JAMAICA

ENERGY INVESTOR GUIDE
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# Table of Contents

1. Jamaica at a Glance

2. Areas of Opportunity
   2.1 Electricity Sector
      2.1.1 Conventional electricity
      2.1.2 Utility-scale renewable energy
      2.1.3 Cogeneration and trigeneration
      2.1.4 Wheeling for self-generation
      2.1.5 Distributed generation
      2.1.6 Transmission and distribution
      2.1.7 Grid stability
   2.2 Energy Efficiency
   2.3 Upstream Oil and Gas
   2.4 Natural Gas
      2.4.1 Midstream and downstream
      2.4.2 Natural gas end uses
   2.5 Biofuels
   2.6 Energy Supply and Demand
      2.6.1 Energy supply
      2.6.2 Energy demand
   2.7 Entities Responsible for Energy Policy, Regulation and Service Provision
   2.8 Electricity Sector Structure
   2.9 Characteristics of the Electricity Grid
2.10 Fuel Sector Structure 25
2.11 Jamaica’s Energy Policy 26
   2.11.1 Jamaica’s National Energy Policy 26
   2.11.2 Energy Action Plan 27

3 How to Invest in Energy Opportunities 29
   3.1 Utility-Scale Conventional Generation 29
      3.1.1 Processes for investing in utility-scale conventional generation 29
      3.1.2 Obtaining a NEPA Environmental Permit 33
   3.2 Utility-Scale Renewable Energy 36
      3.2.1 Waste to energy 36
      3.2.2 Mini-hydro power 37
      3.2.3 Wind, solar, and other renewables 39
   3.3 Cogeneration 43
   3.4 Wheeling for Self-Generation 44
   3.5 Distributed Generation 45
   3.6 Energy Efficiency 47
      3.6.1 Public sector retrofits 47
      3.6.2 Private sector retrofits 48
   3.7 Upstream Oil and Gas 49
   3.8 Natural Gas 51
   3.9 Biofuels 52

4 Incentives Available to Investors 55
   4.1 Financial Incentives 55
   4.2 Soft Incentives 64

5 Important Contacts 67
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPO</td>
<td>Business Process Outsourcing</td>
</tr>
<tr>
<td>CAF</td>
<td>Cooperación Andina de Fomento</td>
</tr>
<tr>
<td>CNG</td>
<td>Compressed Natural Gas</td>
</tr>
<tr>
<td>DBJ</td>
<td>Development Bank of Jamaica</td>
</tr>
<tr>
<td>DNI</td>
<td>Direct Normal Irradiation</td>
</tr>
<tr>
<td>ETC</td>
<td>Employers’ Tax Credit</td>
</tr>
<tr>
<td>EPC</td>
<td>Engineering, Procurement, and Construction</td>
</tr>
<tr>
<td>FSRU</td>
<td>Floating Storage Regasification Unit</td>
</tr>
<tr>
<td>FSU</td>
<td>Floating Storage Unit</td>
</tr>
<tr>
<td>GHI</td>
<td>Global Horizontal Irradiation</td>
</tr>
<tr>
<td>GPE</td>
<td>Generation Procurement Entity</td>
</tr>
<tr>
<td>IRP</td>
<td>Integrated Resource Plan</td>
</tr>
<tr>
<td>JAMPRO</td>
<td>Jamaica Promotions Corporation</td>
</tr>
<tr>
<td>JPS</td>
<td>Jamaica Public Service Company</td>
</tr>
<tr>
<td>JUTC</td>
<td>Jamaica Urban Transit Company</td>
</tr>
<tr>
<td>LNG</td>
<td>Liquefied Natural Gas</td>
</tr>
<tr>
<td>MSET</td>
<td>Ministry of Science, Energy and Technology</td>
</tr>
<tr>
<td>MVA</td>
<td>Megavolt Ampere</td>
</tr>
<tr>
<td>MW</td>
<td>Megawatt</td>
</tr>
<tr>
<td>NEP</td>
<td>National Energy Policy</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environment and Planning Agency</td>
</tr>
<tr>
<td>NLA</td>
<td>National Land Agency</td>
</tr>
<tr>
<td>NREL</td>
<td>National Renewable Energy Laboratory</td>
</tr>
<tr>
<td>NSWMA</td>
<td>National Solid Waste Management Authority</td>
</tr>
<tr>
<td>OUR</td>
<td>Office of Utilities Regulation</td>
</tr>
<tr>
<td>PCJ</td>
<td>Petroleum Corporation of Jamaica</td>
</tr>
<tr>
<td>PPA</td>
<td>Power Purchase Agreement</td>
</tr>
<tr>
<td>PPP</td>
<td>Public Private Partnership</td>
</tr>
<tr>
<td>PV</td>
<td>Photovoltaic</td>
</tr>
<tr>
<td>RfP</td>
<td>Request for Proposal</td>
</tr>
<tr>
<td>TAJ</td>
<td>Tax Administration Jamaica</td>
</tr>
<tr>
<td>TRN</td>
<td>Taxpayer Registration Number</td>
</tr>
<tr>
<td>WRA</td>
<td>Water Resource Authority</td>
</tr>
<tr>
<td>WTE</td>
<td>Waste to Energy</td>
</tr>
</tbody>
</table>
I welcome the opportunity to present Jamaica’s Energy Investment Guide. The Guide comes as a key tool to achieve the goals of the National Energy Policy 2009-2030 to develop a modern, efficient, diversified and environmentally sustainable energy sector, driven by private sector investment.

As our country envisions being “the place of choice to live, work, raise families, and do business,” the implementation of the National Energy Policy will play a decisive role. Execution of the policy will improve international competitiveness of our industries, enhance human development, and contribute to environmental protection. The future of our nation is intricately linked to expanding cost-effective and environmentally sustainable energy solutions. Capitalising on the country’s renewable energy resources will be crucial for the modernisation of our economy and the environmental protection of our country. Investing in energy efficiency, in self-generation, and in cogeneration will increase the competitiveness of our industry, especially for key sectors of our economy such as the bauxite-alumina and sugar industry. Pursuing the development of the natural gas industry will ensure that we can provide affordable energy to our citizens, and contribute to transforming our country into an international maritime hub.

I encourage local and international investors to participate in the transformation of our energy sector and economy.
This Energy Investment Guide will help the Ministry achieve the objective of the National Energy Policy 2009–2030: to develop a “modern, efficient, diversified and environmentally sustainable energy sector, providing affordable and accessible energy supplies with long-term energy security and supported by informed public behaviour on energy issues and an appropriate policy, regulatory and institutional framework.”

By presenting areas of opportunities for private investment, and describing the regulatory and approval processes to invest in energy infrastructure, the Guide will be key to reaching the Government’s vision of the energy sector:

- Driven by private sector investment
- Providing affordable energy supplies to all consumers and contributing to the international competitiveness of the productive sectors of the economy
- Focused on the modernisation and expansion of the energy infrastructure
- Providing long-term energy security to producers and consumers in Jamaica
- Environmentally sustainable with significantly increased use of economically viable renewable energy sources
- Ensuring a sustained improvement in the ways in which energy is used, through greater energy efficiency, reduced energy intensity, and better energy conservation and management
- Possessing the flexibility and creativity to adopt and adapt to new and appropriate energy technologies that may emerge over the long term.
The Ministry of Science, Energy and Technology is committed to pursuing the goals of the National Energy Policy. The Ministry is dedicated to using the Energy Investment Guide to attract local and foreign private investors in all areas of the energy sector, and is eager to work with the Jamaica Promotions Corporation to promote opportunities for investment. The Ministry is committed to ensuring sound and stable regulation to create an attractive investment climate.

Our country has received considerable investments in the energy sector in the last few years, and we encourage investors to take advantage of the multitude of opportunities arising from the transformation of the sector.

A Message from the Permanent Secretary, Mrs. Hillary Alexander J.P.
Jamaica at a Glance

Capital City: Kingston
Area: 10,991km²
Population: 2.9 million (2016)
Official language: English
Time zone: UTC-5
GDP: US$14 billion (2016)
GDP per capita: US$4,868 (2016)
Economic growth: 1.5% (estimated for 2016)
FDI inflows: US$856 million (2016)
Exports: US$1.2 billion (2016)
Exchange rate: J$1 = US$0.0078 (2017)¹
Strategically located at the gateway of the major air and sea routes into the Caribbean, Jamaica is within easy reach of the major global markets, with over half a billion of the world’s population living within a four-hour flight radius. The island also has the largest English-speaking workforce in the Caribbean, which is known globally for its creative and enterprising spirit.

These attributes, coupled with sophisticated infrastructure and a stable business climate, have aided Jamaica’s emergence as a regional hub for trade and an important investment destination.

Jamaica Promotions Corporation

More information on Jamaica’s economy and infrastructure is available on the World Fact Book, JAMPRO’s website, and JAMPRO’s Investment Guide: [http://www.jamaicatradeandinvest.org/sites/default/files/resources/01%2](http://www.jamaicatradeandinvest.org/sites/default/files/resources/01%2)
1 Introduction


Jamaica’s energy sector attracted significant private investment in the last decade, and the country is a leader in the Caribbean for environmentally-friendly energy sector development. Renewable energy capacity increased from 42MW\(^3\) before 2008 (when the first competitive procurement of renewable energy was launched) to 160MW\(^4\) in 2016. Natural gas was introduced to the island in 2016, providing a cheaper, lower-carbon alternative to liquid petroleum products. Since 2008, there has been approximately US$420 million of private investment in the power generation and gas sectors. In the power sector, US$245 million was invested in a variety of thermal, hydro, wind and solar PV projects.\(^5\) In the gas sector, US$175 million has been invested in a Liquefied Natural Gas (LNG) terminal, completed in 2016.\(^6\)

Jamaica continues to attract investment in its energy industry. As the country boosts its economy through growing core industries such as tourism, bauxite-alumina, logistics and business-process outsourcing, demand for secure, reliable and affordable energy will continue to grow. Investors can expect many opportunities in renewable energy, cogeneration, grid upgrades, energy storage, natural gas, energy efficiency and biofuels.

With this guide, investors will be able to understand the opportunities (Section 1) and the regulations that control investments in the energy sector. Section 2 gives an overview of the energy sector in Jamaica. Section 3 describes the processes to invest in the various areas of opportunities, and the information available to investors on those opportunities. Section 4 summarises the financial and non-financial incentives available, while Section 5 provides key contacts for investors.
Table 1.1: Where to Find Information on Opportunities and Processes for Investment

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Information on opportunities</th>
<th>Information on processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Conventional electricity generation</td>
<td>Section 2</td>
</tr>
<tr>
<td></td>
<td>Utility-scale renewable energy</td>
<td>Section 2.1.2</td>
</tr>
<tr>
<td>Cogeneration</td>
<td>Section 2.1.3</td>
<td>Section 3.3</td>
</tr>
<tr>
<td>Wheeling for self-generation</td>
<td>Section 2.1.4</td>
<td>Section 3.4</td>
</tr>
<tr>
<td>Distributed generation</td>
<td>Section 2.1.5</td>
<td>Section 3.5</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>Energy efficiency</td>
<td>Section 2.2</td>
</tr>
<tr>
<td>Fuels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upstream oil and gas</td>
<td>Section 2.3</td>
</tr>
<tr>
<td></td>
<td>Midstream, downstream gas</td>
<td>Section 2</td>
</tr>
<tr>
<td></td>
<td>Natural gas end uses</td>
<td>Section 2.4.1</td>
</tr>
<tr>
<td></td>
<td>Biofuels</td>
<td>Section 2.5</td>
</tr>
</tbody>
</table>
2 Areas of Opportunity

2.1 Electricity Sector

2.1.1 Conventional electricity

Jamaica’s first LNG terminal came on stream in 2016, unleashing a cascade of opportunities to use natural gas in power generation. Jamaica Public Service Company Limited (JPS) is the country’s electricity utility and sole electricity supplier. In 2016, converted its 120MW Bogue Power Plant, which ran on diesel oil, to a dual-fuel facility running on natural gas and diesel oil as the backup fuel. A new 190MW combined cycle plant running on natural gas is expected to be commissioned in Old Harbour in 2019.  

