

²⁸ <http://www.myjpsco.com/news/historic-power-purchase-agreements-signed-between-jps-and-renewable-energy-providers-including-jamaicas-first-solar-energy-ipp/>.

²⁹ <http://www.olade.org/sites/default/files/CIDA/OLADE%20Generation%20Diagnosis%20Jamaica.pdf>.

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