



# **Draft National Energy Policy of the Commonwealth of Dominica**

**Prepared with assistance from the  
Organization of American States and the  
European Union**

**15 April 2014**

**Foreword by the Hon. Roosevelt Skerrit  
Prime Minister of the Commonwealth of Dominica**

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The **COMMONWEALTH of DOMINICA** has articulated a progressive and visionary *National Energy Policy* (‘the Policy’) to propel economic and social development in Dominica, all while lowering our environmental impact. The measures in the Policy will help our commercial and industrial sectors become more competitive, ultimately contributing to our economic development. They will also reduce the energy cost burden faced by Dominican households and help us live up to being *the Nature Island*.

The development of the Policy is timely. The high fossil fuel prices experienced since 2008 have had especially painful economic consequences in Dominica. Recent high prices have raised consumers’ electricity bills, as well as their costs for transport and cooking. At the same time, some Dominicans still cannot access modern energy services. Both of these challenges take place in the larger context of global climate change. The Policy will equip Dominica to address these pressing challenges.

The critical objective of the Policy is to utilize sustainable and indigenous sources of energy to produce and supply electricity at the lowest possible cost. The Policy lays the groundwork for exploitation of Dominica’s vast geothermal potential. It also sets policy for developing our island’s hydro, wind, and solar potential, including solar hot water systems. Guided by these policies, Dominica can lower energy costs and potentially become self-sufficient in electricity by the year 2020. The Policy also charts a course for Dominica to become a net exporter of electricity through the exploitation of our geothermal resources.

Further, the Policy focuses on making electricity production and consumption more efficient, enabling Dominicans to do more with less energy. It includes measures to promote energy efficiency in all electricity consuming sectors, as well as in production of electricity. It will also guide improved efficiency in the transport sector, promoting the efficiency of individual vehicles, and promoting efficient public transit options.

Finally, the Policy includes measures to make our supply of fossil fuels more secure and cheaper. It contains policies that will guide procurement of fuels. It also includes policies to support a more resilient fuel storage and distribution system. This will ensure that our energy sector can better withstand natural disasters and supply shocks.

Some members of our society will still need help to access energy services, even given the improvements outlined above. Government will seek to expand the energy support programme for the elderly and the more disadvantaged members of our society to provide for even greater energy access and coverage.

The measures included in the Policy are supported by the Sustainable Energy Plan (‘the Plan’, which you can access via Government’s website). The Plan serves as a companion document to the Policy. It specifies the legislative and regulatory changes required to achieve the Policy’s goals. It also specifies capacity building, education programmes, and incentive schemes to achieve those goals.

The Government and People of Dominica are thankful to all those who have contributed to the completion of this National Energy Policy—persons and businesses; private and public sector stakeholders; and local, regional and foreign agencies. We are thankful to the Sustainable

Development Division of the Organization of American States (SDD/OAS) and the European Union for their steadfast and continuous support and assistance. We anticipate your continued support as we seek to implement the provisions of this Policy and the related Sustainable Energy Plan. We are especially grateful to our brothers and sisters in Guadeloupe and Martinique for their dedication to partnering with us to develop our geothermal energy resource, and for their kind and generous support in that regard. I wish to take this opportunity, on behalf of the Government and people of Dominica, to express sincere appreciation to the Agence Française de Développement and the Government of France, the Government of Iceland, the CARICOM Secretariat, the OECS Secretariat, the Caribbean Development Bank, the World Bank, the International Finance Corporation, the Clinton Foundation, and the Clinton Climate Initiative for their support in the development of the energy sector in Dominica.

*Hon. Roosevelt Skerrit*

## **Message From**

**Hon. Rayburn Blackmoore**

### **Minister for Public Works, Energy and Ports**

The articulation of the National Energy Policy for Dominica comes at a very opportune time. The issues of energy cost, security, efficiency, access and reliability, as well as the need for the reduction in carbon emissions and environmental protection, have all become matters of national concern.

Over the past several years, the cost of petroleum products—and hence the cost of electricity—escalated at a pace that threatened the fabric of the economies of Small Island Developing States such as Dominica. Dominica does not have indigenous primary energy resources, and our dependence on imported oil products continues to leave us vulnerable to changes in the market for fossil fuels.

Our island does however have an abundance of renewable energy resources; using these resources can reduce our vulnerability to fossil fuel prices. We should do everything possible to harness and exploit these resources. In Dominica's case, our greatest hope for renewable energy generation is in our vast geothermal resource. Government is committed to developing our resource for the benefit of all Dominicans. The quality of our resource means that it could also benefit citizens on our neighbouring islands, creating a new export opportunity for our economy.

The Government of Dominica will facilitate investments in geothermal, hydro, wind, solar, and other appropriate renewable energy systems as we engage the electric utility and other private sector energy stakeholders to expand and integrate the energy mix of the national electricity grid. Government will continue to review and improve the legislative and regulatory framework for energy and invites all persons to participate and support this critical development programme.

My Ministry also intends to support increased energy efficiency, and will encourage the application of energy efficiency standards for vehicles, as well as electric appliances and equipment. These efforts will help us as a nation to reduce our energy consumption and expenditure, while making a valued contribution to climate change mitigation worthy of our title of *the Nature Island*.

The Ministry looks forward to engaging with all Dominicans as we move together towards the exciting future laid out in this National Energy Policy.

**Hon. Rayburn Blackmoore**

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## Acronyms

BBL	Barrel
CARICOM	Caribbean Community and Common Market
CHP	Combined Heat and Power
DOMLEC	Dominica Electric Company
DOWASCO	Dominica Water and Sewerage Company Limited
EC\$	Eastern Caribbean Dollar
EPTD	Establishment, Personnel and Training Department
GDP	Gross Domestic Product
GNI	Gross National Income
IPP	Independent Power Producer
IRC	Independent Regulatory Commission
kW	Kilowatt
kWh	Kilowatt hour
LED	Light Emitting Diode
LPG	Liquefied Petroleum Gas
LPH	Light and Power Holdings (Barbados)
MAF	Ministry of Agriculture and Forestry
MEHRD	Ministry of Education and Human Resources Development
MENRPPF	Ministry of Environment, Natural Resources, Physical Planning and Fisheries
METIDA	Ministry of Employment, Trade, Industry, and Diaspora Affairs
MF	Ministry of Finance
MFA	Ministry of Foreign Affairs
MITCE	Ministry of Information, Telecoms and Constituency Empowerment
MSSCDGA	Ministry of Social Services, Community Development and Gender Affairs
MTBE	Methyl Tertiary Butyl Ether
MTLA	Ministry of Tourism and Legal Affairs
MW	Megawatt
MWh	Megawatt hour
NAMA	Nationally Appropriate Mitigation Action
OECS	Organization of Eastern Caribbean States
PPP	Purchasing Power Parity
SDD/OAS	Sustainable Development Division of the Organization of American States
Solar PV	Solar photovoltaic
TOE	Tonnes of Oil Equivalent
US\$	United States Dollar

*This National Energy Policy document was prepared with assistance from the Climate Change and Energy Section of the Department of Sustainable Development of the Organization of American States; and the European Union*

# **1 Executive Summary**

## **Rationale**

This National Energy Policy ('the Policy') is intended to address the concerns of the citizens of the Commonwealth of Dominica, helping combat increasing energy costs and escalating and volatile oil prices, as well as reducing the effects of climate change. The Policy also provides the opportunity for Dominica to generate unparalleled foreign revenue through energy exports, while simultaneously providing the means for social and environmental development.