Opportunities in greenfield investments will be driven by increasing electricity demand, which will be quantified in the Integrated Resource Plan (IRP). The IRP is a planning tool that forecasts electricity demand for the medium and long term; identifies the new generation capacity that will be needed; and indicates the optimal mix of generation technologies (see Section 3.1.1). The timing of expected future gas-fired baseload and peaking plants will be indicated in the IRP. Investment in other conventional technologies will also be welcomed, and typically be procured competitively in response to needs identified in the IRP. There may also be opportunities to convert existing thermal Independent Power Producers (IPPs) to run on natural gas, if envisaged in the IRP.

Increasing power demand and the introduction of natural gas create opportunities for companies in the business of financing, building and operating thermal plants and converting existing facilities to run on natural gas.

2.1.2 Utility-scale renewable energy

Since the first renewable energy tender in 2008, investment in renewable energy has surged. Six new plants have been built, adding 20MW of solar photovoltaic (PV), 79MW of wind and 7MW of hydro power to the grid. Another 37MW of solar capacity is planned for commissioning in 2018.
Investors should expect many more opportunities in mini-hydro, wind, solar, biomass, and waste to energy in the years to come. These new opportunities are driven by the decreasing costs of renewable energy, which are now competitive with thermal generation. The renewable energy tender launched in 2015 resulted in record low prices for solar power: US$8.5¢/kWh for the 37MW solar plant to be built by Eight Rivers Energy.\textsuperscript{9} The National Energy Policy (NEP) is also encouraging the development of renewable energy to decrease dependence on petroleum resources and price volatility (see Section 2.6.1 for the energy matrix). The NEP states that Jamaica will “prioritise renewable energy sources” and “promote the development of efficient and low-cost renewable plants.” The policy sets out a target of at least 20 percent of renewable energy in the energy mix by 2030 (see section 2.11.1).\textsuperscript{10}
**Mini-hydro power**

Mini-hydro usually refers to hydroelectric plants with a capacity of 10MW or less. With a broad selection of healthy river systems, Jamaica is eager to harness its water resources through mini-hydro power plants, including run-of-river systems. Feasibility studies have identified 12 sites for hydro power development, with a combined capacity of 36MW. There will be opportunities especially in remote areas, where mini-hydro can provide voltage support services for end-of-line locations.

**Waste to energy**

Waste to energy is a key component of the Government’s strategy to improve solid waste management. Waste disposal facilities receive an estimated 1.2 million tons of waste annually. Current waste disposal facilities are unsatisfactory and need to be upgraded to modern standards. Harvesting of landfill gas for power generation is an opportunity being explored, in addition to solid waste disposal facilities that generate power.

The Government has also been exploring the potential for biogas, from animal waste and wastewater sludge, for electricity generation. In 2010, 250 plants producing biogas from waste were already in operation, in the agricultural, small manufacturing, educational, and residential sectors. Biogas from sewage treatment is also a growing opportunity.

**2.1.3 Cogeneration and trigeneration**

The Government recognises that cogeneration and trigeneration can increase the efficiency and competitiveness of businesses in Jamaica, reduce fuel consumption and environmental emissions, and help keep the cost of power to other consumers low.

**Cogeneration**

Cogeneration is a process jointly producing electrical power and useful heat. In typical cogeneration processes, fuel is burnt to first produce steam at high pressure to drive a turbine-powered generator and generate electricity. The remaining lower-pressured steam can be used for process
heating. Factories usually produce more electricity than they need, and can sell excess electrical power to the grid. Factory owners can switch to cogeneration when they need to upgrade their heat process equipment.

Cogeneration has vast potential across the Jamaican industry, including in food-processing industries, oil refining, hotels, and hospitals that use steam for sterilisation. The sectors with greatest potential for cogeneration are bauxite-alumina and sugarcane processing.

In 2016, the bauxite-alumina industry used 26,817TJ of energy, amounting to 32 percent of Jamaica’s energy consumption. This energy-intensive industry could decrease its energy costs by producing electricity through new energy sources such as ethane or natural gas, and selling the excess to the grid. This industry is starting to develop large-scale cogeneration. A combined heat and power plant is expected to be commissioned by 2019. This cogeneration plant will serve Jamalco, one of Jamaica’s bauxite-alumina companies, and 94MW of firm capacity to the grid.

The sugarcane industry is a pillar of the country’s economy. The industry employs 50,000 people and is expected to contribute US$80 million to the country’s GDP in 2017, though it is undergoing pressure from decreasing international prices. Sugar factories already burn bagasse, a by-product of the sugarcane extraction process, to meet their process heat needs. Optimising the use of bagasse as a fuel by investing in new boilers and cogeneration provides an opportunity to decrease the cost of electricity, generate extra revenue by selling to the grid, and revitalise the industry. Outside the sugarcane crop season, cogeneration boilers could be used with alternative fuel to continue to generate electricity and earn revenue.

**Trigeneration**

Trigeneration is a process producing electricity, process heat, and cooling. Absorption chillers use a portion of the heat generated to produce cooling.

The technology is particularly promising for the country’s tourism sector. Large hotels rely heavily on electricity for both heating and cooling, and use process heat for the laundry.

Trigeneration could also be advantageous in the Business Process Outsourcing (BPO) sector, given its heavy dependence on air conditioning, and need for reliable electricity.
2.1.4 Wheeling for self-generation

Wheeling of power is allowed for self-generation in Jamaica. ‘Wheeling’ is defined by the Electricity Act of 2015 as “an arrangement whereby a self-generator provides electricity to the system on terms pursuant to which an equivalent amount of electricity may be used from the system at one or more locations”.

Wheeling is open to JPS customers who have an annual average demand in excess of 1 MVA, and who supply firm capacity to the grid.

Large customers may be interested in self-generation to reduce and stabilise their electricity costs. Gas-fired plants and other technologies, may help provide industrial customers with electricity at lower cost than the grid can supply.

2.1.5 Distributed generation

Distributed renewable energy

To facilitate investment in distributed energy, net billing arrangements have been mandated. Net billing relies on bi-directional metering, where electricity purchased from the utility by the rooftop solar owner and the electricity sold to the utility are measured separately. This allows the utility to buy and sell electricity at different rates. The net billing programme applies to renewable energy systems of up to 10kW for residential customers, and 100kW for commercial customers. Under the programme, 605 licences were issued between May 2012 and July 2017, for a total capacity of 13.8MW. Section 3.5 explains the net billing programme in more detail.

The net billing programme creates opportunities for companies in the areas of supply, installation, leasing, maintenance, and financing of distributed solar equipment.

Rural electrification

Some rural areas remain without access to the grid. The 2015 Electricity Act allows installation of microgrids to serve these areas (subject to the rights of JPS), creating opportunities for investors to supply, build, own and operate microgrids. Rural areas benefit from mini-hydro resources, which could be used for microgrid development.
There are opportunities for Engineering, Procurement, and Construction (EPC) companies in transmission and distribution upgrades. The need for investment in distribution and transmission expansion is driven by growth in electricity demand, reinforcement of the transmission network, expansion of the grid in new areas, and reduction in technical losses. JPS, as the sole transmission and distribution licensee, is responsible for transmission and distribution works, and has the right to outsource the upgrades to EPC companies.

The existing transmission and distribution system is described in Section 2.9.

Grid stability is another area of growing opportunities. Increase in variable renewables will create growing opportunities for storage, including behind-the-meter storage, short-term storage for integrating variable renewables into the grid (up to 4 hours), and long-term storage for supporting larger quantities of variable renewables.

With JPS’ commitment to improving grid stability and modernising the grid, there are opportunities for companies in the business of installing storage equipment.
2.2 Energy Efficiency

The National Energy Policy identifies energy efficiency and conservation as a core goal, which creates opportunities for businesses supplying, financing, installing and maintaining energy efficiency equipment for both public and private sector retrofits.

Public sector retrofits

There are opportunities in public sector retrofits. Studies of energy consumption patterns for public buildings indicate energy efficiency investment opportunities worth more than US$110 million. Finance for the first $20 million has already been secured as of October 2017.23

The Government of Jamaica, through the National Education Trust, is piloting a programme for solar PV and energy efficiency retrofits for public schools, on a public-private partnership basis. This pilot project is expected to be scaled up (if successful), creating many more opportunities for private investment in energy efficiency.

Street lighting retrofits are also in the works. In 2017, JPS started the Smart LED Streetlight Project, targeting the replacement of 105,000 streetlights with smart lights that consume less energy. JPS issued a Request for Proposal (RfP) in 2016 for the supply of the smart LED streetlight fixtures, and selected two preferred vendors in January 2017. Installation of the first 35,000 lights commenced under the first phase in June 2017. More opportunities in street lighting may arise in subsequent phases of the project.24

Private sector retrofits

There are also considerable opportunities in private sector retrofits, especially in the commercial and industrial sectors. In 2016, commercial and industrial customers consumed 2,006GWh.25

District cooling

In addition, there may be opportunities to reduce energy costs through district cooling and sea water air conditioning (SWAC). A pre-feasibility study by the Cooperación Andina de Fomento (CAF)—the Development Bank of Latin America—has shown that a SWAC system in Montego Bay would be economically viable and competitive against conventional air conditioning. This opportunity is estimated to have a capital cost of about US$100 million to supply about 7,600 tons of refrigeration.26 Further studies are assessing the feasibility of SWAC in the Norman Manley International Airport in Kingston.27
2.3 Upstream Oil and Gas

Opportunities also exist in onshore and offshore oil and gas exploration. Oil and gas could be exported, or used domestically to increase Jamaica’s energy security.

Drillings to date have confirmed the presence of oil in Jamaica, and the indicators are positive. Ten of the eleven onshore and offshore exploratory wells have recorded oil or gas shows. Fluid Inclusion Stratigraphy (FIS) studies suggest the migration of thermogenic hydrocarbons within offshore wells. An extensive offshore 2D survey showed massive structures with multi-billion barrel potential in deeper water areas.\(^{28}\)

Onshore and deep-water offshore blocks are available for licensing. Figure 2.1 locates blocks already licensed (in yellow) and blocks available for licensing (in white) as of October 2017.\(^ {29}\)

Updates on block availability can be found on the Petroleum Corporation of Jamaica’s website at: http://www.pcj.com/oil-gas-activities-qa/.