## **Objectives**

The Policy seeks to achieve sustainable energy development that is reliable, provides the means for universal access to energy, and provides the opportunity for a significant reduction in energy cost. Government also intends to ensure the safe and efficient management of fossil fuels through measures such as rationalizing storage facilities, promoting competition to ensure the lowest prices for petroleum products, and promoting quality standards and harmonization within the region.

## **Energy Transformation and Use**

This Policy will guide the management of fossil fuels to ensure a safe, reliable, competitive, and affordable supply, leading to improved efficiency and cost reduction. This will include the rationalization of bulk storage, competition for supply, and setting of national standards for fuel quality. Government will seek to foster local electricity supply to international standards by promoting efficiency in both fossil fuel use and domestic renewable energy resources. This policy will be focused on increasing energy access, setting standards, facilitating renewable energy generation, developing local capacity, and promoting public education and awareness.

Government will seek to determine Dominica's renewable energy potential in new hydro power and geothermal energy through resource assessment and evaluation, and will encourage installation of new solar and wind power systems.

Government will seek to reduce the rate of electricity consumption by implementing a public education programme and encouraging the supply and use of energy efficient appliances through labels and standards, energy audits, and retrofit projects using energy efficiency technology in both the public and private sectors.

## **End-Use Sectors of the Economy**

With regard to the transportation sector, Government will seek to optimize efficiency, organize and rationalize the public transport system, and consider alternative fuels.

Sustainability will be encouraged in the agriculture sector by promoting and facilitating energy efficient and sustainable methods, as well as use of renewable energy resources.

Government will encourage the commercial and industrial sectors to adopt sustainable methods and practices in their operations, such as waste reduction, recycling, reuse, and renewable energy sources for electricity production.



Government intends to ensure that the domestic sector has a diversified supply of energy services, energy efficient equipment, and options to generate electricity. This will be approached through educational and promotional programmes and the provision of fiscal and social development facilities.

This National Energy Policy builds on Dominica's reputation as an eco-friendly nature island in supporting the growth of the tourism sector locally as part of the national approach to business, while significantly reducing the carbon footprint of the country. Government shall provide fiscal and other incentives to encourage cost savings for energy efficiency installations, retrofitting, and renewable energy generation.

### **Institutional Strengthening and Funding**

The Government will use the existing Energy Unit to ensure that government actions conform to sustainable energy objectives. The Energy Unit will continue to be responsible for establishing an investment and regulatory climate for energy development projects and technologies. A Geothermal Development Unit will be responsible for advising Government on policy to support geothermal development, identifying potential geothermal development projects, seeking donor support, and monitoring and evaluating geothermal development.

## 2 Rationale for the National Energy Policy

The National Energy Policy (“the Policy”) is designed to address the energy concerns of the people of Dominica. High energy costs, exacerbated by the volatility of energy prices on the international market, are a serious burden on the country. High energy costs reduce economic growth and contribute to incomplete access to electricity and transportation. Additionally, there is deep concern about the impact on Dominica, the Caribbean, and small island states in general of climate change resulting from greenhouse gas emissions. Climate change can increase the frequency and extent of extreme weather events such as devastating hurricanes, contribute to greater coastal degradation, and affect plant and animal life. The Government of Dominica has decided to develop a strategic approach to energy conversion and management that will lower costs while containing greenhouse gas emissions.

Fortunately, Dominica has significant renewable energy resources, and the ability to conserve energy with energy efficient technology. Increased renewable energy and energy efficiency can reduce energy costs, promote widespread access, and help the environment.

The Government of Dominica’s policy is shaped by three guiding principles:

- **Producing energy in the most economically beneficial way to reduce costs**
- **Promoting access to energy for all citizens**
- **Producing energy in more environmentally sustainable ways.**

This Policy upholds the national motto of “Après Bon Die C’est La Ter” (“After God, is the Earth”). It will provide the platform for the sustainable social and economic development of the Commonwealth of Dominica and its people.

### 3 Objectives of the National Energy Policy

The Policy represents the desire of the Dominican people to improve their country for this generation and future ones.

**The primary objective of the Policy is to pursue sustainable energy that is reliable, extends access to energy, provides energy at the lowest possible cost, and increases energy security.**

The primary objective is supported by five supplementary objectives:

- **Increase use of domestic energy sources**

The Government will encourage increased self-sufficiency in energy where economically viable, leading to reduced importation of energy from outside of Dominica.

- **Increase energy efficiency**

The country will reduce energy consumption per unit of economic output in all sectors of the economy, wherever economically viable.

- **Increase environmental sustainability**

The Government will position Dominica to move toward a low-carbon economy in full compliance with global climate change mitigation efforts where economically viable. This policy does not call for eliminating the use of fossil fuels or setting target for its reduction. The policy will reduce fossil fuel use, however, and the reduction can be projected based on forecasts for the electricity and transport sectors. This will minimize environmental and public health impacts from energy production, transport, and use. This objective is consistent with the approach of Nationally Appropriate Mitigation Actions (NAMAs) of abating greenhouse gas emissions while increasing economic development.

- **Reduce energy costs and tariffs**

The Government will use regulatory and fiscal measures to encourage economically viable energy efficiency technology and renewable energy generation technology to lower the burden of energy costs.

- **Extending electricity coverage to all citizens**

The Government will ensure that all Dominicans have access to electricity.

These objectives reinforce each other. Dominica has large domestic renewable energy resources that can produce electricity more cheaply than using imported fossil fuels. Use of these renewable resources will increase environmental sustainability and reduce energy costs and tariffs. Increasing energy efficiency will further reduce energy costs and increase environmental sustainability.

## 4 Specific Policies for Energy Transformation and Use

This section sets out how the Government will pursue the objectives of the Policy in the areas of fossil fuel management, electricity supply, and energy efficiency.

### 4.1 Policy for Fossil Fuels Management

Management and storage of fossil fuels in Dominica are currently fragmented, and quality is not adequately monitored.

**It is the Government's policy to provide safe, reliable, competitive, and affordable fossil fuel supply, and promote its clean handling and use. This will result in cost reduction and greater efficiency.**

The Government will implement its policy for fossil fuels management by:

- Increasing the efficiency of bulk storage facilities by providing adequate incentives and developing the necessary framework and reforms for fossil fuel storage capacity to allow for emergencies and late shipments
- Setting national standards for fuel quality, and seeking regional harmonization throughout the Organization of Eastern Caribbean States
- Directing the Ministry of Employment, Trade, Industry, and Diaspora Affairs to ensure that competition to supply fossil fuels guarantees the lowest price possible for petroleum products.