**Figure 2.1: Block Availability as of October 2017**

2.4 Natural Gas

2.4.1 Midstream and downstream

Opportunities for investment in the midstream gas industry include processing, transportation, storage, distribution, and selling activities.

Natural gas trucking

CNG road tankers could transport natural gas to meet increasing commercial and residential demand for natural gas. Diversifying stationary fuels used in the commercial and residential sector is expected to increase demand for natural gas. Liquefied Petroleum Gas (LPG) currently supplies fuel in the domestic and commercial sectors, mostly for cooking. In 2016, domestic LPG use amounted to 1,499TJ; other customers, mostly commercial, used 2,072TJ.

Gas pipelines

The move towards self-generation (Section 2.1.4) and cogeneration or trigeneration (Section 2.1.3) will create opportunities to build gas pipelines serving industrial customers and large energy consumers.

The Montego Bay area, where the LNG terminal was built, is a tourism hub. Hotels with high energy demand may benefit from gas pipelines, making natural gas easily available for self-generation or cooking. A second LNG terminal is planned by 2019, and will provide additional opportunities for gas piping in the Kingston area. This offshore terminal will be in the Portland Bight Protected Area, about 55km southwest of Kingston. The terminal will supply a new 190MW LNG plant in Old Harbour, about 70km from Kingston, and a new 100MW combined and heat and power plant (see Section 2.1.3).

Gas reticulation

Given the availability of gas on the island and the free gas market, gas distribution and reticulation networks could be developed to serve domestic customers in Montego Bay and Kingston. Densely populated areas of the capital would particularly benefit from this initiative.
**Gas importation facilities**

The expected increase in demand for natural gas in the power, industrial, and domestic sectors creates favourable conditions for businesses importing natural gas, in the form of LNG or CNG. The local transportation market’s interest in CNG as a transportation fuel may add to this growing demand.

Opportunities along the LNG supply chain include gas liquefaction, LNG shipping, storage and regasification with onshore regasification terminals, or floating storage and regasification units (FSRU).

Opportunities along the CNG supply chain include CNG compression, CNG shipping, and CNG storage.

**LNG bunkering**

Bunkering involves supplying ships in a seaport with fuel, including storing fuel and refuelling ships.

The shipping industry is growing in Jamaica. The Government has backed the Logistics Hub Initiative, which aims to establish the country as a major logistics node within the Americas, and to fully capitalise on the widening of the Panama Canal. In 2016, 3,586 vessels called at Jamaica’s ports, and a record number of cruise passengers visited the country.

Bunkering is vital if Jamaica is to become a major maritime centre, both for vessels calling at Jamaican ports and for those in transit across the Caribbean. Jamaica is located strategically in the centre of the Caribbean, with favourable maritime access and a stable political climate. The quality of its port infrastructure is considered
among the best in the Caribbean region.\textsuperscript{33} In 2012, it sold 0.22 million tons of bunker fuel.\textsuperscript{34}

The shift toward LNG as a maritime fuel, driven by international air emissions standards, provides an opportunity to develop LNG bunkering in Jamaica:

- The International Convention for the Prevention of Pollution from Ships (MARPOL) was adopted in 1997 to address air pollution from shipping. The air pollution regulation (Annex VI) establishes limits on nitrogen oxides (NOx), and (since 2010) global limits for sulphur content in ships’ fuel oil.\textsuperscript{35} LNG can meet these requirements as it does not contain sulphur, and its combustion currently produces lower NOx levels than marine fuel oils.\textsuperscript{36}

- The European Union (EU) is seeking a global approach to reducing greenhouse gas emissions from international shipping. From 2018, large ships using EU ports are required to report their annual emissions. Next, the EU will set greenhouse reduction targets, aiming to reduce emissions to 40–50 percent of 2005 levels by 2050.\textsuperscript{37} As a lower-carbon fuel, LNG could help to reach those targets.

**LNG regional supply**

Jamaica could also supply gas to neighbouring islands whose market demand is not sufficient to justify service from a large LNG tanker, but that could be supplied by smaller vessels operating from a hub in Jamaica. LNG could then be imported in large volumes, and split across smaller vessels to serve other Caribbean nations.

### 2.4.1 Natural gas end uses

There are many opportunities in end uses for natural gas: electricity generation, cogeneration, using natural gas as a transport fuel, and supply of refrigeration services as a by-product.

Opportunities in electricity generation and cogeneration with gas are presented in Sections 2.1.1 and 2.1.3 respectively.
Natural gas as a transport fuel

Natural gas could be developed as a transport fuel, driven by a sizable market, policy targets, and emerging pilots in the sector. Natural gas can be used in the form of CNG or LNG, using cutting-edge technology.

Jamaica’s transport fleet runs on conventional oil-based fuels, offering a large potential market to convert to cheaper fuel. In 2015, energy needs in the transport sector (road and rail) totalled 30,932TJ, of which 23,367 (76 percent) was from gasoline; 5,852TJ (19 percent) from diesel; and 998TJ (3 percent) from fuel oil.38

Natural gas can contribute to the Government’s policy goal of diversifying the fuel mix, including in the transport sector. Developing alternative fuels such as CNG is noted as a key action in the National Energy Policy.39 Natural gas, as a lower-carbon fuel, can also contribute to Jamaica’s goal to reduce greenhouse gas emissions from its energy sector.

The Jamaica Urban Transit Company (JUTC) is running two pilots to introduce 30 gas-fuelled buses to its fleet, planning to convert more of its fleet if the pilots are successful. As well as JUTC buses, taxi companies could also convert their fleet of cars to run on natural gas.

Developing natural gas as a transport fuel offers a range of opportunities for businesses in the areas of CNG retail and refuelling stations, supplying engines running on CNG or LNG, and equipment to convert engines to run on CNG or LNG.

Refrigeration services

Refrigeration services could be supplied as a by-product of the regasification process. Regasification of LNG absorbs heat, thereby producing chilling or refrigeration as a natural by-product. This can substitute for the electricity that would otherwise be used to power chillers.40

The availability of cheap chilling, produced in association with gas delivery, creates an opportunity for businesses requiring chilling. Food processing is one business that could take advantage of this.

The availability of low-cost natural gas for heating and cheap chilling, as well as Jamaica’s position as a transport hub, could allow manufacture of chilled foods in Jamaica, for export to the Caribbean, the US, and Europe.
2.5 Biofuels

Ethanol could be produced from sugarcane and used as transportation fuel. There are two ways to produce ethanol, out of sugarcane juice or molasses. These two processes are illustrated in Figure 2.2.

Figure 2.2: Ethanol Production from Sugarcane

Sugarcane juice can be extracted, treated, and then fermented to produce ethanol (first process). The second process uses molasses, a by-product of the sugar production process that contains the sugar that did not crystallise. Molasses is mixed with water, fermented, and then distilled to produce ethanol.

Jamaica is a major producer of sugarcane and sugar. In 2015, the country cultivated 39,000 hectares of land with sugarcane crops, and produced 170,000 metric tons of sugar. In 2015, 68,124 metric tons of molasses were produced, as a by-product of sugar processing. All molasses is currently used by the local alcohol industry. In 2016, the alcohol industry used 100,000 metric tons of molasses, of which 41,000 were imported. Unused cane land could be put back to use, to meet local alcohol industry needs as well as producing ethanol for transport.
Jamaica currently has a government mandate to include ethanol in gasoline, effectively creating a market for ethanol. Ethanol can be blended with gasoline to reduce petroleum use, boost octane ratings, and cut tailpipe emissions. The Government has decided to replace methyl tertiary-butyl ether (MTBE) with ethanol as a fuel additive, creating E10: a mixture of 10 percent ethanol and 90 percent gasoline. This mandate creates opportunities for businesses to finance and build ethanol production facilities, and fuel-blending facilities.
2.6 Energy Supply and Demand
Table 2.2 presents a simplified energy balance for 2016. Figure 2.3 illustrates energy supply by source, described in more detail in Section 2.6.1. Figure 2.4 illustrates energy demand by sector, described in more detail in Section 2.6.2.

### Table 2.2: Energy Balance in 2016 (TJ)

<table>
<thead>
<tr>
<th>Energy Supply</th>
<th>Coal</th>
<th>Crude oil</th>
<th>Gasoline</th>
<th>Diesel</th>
<th>Kerosene</th>
<th>Fuel Oil</th>
<th>LPG</th>
<th>Other</th>
<th>Wood and Charcoal</th>
<th>Hydro</th>
<th>Wind</th>
<th>Bagasse</th>
<th>Solar</th>
<th>Electricity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Energy Supply</td>
<td>2,261</td>
<td>53,941</td>
<td>18,274</td>
<td>11,099</td>
<td>-3,282</td>
<td>25,561</td>
<td>3,203</td>
<td>-26</td>
<td>4,659</td>
<td>451</td>
<td>720</td>
<td>2,979</td>
<td>50</td>
<td>0</td>
<td>119,889</td>
</tr>
<tr>
<td>Net Available for Final Consumption</td>
<td>2,261</td>
<td>0</td>
<td>23,800</td>
<td>6,946</td>
<td>73</td>
<td>26,681</td>
<td>3,235</td>
<td>732</td>
<td>4,659</td>
<td>0</td>
<td>0</td>
<td>2,979</td>
<td>0</td>
<td>11,754</td>
<td>83,517</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Consumption</th>
<th>Transport Sector</th>
<th>Coal</th>
<th>2,261</th>
<th>18,274</th>
<th>23</th>
<th>998</th>
<th>2,116</th>
<th>4,561</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Production</td>
<td>2,261</td>
<td>11</td>
<td>174</td>
<td>1,263</td>
<td>26,817</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bauxite-Alumina Industry</td>
<td>17</td>
<td>5</td>
<td>25,024</td>
<td>8</td>
<td>2,979</td>
<td>1,410</td>
<td>4,476</td>
<td></td>
</tr>
<tr>
<td>Sugar Manufacturing</td>
<td>4</td>
<td>50</td>
<td>32</td>
<td>1</td>
<td>2,979</td>
<td>3,428</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>184</td>
<td>565</td>
<td>133</td>
<td>61</td>
<td>11</td>
<td>233</td>
<td>3,890</td>
<td>6,985</td>
</tr>
<tr>
<td>Residential</td>
<td>23</td>
<td>124</td>
<td>51</td>
<td>1,499</td>
<td>1,398</td>
<td>3,890</td>
<td>6,985</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>207</td>
<td>340</td>
<td>301</td>
<td>2,072</td>
<td>19</td>
<td>3,028</td>
<td>3,428</td>
<td></td>
</tr>
<tr>
<td>Total Final Consumption</td>
<td>2,261</td>
<td>0</td>
<td>23,801</td>
<td>6,946</td>
<td>73</td>
<td>26,682</td>
<td>3,632</td>
<td>732</td>
</tr>
</tbody>
</table>

### Figure 2.3: Primary Energy Supply by Source

- Crude oil, 53,941TJ (45%)
- Oil products, 54,829TJ (46%)
- Coal, 2,261TJ (2%)
- Renewables, 4,200TJ (3%)
- Wood and charcoal, 4,659TJ (4%)

### Figure 2.4: Final Energy Consumption by Sector

- Transport, 30,932TJ (37%)
- Cement production, 4,561TJ (6%)
- Bauxite-alumina industry, 26,817TJ (32%)
- Sugar manufacturing, 4,476TJ (5%)
- Other manufacturing, 3,428TJ (4%)
- Residential, 6,985TJ (8%)
- Other, 6,320TJ (8%)

Source: All statistics from this page are from MSET, “Energy Balance, 2016”
2.6.1 Energy supply

Petroleum is the primary source of energy in Jamaica. In 2016, petroleum products accounted for 91 percent of the primary energy supply. Of this total, crude oil accounted for 45 percent, and oil products (primarily fuel oil, gasoline and diesel) accounted for 46 percent. In 2016, renewable energy, mostly from bagasse, accounted for 3 percent of the primary energy supply.47

All petroleum products are imported. In 2015, 20 million barrels of petroleum were imported, for US$1.1 billion, representing 7 percent of Jamaica’s GDP.48 Table 2.3 illustrates the capacity installed as of 2016 by technology and owner: Jamaica Public Service Company (JPS), and Independent Power Producers (IPPs).