### 4.2 Policy for Electricity Supply

Electricity supply in Dominica is currently provided by hydropower and diesel generation. Hydropower represents 25 percent of installed capacity and, in 2012, it accounted for 26 percent of electricity generation. The remaining supply is provided by expensive diesel-powered generators, and a very small part (0.1 percent) is purchased from small independent power producers. As a result, electricity tariffs in Dominica are above global norms, averaging EC\$1.11 per kWh in 2012.

**It is the Government's policy to foster a safe, efficient, affordable, and low-carbon national electricity supply that meets international quality standards by promoting the efficient use of imported fossil fuels and of Dominica's domestic renewable energy resources.**

The Government will implement its policy for electricity supply by:

- Creating regulations and incentives to encourage electricity generators, transmitters, and distributors to improve efficiency
- Extending electricity supply to unserved communities and remote, off-grid communities through grid access or microgeneration
- Providing the appropriate standards, guidelines, and regulatory system for the integration of renewable energy in the national electricity system
- Ensuring the development of local expertise to install, operate, manage, and maintain renewable distributed generation systems

- Further facilitating the development of economically viable small scale renewable distributed generation
- Designing and implementing a national programme of education and awareness in renewable energy.

In addition, the following policies relate to specific renewable energy resources:

- **Promoting Hydropower**—The policy for hydropower development includes:
  - continuing the assessment of hydropower resources by coordinating the efforts of the Ministry of Agriculture and Forestry, Dominica Electricity Services Ltd (DOMLEC) and the Dominica Water and Sewerage Company Ltd (DOWASCO)
  - implementing, where feasible, new hydropower projects
  - developing capacity for analysing data on hydro projects by working with other countries and territories in the region, especially Martinique and Guadeloupe
- **Promoting Geothermal Power**—The policy for geothermal power development includes:
  - continuing exploration of geothermal potential, including addressing concerns about reliability of geothermal and impacts on hot springs
  - establishing a legal framework for geothermal power that clearly defines the rights to access, develop, and sell power from a geothermal site
  - developing a regulatory framework that allows DOMLEC to recover its costs from sales of geothermal energy, and that also passes on savings to consumers
  - issuing environmental and planning regulations that support the legal framework for geothermal development
  - strengthening the capacity of Government entities (especially the Geothermal Development Unit) to support their evolving role in overseeing the development and use of geothermal resources from technical, commercial, regulatory, and environmental perspectives
  - training geothermal technicians through a regional training program
  - implementing appropriate agreements with developers, financiers, electricity purchasers, and other relevant stakeholders for developing geothermal generation, selling electricity produced, and transporting the electricity
  - developing the capacity to export geothermal energy to Martinique and Guadeloupe.
- **Promoting Solar Power**—The policy for solar power development includes:
  - encouraging, where economically viable, the installation of solar energy technologies on all new public sector buildings, commercial buildings, and residences, particularly for buildings that could benefit from those systems in the event of service outages
- **Promoting Wind Power**—The policy for wind power development includes:

- continuing the assessment of wind resources
- implementing the appropriate arrangements for the exploitation of wind resources to provide electricity for local consumption, where this is likely to be least cost
- **Promoting Waste-Based Energy**—the policy for waste-based energy includes:
  - evaluating the economic costs and benefits of a waste-based energy programme, including: cost of power generation, potential savings in waste management costs, potential environmental impacts (positive and negative)
- **Promoting Biomass Energy**—the policy for biomass energy includes:
  - evaluating the costs and benefits of biomass power generation technologies, for example small scale anaerobic digesters
  - evaluating the costs and benefits of using biomass to produce liquid fuels.

### **4.3 Policy for Energy Efficiency and Conservation**

In recent years, Dominica has made efforts to increase energy efficiency. For example, in 2007 the Government replaced 280,000 incandescent light bulbs with compact fluorescent light bulbs. Beginning in late 2013 the Government began a programme to upgrade street lights to more efficient LED technology. The Government is looking to build on these successes with further initiatives in energy efficiency and demand-side management.

**It is the Government’s policy to reduce the country’s energy intensity while increasing its economic growth by adopting best practices in energy efficiency and conservation.**

The Government will implement its policy for energy efficiency and conservation by:

- Developing public education programmes on improved consumption patterns and consumer behaviour in the end-use sectors
- Encouraging the use of energy efficient appliances and technology by consumers
- Encouraging appliance suppliers to import reliable, energy efficient appliances
- Requiring retailers to label energy efficient appliances, and to inform customers about the efficiency and consumption of appliances
- Establishing standards for energy efficiency to inform the design, construction, and management of buildings in Dominica
- Encouraging energy audits, especially for hotels and households
- Encouraging retrofitting homes and buildings in the private sector with energy efficient equipment
- Developing a plan to retrofit public buildings and streetlights with energy efficient equipment
- Reporting progress on energy efficiency in national economic reports and statistics.

## 5 Policies Specific to End-Use Sectors of the Economy

This section sets out the Government's policy towards specific sectors of the Dominican economy. This includes sector-specific provisions, as well as components of the policies discussed in section 4 that directly affect the sectors of the economy listed below. (Sector policies that are components of one of the national policies already described are indicated in parentheses).

### 5.1 Transport Sector

The transport sector in Dominica suffers from two main barriers to efficiency:

1. Many used cars with poor efficiency standards are imported
2. Organized public transit is limited. As a result the transport sector is inefficient and high cost, and emits more greenhouse gases than necessary.

**It is the Government's policy to promote efficient vehicles, crafts, and a strong integrated public transport sector strategy.**

The Government will implement its policy for the transport sector by:

- Conducting research into producing alternative fuels to ensure that vehicles and crafts in Dominica are powered by the most efficient energy mix possible; and studying the feasibility of integrating electric vehicles into the transport sector
- Optimizing the efficiency of the transport fleet and the fuel mix
- Organizing a regulated and rational public sector transit system.

### 5.2 Agricultural Sector

The agricultural sector represents 15 percent of Dominica's GDP.<sup>1</sup> Improvements in sustainability in the agricultural sector are important to overall sustainability gains in Dominica.

**It is the Government's policy to encourage sustainable practices in agriculture that provide economic and environmental benefits.**

The Government will implement its policy for the agricultural sector by:

- Promoting the use of energy efficient and sustainable agriculture methods
- Offering fiscal incentives for farmers meeting the energy efficiency standards set by Government, including for using 'green buildings' and green production methods for their operations (Component of the Policy For Energy Efficiency and Conservation)
- Allowing farmers to produce electricity from renewable sources and sell excess generation to the grid (Component of the Policy for Electricity Supply).