<table>
<thead>
<tr>
<th>Technology Type and Owner</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Plants</td>
<td>742</td>
</tr>
<tr>
<td>JPS</td>
<td>608</td>
</tr>
<tr>
<td>IPPs</td>
<td>134</td>
</tr>
<tr>
<td>Renewable Plants</td>
<td>161</td>
</tr>
<tr>
<td>Hydro</td>
<td>30</td>
</tr>
<tr>
<td>JPS</td>
<td>30</td>
</tr>
<tr>
<td>IPPs</td>
<td>-</td>
</tr>
<tr>
<td>Wind</td>
<td>99</td>
</tr>
<tr>
<td>JPS</td>
<td>3</td>
</tr>
<tr>
<td>IPPs</td>
<td>96</td>
</tr>
<tr>
<td>Solar PV</td>
<td>32</td>
</tr>
<tr>
<td>JPS</td>
<td>-</td>
</tr>
<tr>
<td>IPPs</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>903MW</td>
</tr>
</tbody>
</table>

Most of Jamaica’s power generation comes from thermal plants, via steam, combustion gas turbines, combined cycle, and diesel plants. In 2017, Jamaica had 903MW of installed capacity—thermal plants accounted for 82 percent (742MW) of this capacity.

Sources: OUR, “Supply of up to 37 MW (Net) of Electricity Generation from Renewable Energy Resources on a Build, Own and Operate (BOO) Basis,” 2015; JPS, Annual Report 2016; JPS 2017
2016 marked a turning point for the diversification of Jamaica’s electricity supply: natural gas was introduced, and renewable energy installed capacity doubled. JPS entered into a long-term contract agreement with a commercial provider to supply Liquefied Natural Gas (LNG) for the utility’s 120MW Bogue power plant. The plant, which previously ran on diesel oil, was converted to a dual-fuel facility, and can now run on natural gas. Natural gas is expected to account for 12 percent of JPS’ production in 2017. In 2016, independent power producers (IPPs) installed 80MW of new renewable generation capacity: 60MW of wind power and 20MW of solar photovoltaic power.49

Since the mid-1990s, the Government of Jamaica has promoted private sector participation in the electricity sector. Since 2001, the island’s electricity utility, Jamaica Public Service Company (JPS), has been 80 percent privately owned (with the Government retaining a 20 percent shareholding). In 2016, IPPs supplied 40 percent of the system’s total power generation (4,347GWh) to JPS.50

Electricity generation costs in Jamaica are high and volatile because of its reliance on petroleum products. In 2016, variable power generation costs were US$0.13/kWh, lower than in previous years due to relatively lower oil prices.51

Electricity tariffs in Jamaica are also high and volatile, because fuel charges pass fuel costs on to customers. In 2016, the average residential tariff was US$0.26/kWh, and average commercial and industrial tariffs were US$0.20/kWh.52

**Table 2.4: Key Energy Figures**

<table>
<thead>
<tr>
<th>Total Petroleum Imports</th>
<th>20 million barrels; US$1.1 billion (2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Power Generation Cost</td>
<td>US$0.13/kwh53 (2016)</td>
</tr>
<tr>
<td>Average Residential Tariff</td>
<td>US$0.26/kwh54 (2016)</td>
</tr>
<tr>
<td>Average Commercial and Industrial Tariff</td>
<td>US$0.20/kwh55 (2016)</td>
</tr>
</tbody>
</table>


**2.6.2 Energy demand**

The industry and the transport sector are the two biggest energy consumers, as presented in Table 2.2. The industry is the largest energy consumer (39,283TJ in 2016). In the industrial sector, the bauxite-alumina industry is the biggest consumer, accounting for 32 percent of total final energy consumption (26,817TJ in 2016). The second-largest industrial consumer is the sugar industry, accounting
for 5 percent of total final energy consumption (4,476TJ in 2016). The transport sector is the second-largest energy consumer (29,6354TJ in 2016), using energy mostly in road and rail. Residential demand was 6,985TJ in 2016, and accounted for 8 percent of final energy consumption.

### 2.7 Entities Responsible for Energy Policy, Regulation and Service Provision

Public and private entities involved in energy policy, regulation and service provision are illustrated in Figure 2.6.

**Figure 2.6: Entities Responsible for Energy Policy, Regulation and Service Provision**

<table>
<thead>
<tr>
<th>Cabinet</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Approves policies</td>
</tr>
<tr>
<td>• Appoints the Generation Procurement Entity</td>
</tr>
<tr>
<td>• Can procure generation capacity in any process it determines to be in the public interest and can grant licences under exceptional circumstances</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ministries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Science, Energy and Technology (MSET)</td>
</tr>
<tr>
<td>• Develops Energy Sector Policy</td>
</tr>
<tr>
<td>• Develops the Integrated Resource Plan (IRP)</td>
</tr>
<tr>
<td>• Responsible for electricity licensing</td>
</tr>
<tr>
<td>Ministry of Economic Growth and Job Creation (MEGIC)</td>
</tr>
<tr>
<td>• Oversees the National Environment and Planning Agency (NEPA)</td>
</tr>
<tr>
<td>• Oversees the Jamaica Promotions Corporations (JAMPRO)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Electrical Regulator (GER)</td>
</tr>
<tr>
<td>• Regulates electrical inspection</td>
</tr>
<tr>
<td>• Licenses electricians and electrical inspectors</td>
</tr>
<tr>
<td>Generation Procurement Entity (GPE)</td>
</tr>
<tr>
<td>• Procsues new generation through competitive tender</td>
</tr>
<tr>
<td>National Environment and Planning Agency (NEPA)</td>
</tr>
<tr>
<td>• Sets environmental standards</td>
</tr>
<tr>
<td>• Environmental licensing and permitting</td>
</tr>
<tr>
<td>Office of Utilities Regulation (OUR)</td>
</tr>
<tr>
<td>• Regulates electricity tariffs and services standards</td>
</tr>
<tr>
<td>Jamaica Promotions Corporation (JAMPRO)</td>
</tr>
<tr>
<td>• Promotes business opportunities in export and investment in the private sector in Jamaica</td>
</tr>
<tr>
<td>• Helps investors liaise with other government agencies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government-Owned Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum Corporation of Jamaica (PCJ)</td>
</tr>
<tr>
<td>• Drives oil and gas exploration</td>
</tr>
<tr>
<td>• Advances penetration of renewable energy</td>
</tr>
<tr>
<td>• Promotes energy efficiency and biofuel production</td>
</tr>
<tr>
<td>Jamaica Urban Transit Company (JUTC)</td>
</tr>
<tr>
<td>• Runs public transportation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Private Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamaica Public Service Company (JPS)</td>
</tr>
<tr>
<td>• Generates power</td>
</tr>
<tr>
<td>• Single buyer</td>
</tr>
<tr>
<td>• Single grid operator</td>
</tr>
<tr>
<td>• Sole transmission and distribution licensee</td>
</tr>
<tr>
<td>Independent Power Producers (IPPs)</td>
</tr>
<tr>
<td>• Generate electricity and sell to JPS, the single buyer</td>
</tr>
<tr>
<td>Fuel suppliers</td>
</tr>
<tr>
<td>• Import fuel</td>
</tr>
<tr>
<td>• Supply power producers and wholesalers</td>
</tr>
</tbody>
</table>

Cabinet is the highest decision-making body in the Executive and is the principal instrument of government policy. It is composed of 13 ministers, including the Prime Minister, Minister of Finance and Public Service, Minister of Industry, Minister of Transport, Minister of Economic Growth and Job Creation, Minister
of Science, Energy, and Technology. In the energy sector, it approves policies, appoints the Generation Procurement Entity (GPE), and approves competitive procurement protocols and rules.

The **Ministry of Science, Energy and Technology (MSET)** is the main ministry overseeing the energy sector. Its mandate is to lead legal and regulatory reforms in the electricity and gas sectors; to improve energy efficiency and conservation; to increase the percentage of electricity generation from renewable sources; and to increase Jamaica’s energy security. MSET develops energy sector policy. It is responsible for planning in the electricity sector, in particular developing the Integrated Resource Plan (IRP). It is also responsible for issuing electricity licences.

The **Ministry of Economic Growth and Job Creation** oversees agencies involved in regulating and promoting the energy sector: NEPA and JAMPRO respectively.

The **National Environment and Planning Agency (NEPA)** sets environmental standards and grants environmental permits to investors seeking to build generation capacity in Jamaica.

The **Jamaica Promotions Corporation (JAMPRO)** promotes business opportunities in Jamaica to foreign and national investors, and helps them liaise with other Jamaican government entities.

The **Government Electrical Regulator (GER)** is responsible for regulating electrical inspection processes, licensing electricians and electrical inspectors, and monitoring work done by the electrical inspectors. The board of the GER is appointed by the Minister of Science, Energy and Technology.

The **Generation Procurement Entity (GPE)** is responsible for procuring new generation based on the IRP, through competitive tenders. It establishes procurement protocols and rules.

The **Office of Utilities Regulation (OUR)** regulates the electricity sector in Jamaica. It regulates electricity tariffs and sets service standards.

The **Jamaica Public Service Company Limited (JPS)** is Jamaica’s electricity utility. Its majority shares are privately owned, and the Government owns approximately 20 percent of the shares. JPS is the single buyer, whose licence obliges it to buy electricity from IPPs and from people with net billing arrangements. It is the single grid operator, and the sole transmission and distribution licensee.

The **Petroleum Corporation of Jamaica (PCJ)** is a government-owned corporation under the Ministry of Energy, mandated to develop and promote Jamaica’s energy resources in support of the country’s energy policy. PCJ was
established by the Petroleum Act of 1979. PCJ’s mandate includes diversifying Jamaica’s energy supply, and it focuses on four main areas: promoting energy efficiency; increasing the use of renewable energy sources; facilitating the production of biofuels; and driving oil & gas exploration.

The *Jamaica Urban Transit Company (JUTC)* is a government-owned bus service company. It operates in the Kingston Metropolitan Transit Region (KMTR), Spanish Town and Portmore.

Jamaica currently counts six *Independent Power Producers*, producing electricity and selling it to JPS under Power Purchase Agreements. *Fuel suppliers* import or produce fuel (LNG, fuel oil, gasoline, diesel), and supply power producers and fuel wholesalers, who then sell to retailers and finally to end consumers.

### 2.8 Electricity Sector Structure

Public and private entities involved in planning, regulating, and supplying electricity are presented in [Figure 2.7](#).

**Figure 2.7: Electricity Sector Structure**

In the electricity sector, the Ministry of Science, Energy and Technology sets electricity policy, develops the Integrated Resource Plan, defines new capacity to be procured, and issues electricity licences.
JPS is the single buyer of electricity, the single grid operator, and the sole transmission and distribution licensee. It generates power and purchases power from Independent Power Producers (IPPs). It is the sole public supplier of electricity. However, self-generation and wheeling are permitted under certain conditions (see Sections 3.3, 3.4, and 3.5).

JPS is regulated by the Office of Utilities Regulation, which sets tariffs and service standards.

The Generation Procurement Entity decides on new capacity to be procured with the Ministry of Science, Energy and Technology; defines procurement rules and protocols; and procures new and replacement generation capacity.

The Government Electrical Regulator is responsible for safety and for regulating electrical inspection processes. GER licenses electricians and electrical inspectors, and monitors the work of electrical inspectors.

### 2.9 Characteristics of the Electricity Grid

The grid is operated by the System Operator holding the despatch licences, which is ring-fenced within the single buyer, JPS.

The grid operates under the following voltages, illustrated in Figure 2.8:

- Transmission lines: 138kV and 69kV
- Distribution lines: 24kV, 13.8kV, and 12kV.

**Figure 2.8: Jamaica Electricity Grid**


The grid operates at a frequency of 50Hz.
2.10 Fuel Sector Structure

Public and private entities involved in the fuel sector are presented in Figure 2.9.

Figure 2.9: Fuel Sector Structure

The Ministry of Science, Energy and Technology sets the fuel sector policy.

The Petroleum Corporation of Jamaica (PCJ) has the exclusive right to exploration and development of petroleum resources under the Petroleum Act. PCJ’s functions also include the acquisition, construction, and operation of petroleum refining, processing, transportation, storage, and distribution facilities; and buying and selling petroleum and petroleum products. PCJ can lead those activities either alone or in association with contractors.57

In the upstream oil and gas market, the main players are PCJ, which administers exploration blocks, and private oil and gas exploration companies, which drill exploration wells.

In the petroleum market, PCJ imports petroleum products, crude oil, gasoline, diesel, and fuel oil. Crude oil is refined by Petrojam, a subsidiary of PCJ. Both PCJ and Petrojam sell petroleum products to wholesalers, power producers, or retailers, which then distribute to end customers.58

A commercial supplier imports natural gas into Jamaica in the form of LNG. In 2017, Jamaica used a Floating Storage Unit (FSU) to import LNG, and a smaller LNG carrier to carry LNG from the FSU to the onshore regasification terminal in
Montego Bay. A Floating Storage and Regasification Unit (FSRU) is planned for commission by 2019 in the Portland Bight Marine Area.

JPS buys natural gas directly from the commercial supplier for its 120MW Bogue power plant, under a long-term gas supply contract.

2.11 Jamaica’s Energy Policy

2.11.1 Jamaica’s National Energy Policy

Jamaica’s National Energy Policy (NEP) 2009–2030 defines the long-term vision of the energy sector:

A modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long-term energy security and supported by informed public behaviour on energy issues and an appropriate policy, regulatory and institutional framework.


The National Energy Policy envisions an energy sector:

1. Providing affordable energy supplies to all consumers, with the capacity to meet long-term growth in demand; and contributing to the international competitiveness of the productive sectors of the economy
2. Supported by greater awareness by the Jamaican public of the importance of energy and its use in their daily lives and the contribution that each can make to the responsible and efficient use of this vital commodity
3. Focused on modernizing and expanding the energy infrastructure (for example, generation, transmission, and distribution systems) to ensure safety, affordability, reliability, and competitive advantage
4. Driven by private sector investment within a policy and regulatory framework that fosters investment, competition, efficiency, a level playing-field, and transparency
5. Providing long-term energy security to producers and consumers in Jamaica, including security of supply and long-term price stability
6. Supported by databases that are accurate and precise to enable analysis, forecasting, and overall management of the sector, especially information related to the transportation sector
7. Environmentally sustainable with significantly increased use of renewable energy sources that are economically viable
8. Reflecting a sustained improvement in how energy is used, through greater energy efficiency, reduced energy intensity, and better energy conservation and management
9. Possessing the flexibility and creativity to adopt and adapt to new and appropriate emerging energy technologies (such as fuel cells, small nuclear plants)
10. With an appropriate institutional framework to support and facilitate the effective implementation of the policy, supported by all relevant stakeholders, including the public and private sectors, educational institutions as well as non-governmental and community-based organisations.

The National Energy Policy’s seven key areas of focus are:

1. Security of energy supply by diversifying fuels as well as developing renewables, including for the transportation sector
2. Modernising the country’s energy infrastructure
3. Developing renewable energy sources such as solar and hydro—with a goal of at least 20 percent of the energy mix from renewable energy by 2030
4. Energy conservation and efficiency
5. Developing a comprehensive governance and regulatory framework
6. Enabling government ministries, departments, and agencies to lead the rest of society in energy management
7. Eco-efficiency in industries.

The National Energy Policy was developed as part of the country’s long-term plan to achieve developed country status by 2030, as articulated in “Vision 2030 Jamaica—National Development Plan,” which guides all policy-making in Jamaica.

2.11.2 Energy Action Plan

The Energy Action Plan 2013–2016 identified 16 priority projects in line with the goals of the National Energy Policy. Investors should expect the next Energy Action Plan to be developed by 2018.
Content Solar 20 MW solar farm in Clarendon, WRB Enterprises
3.1 Utility-Scale Conventional Generation

3.1.1 Processes for investing in utility-scale conventional generation

Figure 3.1 illustrates the role of all entities involved in the procurement of utility-scale conventional generation and the interactions among them.

**Figure 3.1: Processes for Investing in Utility-Scale Conventional Generation**

**Integrated Resource Plan (IRP).** The starting point for procurement of new generation capacity will be an IRP prepared by the Ministry of Science, Energy and Technology (MSET). The IRP will:

- Forecast demand for the medium and long term
- Identify the new generation capacity needed to meet this demand, taking into account the existing generation fleet and optimal retirement timeline of plants in that fleet
- Indicate the optimal mix of generating technologies that should make up the total capacity.

The IRP’s objective will be to set out the least-cost way of meeting a specified security of supply on the grid, while considering policy goals such as preserving...
the environment, resilience to changes in primary energy costs, primary energy diversity, and system reliability and flexibility.\textsuperscript{63}

The first IRP is expected to be completed by November 2017. IRPs will be published every 2 years thereafter.

Based on the IRP, MSET and the Generation Procurement Entity (GPE) will jointly decide the quantum of new capacity and energy to be procured, with any differences being resolved by the Minister, or, failing ministerial resolution, by Cabinet.\textsuperscript{64}

**Right of First Refusal.** Jamaica Public Service Company Limited (JPS) has a right of first refusal to replace its existing generating capacity.\textsuperscript{65} This means that JPS has a right to replace an existing JPS plant that is to be retired. In this case, JPS may build, own, and operate the new capacity, provided its cost of doing so does not exceed the avoided cost—that is, the estimated cost of a third party supplying the needed capacity.

The right of first refusal is to be exercised in accordance with the Third Schedule of the Electricity Act 2015, which stipulates that:

- A planned schedule to replace existing generation will be maintained by the Minister (in practice, MSET)
- MSET will notify JPS of the time a plant is to be retired
- JPS will have the option to build generation up to the capacity of the plant to be retired, provided that the cost of the capacity does not exceed avoided cost—calculated by MSET every 2 years
- MSET will decide when an existing generation set has come to the end of its useful life, and the deadline for JPS to exercise the right of first refusal
- If JPS does not exercise the right to first refusal, or if the replacement cost exceeds the avoided cost, the replacement capacity will be competitively procured.\textsuperscript{66}

**Competitive tender.** All capacity needs not met by JPS under its right of first refusal are to be procured through a competitive tender (unless Cabinet makes an exception). This competitive public tender will be managed by the GPE. The Act provides that the GPE is to establish rules guiding the procurement process, and that the rules require Cabinet approval.\textsuperscript{67}

**Approvals and agreements required.** Before constructing the plant, the winning bidder will need to:
- Secure a site for the power plant
- Secure primary energy to power the plant, for example through a gas supply agreement
- Sign a Power Purchase Agreement (PPA) with JPS, and have PPA approved by the Office of Utilities Regulation (OUR)
- Agree with the grid operator (JPS) on the physical arrangements to connect the generation to the grid (usually included in the PPA)\textsuperscript{68}
- Get a Taxpayer Registration Number (TRN). A TRN is needed when conducting business transactions with tax departments or government agencies. The application process for a TRN is outlined on the Tax Administration Jamaica (TAJ) website\textsuperscript{69}
- Obtain a National Environment and Planning Agency (NEPA) Permit
- Be granted a Generation Licence by the Ministry (in practice MSET).
- Possibly obtain land use and building permission from the local Government.

The procurement rules to be issued by GPE will be the key document advising investors what they need to do to gain the right to invest, and the sequence for the required agreements and permits.

To compete in the tender, investors will likely need to:

- Demonstrate their ability to secure a site (see Box 3.1)
- Prove their ability to secure primary energy at the price assumed in the bid
- Provide an environmental impact statement or assessment demonstrating their ability to comply with environmental standards.
Box 3.1: Securing a Site

Investors interested in building generation capacity in Jamaica need to be able to find out what land is available in Jamaica, and how they can secure a site to build a power plant.

Jamaica has a National Land Agency (NLA) that keeps titles for all land in the country. However, finding suitable land that is for sale, and agreeing a price, is a matter for the investor. No licence or government approval is required for investors to purchase private land. Nor is there a requirement for investors to engage real estate agents, as buyers and sellers can enter into agreements between themselves. However, under the Money Laundering Act of 1998, buyers must establish the origin of their funds.

A summary of the process:

- After the buyer and seller agree on a transaction, the Stamp Duty & Transfer Tax Section of Tax Administration Jamaica (TAJ) will value the land to see if the transaction value is realistic
- If approved, TAJ will assess a transfer tax of 5 percent of the land value
- The NLA will transfer the title
- Paying the National Land Agency an expediting fee of J$15,000–20,000 will ensure a Certificate of Title is issued within 5 business days.

Potential investors may engage an attorney to assist with the process.

3.1.2 Obtaining a NEPA Environmental Permit

A generation facility must comply with environmental standards set by NEPA, and must have a permit. Box 3.2: summarises the documents typically required to apply for an environmental permit. NEPA’s Development Assistance Centre can assist investors in the environmental permitting process (see Section 4.2).