### 5.3 Industrial and Commercial Sectors

The commercial sector accounted for 43 percent of electricity sales in Dominica in 2012. The industrial and hotel sectors in Dominica are responsible for 12 percent of electricity consumption. Lower energy costs would make these sectors more competitive. Therefore, it is important to consider measures that will promote sustainability in these sectors.

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<sup>1</sup> CIA World Factbook (2012 estimate); CARICOM Selected Economic Indicators (2010)

**It is the Government's policy to encourage sustainable methods of industry and commerce, which will include reducing waste, recycling and reuse of materials, electricity production from renewable energy sources, and the incorporation of sustainable energy practices into business practices.**

The Government will implement its policy for the industrial and commercial sectors by:

- Offering fiscal incentives for companies meeting the energy efficiency standards set by Government, including for using 'green buildings' and green production methods for their operations
- Encouraging businesses to implement sustainable energy practices specific to their sectors, including where feasible exploiting geothermal energy for productive uses other than electricity generation (such as cooling or refrigeration, or process heat)
- Encouraging factories and shops to produce renewable electricity and sell excess generation to the grid (Component of the Policy for Electricity Supply).

#### **5.4 Domestic Sector**

The domestic sector was responsible for 45 percent of electricity consumption in Dominica in 2012. Any improvements in energy efficiency or uptake of renewable energy technology will promote Dominica's sustainability and have the potential to lower costs for households.

**It is the Government's policy that the domestic sector have a diversified supply of energy services, energy efficient appliances, and the option to produce electricity.**

The Government will implement its policy for the domestic sector by:

- Developing and implementing educational and action-oriented programmes to promote household energy efficiency and conservation
- Providing fiscal incentives to promote the use of solar water heating in new and existing homes (Component of the Policy for Energy Efficiency and Conservation)
- Developing and implementing a programme to ensure that Liquefied Petroleum Gas (LPG) and other emerging technologies (consistent with the guiding principles of this Policy) are accessible for all persons in society, especially the most needy
- Providing incentives to facilitate the integration of efficient small economically viable renewable energy systems to the national grid (Component of the Policy for Electricity Supply)
- Providing incentives for energy efficiency audits and retrofits in homes (Component of the Policy for Energy Efficiency and Conservation).

#### **5.5 Tourism and Hospitality Sector**

Currently, the tourism sector in Dominica is small. However, it is hoped that it will grow rapidly and attract more visitors, especially if it can take advantage of a reputation for being eco-friendly in line with Dominica's status as *the Nature Island*.

**It is the Government's policy that the Tourism and Hospitality sector become part of the national green approach to business, and become a significant contributor to the reduction of Dominica's carbon footprint over time.**

The Government will implement its policy for the tourism and hospitality sector by:



- Reducing tax rates on energy saving hospitality devices and appliances (Component of the Policy For Energy Efficiency and Conservation)
- Encouraging energy efficiency audits at hotels (Component of the Policy For Energy Efficiency and Conservation)
- Incentivizing energy efficiency retrofits
- Continuing to encourage hotels to produce renewable electricity and sell excess generation to the grid (Component of the Policy For Electricity Generation)
- Developing a special regime of recognition and promotion of the greening efforts of such tourism and hospitality businesses.

## 6 Policy on Institutional Strengthening and Funding

The Energy Unit within the Ministry of Public Works, Energy, and Ports oversees sustainable energy and ensures that Government regulation is in line with its sustainable energy objectives.

**It is the Government's policy to empower and develop the capacity of the Energy Unit to ensure successful implementation of the National Energy Policy and the Sustainable Energy Plan.**

Government will do so by:

- Strengthening the capacity of the Energy Unit within the Ministry of Public Works, Energy, and Ports. This includes creating and strengthening a Geothermal Development Unit within the Energy Unit; the Geothermal Development Unit will be responsible for advising Government on policy to support geothermal development, identifying potential geothermal development projects, seeking donor support, and monitoring and evaluating geothermal development
- Conducting careful economic assessments of the fiscal and economic measures required for the successful implementation of the Policy
- Requiring Environmental Impact Assessments, Social Impact Assessments, and Strategic Environmental Assessments that are in line with Environmental and Planning Regulations
- Securing appropriate funding to implement the Policy and the Plan
- Capitalizing on regional relationships by working toward the implementation of regional approaches that lead to greater efficiency or cost savings in energy.

## Appendix A: Country Profile

Dominica, the *Nature Island* of the Caribbean, is an island of 751 square kilometres situated in the Lesser Antilles in the Eastern Caribbean between the French islands of Martinique and Guadeloupe. It is bordered by the Caribbean and the Atlantic Ocean. It is the third largest of the English speaking Caribbean islands. Dominica is a sovereign member of the Organisation of Eastern Caribbean States (OECS). It gained its political independence from Britain in 1978.

Dominica has a population of approximately 71,293 people.<sup>2</sup> Approximately 86.8 percent of Dominicans are of African descent, and the island is also home to some 3,000 descendants of the indigenous Carib population (2.9 percent), which is the only pre-Columbian population remaining in the Eastern Caribbean. The remaining population is mixed (8.9 percent), white (0.8 percent) and other (0.7 percent).<sup>3</sup> Population growth averages 0.2 percent per annum. A large, mountainous island, Dominica has a diverse mix of flora and fauna. It is also home to the 'Boiling Lake' which is the largest thermally active lake in the world.

The purchasing power parity GDP per capita is about US\$14,400<sup>4</sup> and the labour force is approximately 25,000.<sup>5</sup> The principal agricultural exports are bananas, citrus, mangoes, root crops, cocoa, and coconut products. The unemployment rate (including those not seeking employment) was estimated to be about 15 percent in 2009.<sup>6</sup> Inflation in 2012 was estimated to be about 1.4 percent.<sup>7</sup>

Electricity production was 101,672 MWh and consumption was 90,113 MWh in 2012. A total of 34,870 customer accounts were being supplied by the national grid at the end of 2012, inclusive of domestic (30,512 customers), commercial, industrial, hotel, and street lighting.

The island consumes 915 barrels (bbl) of crude oil equivalent each day, all of which are imported.<sup>8</sup>

Key data about Dominica is summarized in Table A.1.

**Table A.1: Dominica Country Profile Summary**

Population <sup>9</sup>	72,813
Population per sq. km	97 per sq. km
Population growth (%) <sup>3</sup>	0.2
Literacy rate (%)	94

<sup>2</sup>“Dominica Population and Housing Census, 2011: Preliminary Results.” September 2011. Available online at: [http://dominica.gov.dm/images/documents/2011\\_census\\_report.pdf](http://dominica.gov.dm/images/documents/2011_census_report.pdf)

<sup>3</sup> US Central Intelligence Agency (CIA) World Factbook 2012 Estimate, based on 2001 census

<sup>4</sup> US Central Intelligence Agency (CIA) World Factbook 2012 Estimate

<sup>5</sup> US Central Intelligence Agency (CIA) World Factbook 2000 Estimate

<sup>6</sup> Public Information Notice of IMF Article IV Consultation January 2013, available at <http://www.imf.org/external/pubs/ft/scr/2013/cr1331.pdf>

<sup>7</sup> US Central Intelligence Agency (CIA) World Factbook 2012 Estimate.

<sup>8</sup> US Central Intelligence Agency (CIA) World Factbook 2011 Estimate.

<sup>9</sup> Dominica Population and Housing Census, 2011: Preliminary Results.” September 2011. Available online at: [http://dominica.gov.dm/images/documents/2011\\_census\\_report.pdf](http://dominica.gov.dm/images/documents/2011_census_report.pdf)

Life expectancy (years) <sup>10</sup>	76.4
Land area (km <sup>2</sup> )	751
GDP (US\$ million, PPP) <sup>11</sup>	\$1.018 billion
GDP real growth (%) <sup>12</sup>	0.4
GDP per capita (US\$, PPP)	\$14,000
Net official development assistance as share of GNI (%) <sup>13</sup>	5.2

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<sup>10</sup> US Central Intelligence Agency (CIA) World Factbook 2013 Estimate

<sup>11</sup> US Central Intelligence Agency (CIA) World Factbook 2012 Estimate

<sup>12</sup> US Central Intelligence Agency (CIA) World Factbook 2012 Estimate

<sup>13</sup> World Bank World Development Indicators 2011 figure

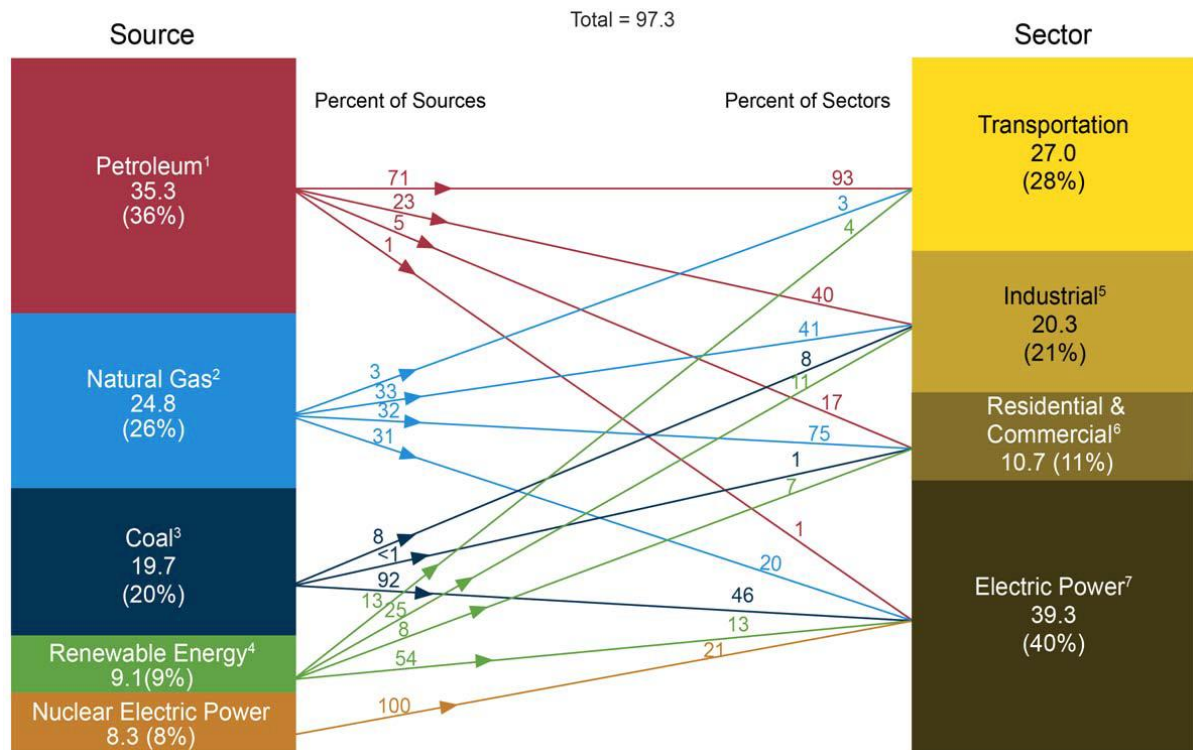
# Appendix B: Overview of the Energy Situation

The following sections discuss the global, regional and national energy situations.

## B.1 Global Perspectives

Hydrocarbons are the dominant source of energy in today’s world. The US Energy Information Administration estimates that 62 percent of global primary energy consumption in 2011 was supplied by petroleum and natural gas, while the share of renewables (hydro, geothermal, wind, solar and biomass) was only about 9 percent. The balance was supplied by coal, and nuclear energy.

**Figure B.1: Primary Energy Consumption by Source and Sector, 2011 (Quadrillion Btu)**



- Does not include biofuels that have been blended with petroleum—biofuels are included in “Renewable Energy”
- Excludes supplemental gaseous fuels
- Includes less than 0.1 quadrillion Btu of coal coke net exports
- Conventional hydroelectric power, geothermal, solar/PV, wind, and biomass
- Includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants
- Includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants
- Electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity and/or heat, to the public. Includes 0.1 quadrillion Btu of electricity net imports not shown under “Source”

**Notes:** Primary energy in the form that it is first accounted for in a statistical energy balance, before any transformation to secondary or tertiary forms of energy (for example, coal is used to generate electricity).

Sum of components may not equal total due to independent rounding.

Sources: U.S. Energy Information Administration, (US EIA) Annual Energy Review 2011, Figure 2.0

The oil crises in 1973 and 1979 drove oil prices up to record levels. Since then, the price of crude oil on world markets has been characterised by extreme volatility and a general upward trend. This culminated in a record high oil price of US\$147 per barrel in July 2008. However prices collapsed to US\$40 by the end of that year, before rising again to approximately US\$80 per barrel in 2009. The price in mid-January 2013 was US\$93 per barrel.<sup>14</sup> Caribbean countries, like other small non-petroleum producing countries worldwide, have had difficulty affording petroleum products at these prices. The global energy situation remains volatile and poses a significant risk remains for vulnerable countries such as Dominica.

The trajectory of global oil markets has a significant impact on the prospects for sustainable energy development in the Caribbean. On one hand, new sources of fossil fuels (shale oil and shale gas) may put a downward pressure on Caribbean energy prices. On the other hand, prices may increase if the global economic recovery boosts demand for oil. Developing renewable energy sources can serve as a hedge against future price fluctuations.