<table>
<thead>
<tr>
<th>Box 3.2: Completed Permit Application Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Completed Licence Application Form</td>
</tr>
<tr>
<td>✓ Beach Licence Application Form (if project involves the use of Foreshore, Floor of the Sea, or the Water Column)</td>
</tr>
<tr>
<td>✓ Location Map</td>
</tr>
<tr>
<td>✓ Layout Plan or Site Plan of facility/development</td>
</tr>
<tr>
<td>✓ Detailed Design of project</td>
</tr>
<tr>
<td>✓ Proof of Ownership</td>
</tr>
<tr>
<td>✓ Project Brief describing the scope and extent of the project</td>
</tr>
<tr>
<td>✓ Drainage Plan</td>
</tr>
<tr>
<td>✓ Structural Integrity Test Results (for storage facilities)</td>
</tr>
<tr>
<td>✓ A non-refundable application fee of J$2,000.</td>
</tr>
</tbody>
</table>

The forms and requirements can be found on NEPA’s website at: [http://nepa.gov.jm/centre/permits.asp](http://nepa.gov.jm/centre/permits.asp) and on the National Energy Information Clearing House.
The standards for gas-fired plants are summarised in Table 3.1. Environmental standards for other thermal technologies can be found on the National Energy Information Clearing House, and on MSET’s website.

**Table 3.1: Environmental Standard for Gas-Fired Plants**

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Environmental Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pollutant</td>
</tr>
<tr>
<td>Gas Fired</td>
<td>Nitrogen Oxides</td>
</tr>
<tr>
<td></td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td></td>
<td>Particulate Matter</td>
</tr>
<tr>
<td>Gas turbine &gt;29.7MW</td>
<td>Nitrogen Oxides</td>
</tr>
<tr>
<td>Gas turbine &gt;2.9MW and &lt;29.7MW</td>
<td>Nitrogen Oxides</td>
</tr>
<tr>
<td>Gas turbines non-peak</td>
<td>Nitrogen Oxides</td>
</tr>
<tr>
<td>Gas turbines (All)</td>
<td>Sulphur Dioxide</td>
</tr>
</tbody>
</table>

Source: NRCA Emission Standards for New Sources, 2006, 16–17

NEPA’s environmental permit and licence applications process is summarised in Figure 3.2.
Figure 3.2: NEPA’s Environmental Permit and Licence Applications Process

Utility-Scale Renewable Energy

Procurement for renewable energy capacity follows a similar process as for utility-scale conventional generation described in Section 3.1.1. However, the Government is considering special procurement and permitting processes for certain types of generation that may be environmentally and socially desirable, but which may be best procured otherwise than through a technology-neutral procurement. This process is governed by the Electricity Act 2015, ss 9(1) and 20(7), mandating MSET to grant electricity licences pursuant to competitive bidding, and GPE to establish competitive procurement protocols and rules.

3.2.1 Waste to energy

Waste to energy is an option to improve solid waste management, while reducing its cost by generating electricity as a by-product. A waste-to-energy plant may be procured as part of an overall Solid Waste Management (SWM) improvement plan.

The feasibility of using waste to energy in a SWM system is being investigated. The feasibility study will determine whether waste to energy is the best SWM option, and whether revenue sources are available to pay for the SWM.

The Government may choose to launch site-specific WTE tenders, where the tender package would include:

- The site
- Access to the waste-stream
- Requirements for environmentally responsible waste disposal and payments for waste disposal (tipping fees)
- The right to sell power to the single buyer
A tailored and appropriate set of environmental and technical standards.

The National Resources Conservation Authority (NRCA)’s Air Quality Regulations impose emissions standards on facilities with waste disposal incinerators. Table 3.2 presents these emissions standards.

If waste to energy is pursued, these standards would be reviewed and refined. More stringent standards may be specified.

**Table 3.2: Waste Incineration Emissions Standards**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Units</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter</td>
<td>mg/Nm³ (daily mean)</td>
<td>200mg/Nm³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20mg/Rm³***</td>
</tr>
<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td>mg/Nm³ (daily mean)</td>
<td>20</td>
</tr>
<tr>
<td>Hydrochloric Acid</td>
<td>mg/Nm³ (daily mean)</td>
<td>50mg/Rm³***</td>
</tr>
<tr>
<td>Sulphur Dioxide</td>
<td>mg/Nm³ (daily mean)</td>
<td>300</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>mg/Nm³ (daily mean)</td>
<td>100</td>
</tr>
<tr>
<td>As, Cr, Co, Ni, Se, Te Total Emissions</td>
<td>mg/Rm³</td>
<td>0.15**</td>
</tr>
<tr>
<td>Sb, Cu, Pb, Mn, V, Zn Total Emissions</td>
<td>mg/Rm³</td>
<td>1.5**</td>
</tr>
<tr>
<td>Cd, Hg, TI</td>
<td>mg/Rm³</td>
<td>0.15**</td>
</tr>
</tbody>
</table>

** Regulating only apply to Cement Kilns burning waste for supplementary fuel.**

Source: The Natural Resources Conservation Authority (Air Quality) Regulations 2006

**3.2.2 Mini-hydro power**

Given the characteristics of mini-hydro power, this technology may not be best procured through a technology-neutral procurement:

- Mini-hydro is site-specific. Unlike conventional power plants, mini-hydro plants can only be built in locations with suitable water sources
- Mini-hydro relies on water: a unique primary energy source that is not tradeable or freely available. Investors must get a permit from the Water Resource Authority (WRA) to use water for utility-scale power production. This is not the case for conventional sources of fuel generation
Since water sources are often used for other purposes, such as drinking water or tourism, developing mini-hydro requires coordination and approval from authorities such as the National Water Commission, and the Tourism Product Development Company.

The Government may choose to procure mini-hydro through a site-specific tender, or through a technology-specific tender across a range of sites. The tender package would include:

- Site access
- Water resources permit
- The right to sell power to the single buyer
- A pre-determined set of environmental permitting requirements.

The following information is available to parties interested in developing mini-hydro:

- Feasibility studies for 12 identified mini-hydro sites are available on the National Energy Information Clearing House Portal and MSET’s website
- The Water Resource Authority (WRA) has a hydrological database containing information on streamflow in 133 river-gauging stations, and groundwater level at 320 well sites throughout Jamaica. Figure 3.3 is a snapshot of the database that locates rivers and stream-gauging stations.
3.2.3 Wind, solar, and other renewables

The IRP may indicate that wind, solar, or other renewable energy generation technologies are likely to be least-cost or justified on other economic, environmental, or social criteria. If so, the Ministry and the GPE may agree that these should be procured through technology-specific tenders. Such tenders may ask all types of renewable technologies to compete, or may specify quantity ranges of specific technologies that are sought.

For parties interested in wind energy, PCJ has compiled a wind resource assessment. The studies contain 12 months of data at thirteen sites (“original sites”); 6 months of data at six sites (“new sites”); and discontinued data over 6 months at six sites (“discontinued”), throughout the country. Figure 3.4 locates these sites. The studies are available on the National Energy Clearing House.
For parties interested in solar energy, measures of Solar Global Horizontal Irradiation (GHI) and Direct Normal Irradiation (DNI) are available:

- Solargis provides free maps for a quick preliminary assessment of solar resources (see Figure 3.5). More detailed maps and data can be purchased from Solargis. More information can be found at: [http://solargis.com/products/maps-and-gis-data/free/download/jamaica](http://solargis.com/products/maps-and-gis-data/free/download/jamaica)

- NREL’s National Solar Radiation Database contains the following data for Jamaica: solar radiation with a half-hour temporal resolution; 4 x 4km spatial resolution, between 1998 and 2014. The data is available free from: [https://nsrdb.nrel.gov/nsrdb-viewer](https://nsrdb.nrel.gov/nsrdb-viewer)
Figure 3.5: Solar Resource Maps for Jamaica

**Figure 3.6: National Solar Radiation Database**

![Solar Radiation Map](image)


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**In Short—Investors interested in renewable energy should:**

- Comment on the IRPs as they are developed in draft
- Study these IRPs to see what is likely to be procured
- Review the available feasibility studies and resource assessments
- Respond to Requests for Proposal issued by GPE
- Obtain the required permits and agreements in the order defined by GPE’s procurement rules (for the Environmental Permit: see Box 3.2 for documents required, and Section 4.2 for information on assistance from NEPA’s Development Assistance Centre).
Cogeneration opportunities can be an excellent way to boost competitiveness in energy-intensive industries while reducing total costs of electricity supply to other consumers. Given the need to integrate the generation investment with investment in plant upgrades, these cogeneration solutions can be difficult to achieve through competitive tenders.

For this reason, the Government is envisaging procuring cogeneration through a range of mechanisms, which may include:

- A standing offer below a certain size for cogeneration with renewable energy. This is allowed under s 21(1) of the Electricity Act 2015
- Allowing negotiated large-scale cogeneration investments to proceed, where this is in the public interest. This is allowed under s 18(4) of the Electricity Act 2015, granting Cabinet the authority to issue licences in exceptional circumstances. The criteria employed to consider whether a cogeneration plant is in the public interest will typically include:
  - Whether the energy and capacity supplied are needed
  - Whether they can be supplied at or below the avoided cost of other options
  - Whether the cogeneration will contribute to the competitiveness of the industry by creating jobs for Jamaicans, both directly and indirectly
  - Any other economic or environmental benefits provided.

In addition to the bauxite-alumina industry, large-scale cogeneration arrangements may be possible in other industries, including sugarcane processing and oil refining.

Enquiries and proposals should be directed to the Ministry of Science, Energy and Technology, at: energyinvestment@mset.gov.jm.
3.4 Wheeling for Self-Generation

Self-supply of electricity has been legal in Jamaica for decades, but the attractiveness of this option has increased with the passage of the Electricity Act 2015, which allows wheeling (s 18 of the Act), and the availability of gas on the island as a new fuel.

A wheeling tariff is being developed, and will be reviewed every 5 years at a minimum.72

The operating framework indicating the technical requirements for interconnection is set out in the Jamaica Electricity Sector Book of Codes, available on the National Energy Information Clearing House and MSET’s website.73

Self-generators wishing to enter a wheeling agreement will need to meet the following criteria:

- Be a customer of JPS, and the wheeler and the receiver of the wheeled power are the same legal entity
- Have an annual average demand in excess of 1MVA
Be a registered owner(s) of the property or have written permission from owner(s) where the electricity generation plant will be constructed

- Furnish certified Electrical Line Diagram of proposed energy system
- Demonstrate system will be “Firm Capacity”
- Pay a non-refundable processing fee of JM$15,000 to MSET, pursuant to s 9(4) of the Electricity Act.

Self-generators wishing to wheel their power are required to:

- Obtain an Electric Power Wheeling Licence from MSET. The application form is available on the National Energy Information Clearing House and on MSET’s website.
- Sign an Electric Power Wheeling Contract with JPS. A standard contract is available on the National Energy Information Clearing House and on MSET’s website.

**In Short—Investors interested in wheeling power for self-generation should:**

- Review the wheeling tariff
- Obtain an Electric Power Wheeling License from MSET
- Sign an Electric Power Wheeling Contract with JPS
- Obtain the required permits and agreements in the order defined by GPE’s procurement rules (for the Environmental Permit: see Box 3.2 for documents required, and Section 4.2 for information on assistance from NEPA’s Development Assistance Centre).

### 3.5 Distributed Generation

Jamaica has promoted rooftop solar through a net billing programme since 2012. Rooftop solar is defined in this context as small-scale, behind-the-meter solar PV systems (excluding utility-scale solar PV firms that happen to be built on rooftops). The Office of Utilities Regulation (OUR) first piloted a programme accepting net billing applications between 2012 and 2015. The pilot programme resumed in
2016, and since January 2017 MSET has taken responsibility for issuing net billing licences.