## **B.2 Regional Perspective**

It is estimated that up to 95 percent of commercial energy consumed in the Caribbean Community (CARICOM) region is derived from fossil fuels, primarily oil.<sup>15</sup> The fifteen CARICOM states<sup>16</sup> are almost entirely dependent on imported oil and gas, but their energy situations are not all the same: Trinidad & Tobago produces a large surplus of oil and gas for export; Suriname produces approximately as much petroleum as it consumes, Belize produces about half of what it consumes, and Barbados produces the equivalent of about one-eighth of its local consumption.<sup>17</sup> Grenada may have oil and gas reserves, but they remain to be proven. The other CARICOM countries import all of their petroleum products. These are supplied mostly from refineries in Trinidad and Tobago, Curaçao, Puerto Rico, St Croix, and Venezuela. Together the sovereign states of the OECS currently consume approximately 15,000 barrels of oil per day.<sup>18</sup>

High energy prices and the recession of the late 2000s have had a dramatic negative impact on the economies of several CARICOM states. In order to cope with the negative impacts of rapidly increasing and highly volatile oil prices, many Caribbean countries have sought assistance from regional energy initiatives offering assistance in the areas of arrangements for product supply and storage, transportation, payment terms and national balance of payments support. Accordingly, most of the members of CARICOM are signatories to either, or both of Trinidad and Tobago's Petroleum Stabilization Fund implemented in July 2004, and Venezuela's Energy Co-operation Agreement (PetroCaribe) established in June 2005. PetroCaribe, in particular, has been supported by CARICOM member states with the exception of Barbados and Trinidad & Tobago. Dominica is a signatory of the PetroCaribe Agreement.

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<sup>14</sup> US EIA West Texas Intermediate crude oil future price, January 7, 2014.

<sup>15</sup> Trinidad & Tobago, an oil-producing CARICOM country, uses mostly natural gas for its electricity production

<sup>16</sup> CARICOM is comprised of 15 member and 5 associate member states

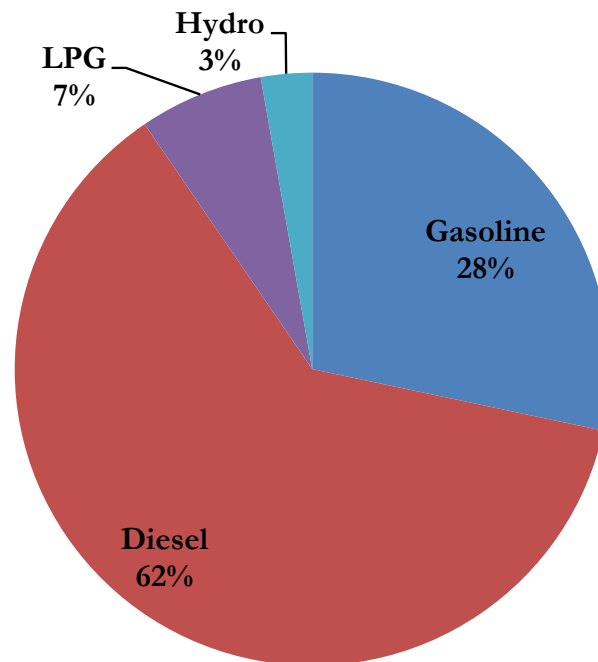
<sup>17</sup> CIA World Fact Book; data is for most recent year available

<sup>18</sup> US EIA figures for most recent year available for: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.

### B.3 Energy Supply and Consumption in Dominica

Dominica is highly dependent on oil and that dependence is growing. Excluding wood-fuel and other biomass sources<sup>19</sup>, Dominica's total (primary and secondary<sup>20</sup>) energy supply in 2012 was approximately 48,000 Tonnes of Oil Equivalent (TOE). Of this, hydro accounts for 3 percent, down from 8.5 percent in 2002. The small amount of solar PV electricity generated represents less than .01 percent of total energy supply. Figure B.2 presents Dominica's energy sources by share (not including solar PV due to its negligible amount).

**Figure B.2: Dominica Total Energy Supply in 2012**



Source: Ministry of Public Works, Energy, and Ports and DOMLEC

Table B.1 presents Dominica's total energy supply by year.

**Table B.1: Dominica Total Energy Supply (TOE<sup>21</sup> 2004 – 2012)**

Source	2004	2005	2006	2007	2008	2009	2010	2011	2012
Gasoline	14,718	15,036	14,029	12,853	14,288	12,191	12,497	15,786	13,595
Diesel	20,699	23,588	24,822	22,932	27,092	37,971	34,613	30,056	29,824
Kerosene	862	1,060	1,198	1,598	1,484	804	*	*	*
LPG	2,862	3,099	2,907	2,760	2,570	3,085	3,109	3,432	3,239

<sup>19</sup> No data on fuelwood and biomass resources are compiled by the Central Statistics Office.

<sup>20</sup> By definition, Dominica consumes only a small amount of primary energy, as most of its energy is imported directly in the form of petroleum products (secondary energy sources) that are derived from oil.

<sup>21</sup> The only primary energy included in the chart is hydro energy. Liquid petroleum product fuels are secondary energy sources. The calculation of the quantity of hydropower in TOE is made by multiplying the number of hydro kWh generated by the conversion factor (1 kilowatt hour = 0.000 085 984 522 786 tonne of oil equivalent)

Hydro	2,901	2,397	2,390	1,882	1,767	1,333	1,278	1,278	1,333
<b>Total</b>	<b>42,042</b>	<b>45,179</b>	<b>45,347</b>	<b>42,024</b>	<b>47,201</b>	<b>54,115</b>	<b>51,497</b>	<b>50,552</b>	<b>47,991</b>

Notes: Includes primary and secondary energy, excluding biomass; 2009 gasoline consumption is an estimate to account for data inaccuracies; kerosene imports records for 2009-2012 are unavailable; diesel figure also includes bunker fuel.

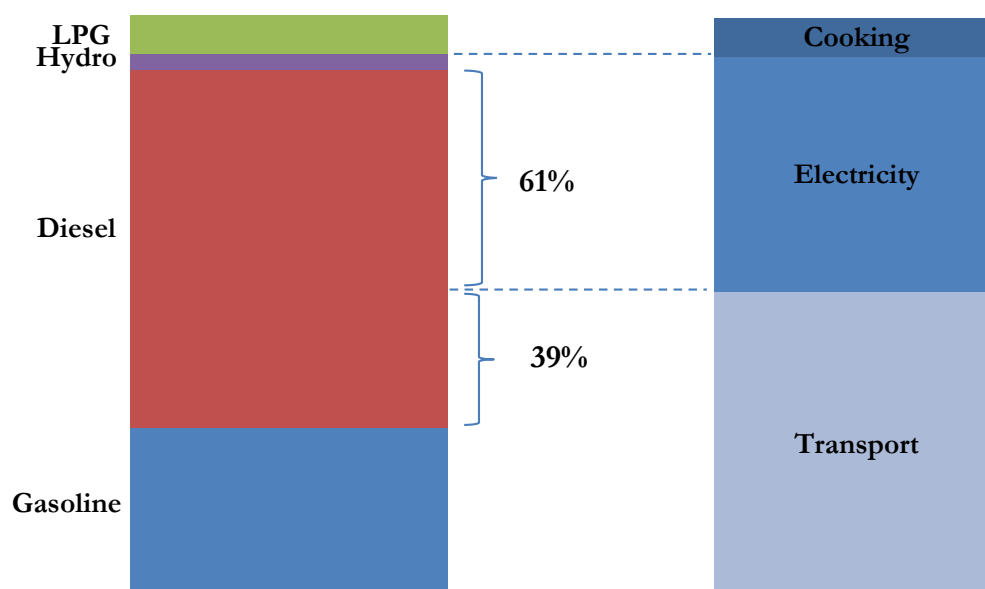
Sources: Central Statistics Office; Dominica Electricity Services Ltd

Seven importers of petroleum products are responsible for the importation and supply of the full range of oil and gas used on Dominica including aviation fuel, diesel, gasoline, LPG, and bunker fuel. This fuel is refined in Trinidad, Curacao, Venezuela, and Panama. Methyl tertiary butyl ether (MTBE) is added to gasoline in a typical ratio of 4 to 5 percent. Sulphur content in diesel may range from 0.1 percent to 0.5 percent. Gasoline is usually between 92 to 95 octane.