Systems eligible for a net billing licence include renewable energy systems of up to 10kW for residential installations, and up to 100kW for commercial installations. The programme compensates customers for excess energy at a value approved by the OUR.74

Under the pilot programme, customers were compensated for excess energy at the short-run avoided cost of generation rate (the electricity system’s total monthly fuel cost in months divided by the net generation in that month), plus a 15 percent premium.

New regulations being developed are expected to:

- Allow the scale-up of distributed rooftop solar
- Continue the practice of net billing
- Adjust tariffs to promote investment in efficient distributed generation, while protecting all consumers by preventing cost-shifting
- Ensure the safety and stability of the grid and household wiring with strict technical standards and requirements for registration (or licensing) and inspections.

Self-generators wishing to enter into a net billing arrangement should meet the following requirements:

- Be a customer of JPS
- Be a registered owner(s) of the property or have written permission from owner(s) where electricity generation plant will be constructed
- Provide a certified electrical line diagram of proposed renewable energy system, demonstrating system capacity not exceeding 10kW for residential and 100kW for commercial customers, and have the installation and equipment approved by the Government Electrical Regulator (GER)
- Pay a non-refundable processing fee to MSET pursuant to s 9(4) of the Electricity Act.

Self-generators wishing to enter into a net billing agreement are required to:

- Obtain a Net Billing Licence from MSET. The application form is available on the National Energy Information Clearing House, and MSET’s website.
Sign a Net Billing Standard Offer Contract with JPS. A standard contract is available on the National Energy Information Clearing House, and MSET’s website.

**In Short**—Investors interested in wheeling power for self-generation should:

- Monitor the new net billing regulation to be set
- Obtain a Net Billing Licence from MSET
- Have the installation and equipment approved by the GER
- Sign a Standard Offer Contract with JPS

### 3.6 Energy Efficiency

#### 3.6.1 Public sector retrofits

Energy service companies can retrofit public sector buildings by responding to competitive tenders, or by making unsolicited proposals.

Energy service companies can respond to competitive tenders by government entities wanting to procure energy efficiency retrofits. Such retrofits can be done under:

- Traditional government procurements. In this case the retrofits are publicly financed, and energy service companies hired under Engineering, Procurement, Construction contracts.

- A Public Private Partnership (PPP). In this case, the project falls under the PPP Policy, which defines a clear project identification and procurement process. The PPP Policy is available on the National Energy Information Clearing House, and the Development Bank of Jamaica’s website.

Investors can also make unsolicited proposals for public sector retrofits. Such proposals are assessed according to the following principles:

- Whether the project is already in the Government’s PPP pipeline (in which case it may be prioritised)
If it is not in the PPP pipeline, whether it complies with the four core criteria of the PPP policy:

- The **Project is viable**: the project makes sense, in that it is effective in meeting Government objectives, technically and legally feasible, environmentally compliant, socially sustainable, and economically viable

- The **PPP achieves value for money**: procuring the project as a PPP will provide greater net benefit than conventional public procurement

- The **PPP is marketable**: there are qualified private parties available to do the project and the project is expected to provide a commercial rate of return sufficient to attract such parties and create competitive tension

- The **PPP is fiscally responsible**: the project’s cost to the Government is in line with fiscal priorities, and project risks retained by the Government would not be fiscally destabilising.

### 3.6.2 Private sector retrofits

The private sector has a free market for energy efficiency retrofits. The investor will need to reach an agreement with the private party procuring the retrofits.

**In Short—Investors interested in private sector EE retrofits should:**

- Reach an agreement with the private party procuring the retrofits
3.7 Upstream Oil and Gas

The Petroleum Corporation of Jamaica (PCJ) has the exclusive exploration rights to develop oil and gas resources in the country. PCJ can develop those resources either by itself or by entering into agreements with third-party contractors to carry out petroleum exploration and production activities on its behalf.

Parties interested in oil and gas exploration should submit a proposal to PCJ and, if selected, negotiate a contract with PCJ. The process can be summarised as follows:

- **Proposal:**
  - The proposal should include a letter of interest, the identification of blocks of interest, a proposed exploration programme based on the applicant’s own geological and geophysical review
  - Qualified contractors are only allowed to participate as prospect operators in a maximum of four blocks, and must submit a separate proposal for each block
  - Only qualified companies that submit a proposal for available blocks will be eligible in the selection process.

- **Qualification:**
  Only qualified companies that submit a proposal for available blocks are eligible for negotiations. The following criteria are used to determine if a company is qualified:
  - Identity and legal capacity: evidence of the company’s legal existence (Pass/Fail criterion)
  - Financial capacity: evidence that the company has the financial capacity to engage in oil and gas exploration. A minimum amount of equity on the company’s balance sheet, or a minimum credit rating for listed companies is required (Pass/Fail criterion)
  - Technical competence: evidence that the operator has sufficient operational capacity and experience to carry out the operations proposed. The proponent can qualify as deep-water operator, as shallow water operator, or does not qualify as operator
  - Health, safety, and environment: evidence of proper operational procedures and sensitivity to issues relating to health, safety and the environment (Pass/Fail criterion).
Negotiations:

For qualified companies, PCJ will proceed to negotiate with the applicants on the definition of the objectives and obligations of the exploration programme, the blocks of interest awarded, and terms of the Production Sharing Agreement (PSA).

Complete details on the selection process and qualification criteria are explained in the Guide to Oil and Gas Exploration Licences in Jamaica, available on the National Energy Information Clearing House and on MSET’s website. The Guide also contains a model production-sharing agreement.

The following information is available to prospective investors:

- An updated list of available blocks is available on PCJ’s website: http://www.pcj.com/oil-gas-activities-qa/
- PCJ owns scans of vintage pre-2006 seismic lines, vintage reports and well-related information corresponding to the onshore and offshore basins. This data is available for free and can be obtained by signing a confidentiality agreement.
- Geophysical surveys from 2006 and 2009 can be purchased from PCJ’s service partners, Spectrum and TGS.
- Several geological reports and reprocessed vintage seismic surveys may be purchased from PCJ.

Before starting the exploration, contractors should obtain an environmental permit from the National Environment and Planning Agency. Box 3.2 summarises the documents typically required to apply for an environmental permit. NEPA’s Development Assistance Centre can assist investors in the environmental permitting process (see Section 4.2).

Enquiries should be directed to PCJ, at oilandgasexploration@pcj.com.
In Short—Investors interested in oil and gas exploration should:

- Verify if they are eligible to submit a proposal
- Look for block availability on PCJ’s website
- Review technical information through PCJ reports and PCJ’s service partners
- Submit a proposal to PCJ
- Negotiate an exploration programme and a Production Sharing Agreement with PCJ
- Obtain an Environmental Permit from NEPA

3.8 Natural Gas

This section covers natural gas midstream, downstream, and end-uses.

Jamaica has a free market in gas. Gas companies are free to import gas, build storage facilities, and regasification units for LNG, transport gas through pipelines or trucks, and sell it to consumers.

Technical and safety regulation is provided by MSET. To ensure compliance with technical standards, a licence under the Petroleum (Quality Control) Act is required for the following activities:

- Blending—to blend together different types of gases
- Bulk distribution—to sell natural gas to retailers
- Importation—to import gas from another country to Jamaica
- Production—to produce natural gas in Jamaica.

Environmental standards are set and enforced by NEPA. Investors who wish to build gas-processing or storage facilities must apply to NEPA for an environmental permit. Box 3.2: summarises the documents typically required to apply for an environmental permit. NEPA’s Development Assistance Centre can assist investors in the environmental permitting process (see Section 4.2).

The Fair Competition Act regulates all sectors to ensure fair and competitive markets, and includes provisions such as prohibition of misuse of dominant position. Section 20 of the Fair Competition Act states that an enterprise abuses a
dominant position if, among other things, it “restricts the entry of any person into that or any other market.”. The Fair Trading Commission in Jamaica would be responsible for enforcing this Act.

Beyond the Fair Competition Act, there is no economic regulation. Tariffs and services are not controlled by regulation, but set by agreements between buyers and sellers. There are no provisions for exclusive licensing, and entry into all levels of the value chain is welcomed. Investors can enter into contracts with private or public customers. Public customers governed by the Jamaica procurement procedures would procure natural gas through a competitive tender. Entities that want to sell to public customers would have to participate in such a tender.

For natural gas piping and reticulation, interested investors should approach PCJ, which has shown interest in finding a private sector partner.

**In Short—Investors interested in natural gas should:**

- Respond to competitive tenders issued by public customers
- Negotiate contracts with private customers
- Obtain a licence from MSET (for blending, bulk distribution, importation, and production)
- Obtain an Environmental Permit from NEPA (for gas processing and storage facilities)

### 3.9 Biofuels

There are no restrictions on ethanol production other than the need to comply with environmental and technical standards.

For construction and operation of distilleries and fermenting facilities, an environmental permit from NEPA is required. Box 3.2: summarises the documents typically required to apply for an environmental permit. NEPA’s Development Assistance Centre can assist investors in the environmental permitting process (see Section 4.2).

For technical standards, entities interested in blending ethanol with gasoline must adhere to the standards listed in the Second Schedule of the Petroleum (Quality Control) Act of 1990, and obtain a licence from MSET. The Bureau of Standards
Jamaica is currently drafting a National Petroleum Code for Biofuels, which may contain further technical standards for investors to adhere to.\textsuperscript{81}

Investors can enter into contracts with private or public customers. Public customers governed by the Jamaica procurement procedures would procure biofuels through a competitive tender. Entities that want to sell to public customers would have to participate in such a tender.

\begin{center}
\textbf{In Short – Investors interested in biofuels should:}
\begin{itemize}
    \item ✓ Negotiate contracts with private customers
    \item ✓ Obtain a licence from MSET (for blending, bulk distribution, importation, and production)
    \item ✓ Obtain an Environmental Permit from NEPA (for gas processing and storage facilities)
\end{itemize}
\end{center}
4 Incentives Available to Investors

4.1 Financial Incentives

Many financial incentives are available for investors in the energy sector. In 2013 the Government introduced the Omnibus Incentives Legislation, which reduced Customs duties, additional stamp duties, and corporate income tax for specific businesses, sectors, and projects. This legislation contains two new Acts and two amendments to existing Acts:

- The Fiscal Incentives (Miscellaneous Provisions) Act 2013
- The Income Tax Relief (Large-Scale Projects and Pioneer Industries) Act 2013
- The Customs Tariff (Revision) (Amendment) Resolution 2013
- The Stamp Duty (Amendment of Schedule) Order 2013.

The boxes below provide information on the main incentives available to investors. The Tax Administration of Jamaica (TAJ)’s website has more information on the fiscal incentives: [https://www.jamaicatax.gov.jm/fiscal-incentives](https://www.jamaicatax.gov.jm/fiscal-incentives)

JAMPRO can help investors navigate the Omnibus Incentives Legislation so they can identify which incentives may apply to their projects.
Box 4.1: Employers’ Tax Credit (ETC)

**Description**
The ETC is an income tax credit up to 30 percent of the applicable tax rate. Where the full 30 percent ETC is applied, the company’s effective corporate income tax rate will amount to 17.5 percent, as opposed to the default headline tax rate of 25 percent.

**Eligibility**
Any company meeting the following criteria:
- Unregulated (not supervised by the Financial Services Commission, the Bank of Jamaica, the Office of Utilities Regulation, the Ministry of Finance and Planning)
- Does not benefit from the grandfathered Legacy Incentives or any of the four incentives Acts that were not repealed by the Fiscal Incentives Act (Hotels Incentives Act, Resort Cottages Incentives Act, Shipping Incentives Act, and Industrial Incentives Act)
- Files the S01 on time
- Pays their relevant statutory deductions on time.

**How to apply**
These tax credits are automatically implemented in tax returns, with no special application required.

**Additional resources**
- JAMPRO: http://www.jamaicatradeandinvest.org/faqs/what-employment-tax-credit-etc
Box 4.2: Capital Allowance on Industrial Buildings and Equipment

Description
Standardising and streamlining the capital allowances regime, including:

▪ Discontinuing incentives such as the investment allowances and accelerated tax depreciation to agriculture and manufacturing sectors
▪ Providing allowances to certain categories of capital expenditure not currently covered
▪ Providing greater alignment between the useful economic life of various categories of assets and their write-off periods for tax purposes
▪ Allowing new capital expenditure incurred on or after 1 January 2014 to be written off using the straight-line method
▪ Standardising the regime’s application across all sectors.

Eligibility
All companies and enterprises that are not governed by the special rules applying to tourism accommodation and motor vehicles.

How to apply
No special application is required. Tax returns will determine allowances in accordance with the rules set out in Table 1 of the website in resources below.

Additional resources
TAJ brochure on Capital Allowance Regime: https://www.jamaicatax.gov.jm/fiscal-incentives
Box 4.3: Income Tax Relief for Large Scale Projects

Description
Income tax relief is available for large projects. No monetary limits are specified except that the revenue forgone by the Government should not exceed 0.25% of Jamaica’s GDP in the preceding year.

Eligibility
Large-scale projects that are:
- Consistent with strategic priorities of the Government of Jamaica
- Capable of generating high levels of capital investment and employment
- Likely to make a substantial contribution to Jamaica’s economic growth and national development.

Eligibility is assessed using criteria including capital expenditure, number of jobs created, and number of business linkages secured.

How to apply
Interested parties should apply in writing to the Minister of Finance. The Minister will take a decision after reviewing a cost-benefit analysis. If the Minister is satisfied with the project, an order will seek Parliament’s approval.

Additional resources
- The Income Tax Relief Act 2013, s 3 and 4
- TAJ brochure on Incentive Legislation: https://www.jamaicatax.gov.jm/fiscal-incentives
- MSET: http://mset.gov.jm/incentives
Box 4.4: Income Tax Relief for Pioneer Industries

**Description**
Income tax relief is available for pioneer industries projects. No monetary limits are specified except that the revenue forgone by the Government should not exceed 0.25% of Jamaica’s GDP in the preceding year.

**Eligibility**
Pioneer industries projects must:

- Be consistent with strategic priorities of the Government of Jamaica
- Not be carried out in Jamaica on a substantive commercial basis, and must involve the commercial application of scientific research results (for example: cutting-edge and innovative methodologies, technologies and cultural assets)
- Have favourable prospects of being developed so they have a transformational impact on the economy of Jamaica.

Such projects do not need to be large in scale.

**How to apply**
Interested parties should apply in writing to the Minister of Finance. The Minister will take a decision after reviewing a cost-benefit analysis. If the Minister is satisfied with the project, an order will seek Parliament’s approval.

**Additional resources**

- The Income Tax Relief Act 2013, s 3 and 5
Box 4.5: Loss Carry Forward

**Description**
With effect from tax year 2014 (Y/A 2014), the deduction allowed for prior year losses (PYL) will be capped at 50% of the Net Income for the applicable tax year. However, PYL not utilised in the current tax year may be permitted against the Net Income of subsequent years. The number of years for which losses may be carried forward is not capped.

**Eligibility**
All companies and enterprises that are not governed by the special rules applying to tourism accommodation and motor vehicles.

**How to apply**
No special application is required. Tax returns will determine allowances.

**Additional resources**
TAJ brochure on Treatment of Tax Losses: [https://www.jamaicatax.gov.jm/fiscal-incentives](https://www.jamaicatax.gov.jm/fiscal-incentives)
Box 4.6: General Consumption Tax Deferment

**Description**
General Consumption Tax (CGT) Deferment on importation of equipment, machinery, and spare parts. The CGT is the value-added tax.

**Eligibility**
Specified good eligible for the tax deferment are goods which qualify for exemption from customs duty under Part 5 of the Third Schedule to the Customs Tariff(Revision) Resolution, 1972.
The applicant must be a registered taxpayer that paid all taxes under he or she is liable to pay under the General Consumption Tax Act.

**How to apply**
Interested parties should send an application to the Commission General of Tax Administration Jamaica.

**Additional resources**
General Consumption Tax (Amendment) Act
Box 4.7: Waiver of Import Duty or Stamp Duty

Description
A Customs Tariff (Revision) Resolution provides for the duty-free importation of capital equipment and raw material. The Stamp Duty Act provides stamp duty exemption on raw materials and non-consumer goods.

Additional resources
- The Customs Tariff (Revision) (Amendment) Resolution, 2013
- The Stamp Duty (Amendment of Schedule) Order 2013
- MSET: http://mset.gov.jm/incentives
- JAMPRO: http://www.jamaicatradeandinvest.org/investment/incentives
Box 4.8: Jamaica Export Free Zone

Description
The Jamaica Export Free Zone Act allows for companies with the Free Zone status to import items free of customs duty, value-added tax and other port related taxes and charges for an indeterminate period.

There are five Jamaican Free Zones:
- Kingston Free Zone (KFZ)
- Montego Bay Free Zone (MBFZ)
- Garmex Free Zone
- Hayes Free Zone
- Cazoumar Free Zone

Additional resources
- Jamaica Export Free Zone Act
- JAMPRO: [http://www.jamaicatradeandinvest.org/investment/incentives](http://www.jamaicatradeandinvest.org/investment/incentives)
4.2 Soft Incentives

Soft incentives are available for investors in the energy sector, in the form of direct assistance and developing a local skilled workforce.

**Assistance from the Jamaica Promotions Corporation**

The Jamaica Promotions Corporation (JAMPRO) can help guide investors through the process of setting up an energy project in Jamaica. JAMPRO can help investors by setting up meetings with relevant ministries, agencies and departments. JAMPRO also advises investors on the provisions of the Omnibus Incentive Regime, explaining what specific financial incentives could apply to their projects and how to apply for them.

JAMPRO’s website has more information on how it can assist investors: [http://www.jamaicatradeandinvest.org](http://www.jamaicatradeandinvest.org)

**Assistance from NEPA’s Development Assistance Centre**

The Development Assistance Centre (DAC) assists developers from concept stage to project approval. The DAC offers these services:

- **Pre-consultation:** During pre-consultation, DAC provides information to developers about technical, legal, and process requirements to determine project feasibility and achieve project approval. DAC also helps with assessing the completeness and readiness of the project before it is submitted for approval. In pre-consultation meetings, DAC meets with developers to consider projects at concept stage or fully designed.

- **Facilitation:** DAC hosts meetings with commenting and approving agencies and the developer, and liaises with the developer before applying for project approval.

- **Tracking and monitoring:** DAC monitors the progress of projects submitted for approval to streamline the process according to approval timelines.

More information on DAC is available at: [http://nepa.gov.jm/dac](http://nepa.gov.jm/dac)

**Training the workforce for the energy sector**

Several initiatives suggest an increase in technical training for workers in the energy sector:

- **The Human Employment and Resource Training (HEART) Trust** is the facilitating body for developing the workforce in Jamaica. It provides access to training and certification through its 27 technical...
and vocational education and training centres throughout Jamaica. HEART monitors the need for specialised workers, including in the energy sector, and adapts its training programmes accordingly. As an example, HEART has started offering Solar Photovoltaic Systems Training—a 7-week training course on theoretical knowledge and practical skills necessary to design, install, troubleshoot, and maintain solar systems. More information is available at: https://www.heart-nta.org/

- A partnership to **train more engineers in the energy sector** was forged between the island’s leading universities in October 2017. The University of the West Indies, University of Technology, and the Caribbean Maritime University will partner to train at least 1,000 engineers each year.  

83
5 Important Contacts

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Endnotes

5 This considers only private investment, and covers the following plants: 65MW heavy fuel plant (West Kingston Partner), 7.2MW Maggoty hydro plant (JPS), 3MW Munro wind farm (JPS), 34MW Wind Farm (Blue Mountain), 20MW solar farm (WRB Enterprises). The sources are:
   - Castalia Advisors, West Kingston Partner Project, 2008
7 GPE, email to author, July 2017.


12 PCJ, email to author, July 2017.


18 Electricity Act 2015, s.2(1).

19 Jamaica Public Service Company Limited Electricity Licence 2016, condition 12.


22 Electricity Act, 2015, s.52.


29 Ibid.
30 Generation Procurement Entity, email to author, 2017.
33 Ibid.
34 Nanyang Technological University, “A Study to Position Jamaica as a Bunkering Location in the Caribbean Region,” 2013.
36 M. Anderson, K., Salo, and E. Fridell, “Particle and Gaseous Emissions from an LNG Powered Ship,” Environmental Science & Technology, 2015, 49(20), 12568–75, DOI: 10.1021/acs.est.5b02678
43 USDA, Jamaica Sugar Annual Report 2016.
45 USDA, Jamaica Sugar Annual Report 2016.
54 JPS, *Annual Report 2016*, 38, calculated as Residential Sales (US$)/Residential Sales (MWh)
55 JPS, *Annual Report 2016*, 38, calculated as Commercial and Industrial Sales (US$)/Commercial and Industrial Sales (MWh)
56 Electricity Act, 2015, s.2.
57 Petroleum Act, 1979, ss 3(1)c, 3(1)d, 6(1).
60 GPE, email sent to author, July 2017.
62 Electricity Act, 2015, s.7(1)
64 By Cabinet’s decision #10/17 under s.20(7) of the Electricity Act 2015, approving the protocols for the operation of the GPE.
65 A right of first refusal is a right of an entity to be given the opportunity to enter into a business transaction with a person or company before anyone else can. If the entity with the right of first refusal declines to enter into a transaction, the owner of the asset is free to open the bidding up to other interested parties.
66 Electricity Act 2015, Third Schedule.
68 Electricity Act 2015, ss 19.1, 18.3; Interviews with the Office of Utilities Regulation on 27 July 2017.
70 Electricity Act 2015, s 7(1), 20(2), 20(6), 20(7), and Third Schedule.
72 Electricity Act 2015, s 18(7).
74 The Natural Resources Conservation (Permits and Licences) (Amendment) Regulations, 2015, Second Schedule, s 15.

75 The Petroleum (Quality Control) Regulations 1990, First Schedule, Form 3.

76 The Natural Resources Conservation (Permits and Licences) (Amendment) Regulations 2015, Second Schedule, s 17.

77 The Natural Resources Conservation (Permits and Licences) (Amendment) Regulations 2015, Second Schedule, s 19.


Natural gas stove image from: torange.biz, at: https://torange.biz