Government currently controls the price of fossil fuels on the local market. The importers and retailers operate under fixed pricing schemes which are determined by the Ministry of Trade, Industry, Consumer and Diaspora Affairs. The schemes establish wholesale and retail prices under which the importers and retailers must operate and also ensure that local retail prices to the consumer reflect price changes in the international marketplace.

Dominica's energy consumption is dominated by transportation, which accounted for 52 percent of all energy consumed in 2012. The second main consumer is the power sector, with approximately 41 percent of the total consumption. Cooking makes up the rest of the total consumption. Figure B.3 presents Dominica's energy supply use and the final end use of its energy sources.

**Figure B.3: Dominica Energy Supply and End Use**



Sources: Central Statistical Office, DOMLEC



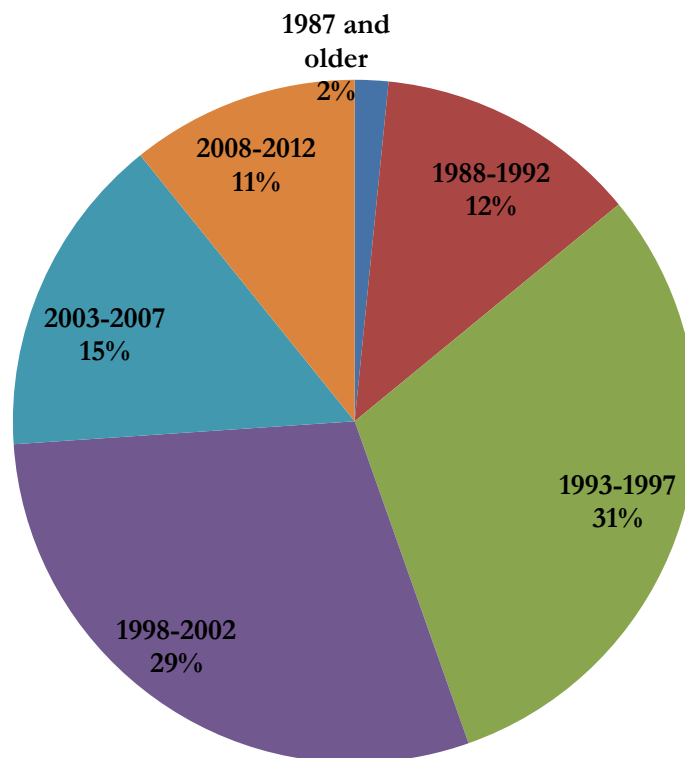
## B.4 The Transport Sector

The topography of Dominica presents challenges to the planning and organization of a public transport sector. Nonetheless, Government recognizes the role of transport and logistics in national development.

There were approximately 23,500 registered vehicles in Dominica in 2011.<sup>22</sup> It is estimated that 25 percent of registered vehicles are cars, 30 percent are SUVs, 35 percent are pickups, and the remainder are buses and heavy trucks.<sup>23</sup> Sales of new cars average about 300-350 per annum, while about 600 second-hand cars are imported annually. On average these cars are 5-12 years old. Vehicles over 5 years old attract an environmental levy on importation. There are no clear numbers for the split between gasoline and diesel powered vehicles. Local drivers prefer vehicles powered by gas including those used for taxis and public transport vans. In the tourism sector, approximately 70 percent of public taxis are 13-seater mini buses.

Older imported vehicles are likely to be less fuel efficient than a new vehicle of the same type and engine size. The country's vehicle stock is largely composed of older, less efficient vehicles, as shown in Figure B.4.

**Figure B.4: Share of 2012 Vehicle Registrations by Year of Manufacture (%)**



Source: Energy Unit

<sup>22</sup> World Health Organization Data

<sup>23</sup> Based on a random sample of vehicles registered in 2012.

The use of older, less fuel-efficient vehicles increases fuel imports and consumption, as well as increasing greenhouse gas emissions.

## B.5 The Power Sector

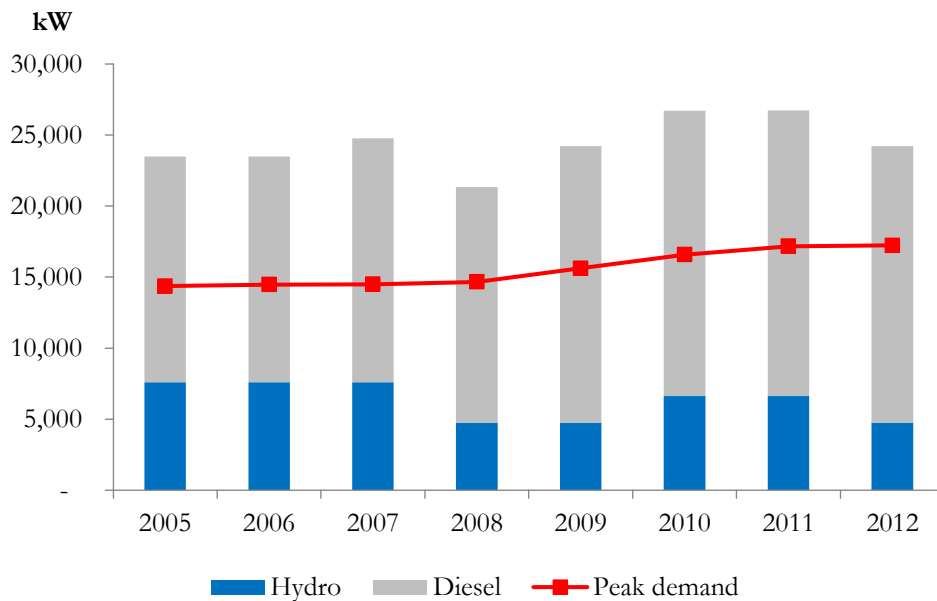
The power sector in Dominica is dominated by a single electric utility, Dominica Electricity Services Limited (DOMLEC). It is a vertically integrated utility which is licensed to generate, transmit, and distribute electricity. It also purchases electricity from several small independent power producers. Previously, DOMLEC’s licence was exclusive, but since the passage of the new ESA in 2006, the Independent Regulatory Commission (IRC) may licence other generators.

DOMLEC was incorporated as a limited liability company in 1975. After several changes in ownership since then, the company is now a majority privately-owned utility, In April 2013, Light and Power Holdings Ltd. (LPH) of Barbados purchased a 52 percent shareholding of DOMLEC from WRB. Dominica Social Security holds 21 percent of shares, and the remaining 27 percent are held by the general public.

DOMLEC operates three hydro-electric power stations (Laudat, Trafalgar and Padu) and two diesel power stations at Fond Colé and Sugar Loaf. Installed hydro capacity in 2012 was 6.64 MW, which is about 25 percent of the total installed capacity. Hydro capacity in the dry season is reduced to 3.2 MW and is then about 12 percent of the total system capacity. Total diesel generation capacity was 21.1 MW.

The hydro, diesel, and total available capacity and the peak demand over the period from 2005 to 2012 are shown in the graph at Figure B.5.

**Figure B.5: Peak Demand and System Generating Capacity (2005 – 2012) kW**

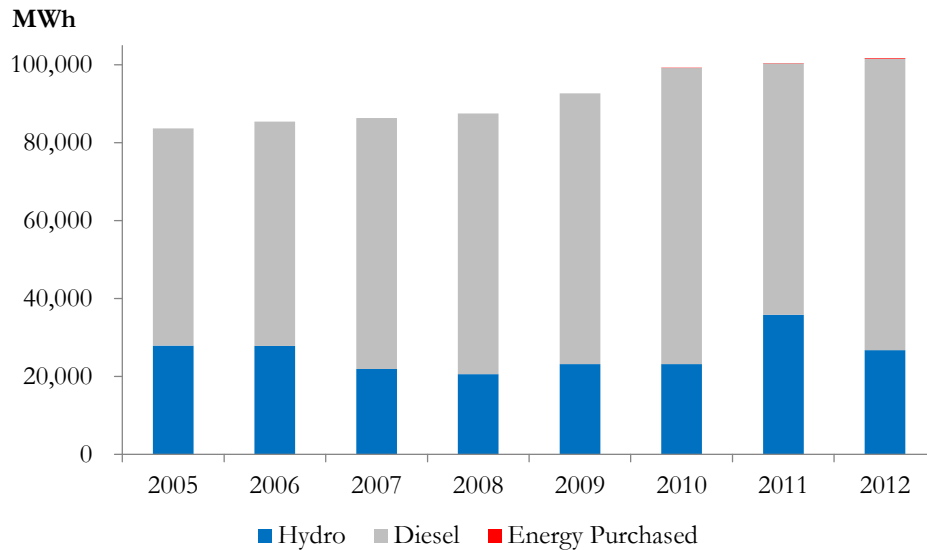


Source: DOMLEC

Hydroelectric power accounted for 26 percent of gross generation in 2012. This proportion was down from 44.8 percent in 2002, due to increased demand for electricity, which has had to be

supplied by additional diesel generation. Historic shares of gross generation are shown in Figure B.6.

**Figure B.6: Gross Generation by Energy Source**



Source: DOMLEC

Dominica’s power sector has undergone significant regulatory changes in recent years. Under the provisions of the Electricity Supply Act of 2006 DOMLEC is now regulated by the Independent Regulatory Commission (IRC). It was granted an exclusive license for power production and distribution up to year 2015. As of January 1, 2014, DOMLEC is governed by a new 25-year license to generate, transmit, and distribute electricity.<sup>24</sup> The licence period allows DOMLEC to make long-term investments in accordance to the electric power sector’s 20-25 year investment cycle.

In addition, the Electricity Supply Act of 2006 allows for private entities to be licensed to self-generate power and to supply power to the grid. Several of DOMLEC’s larger customers self-generate and there was 15MW of registered diesel self-generation capacity on Dominica as of 2012.<sup>25</sup> Self-generators choose to use their own power supply because of the high price of power supplied by DOMLEC and inconsistent power supply during recent years. DOMLEC is making efforts to address the concerns of its commercial customers and has achieved some success with generation reliability since the addition of new units in 2009. Currently, complaints are mainly due to transmission and distribution problems which are usually corrected within a few days.

Beyond conventional self-generation, the IRC has approved guidelines for the development and operation of small renewable energy systems such as wind and solar photovoltaic system, including a policy for interconnection. As of March 2012 there were three licensed grid connected renewable energy systems: a 225kW wind turbine at Rosalie Bay Resort, a 9kW solar

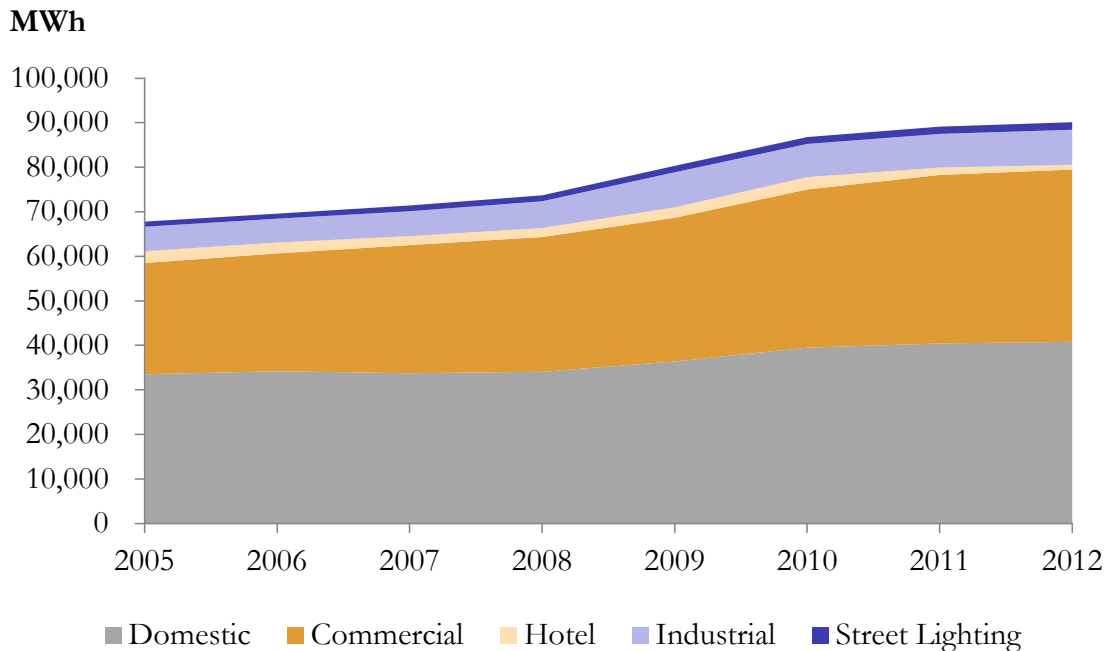
<sup>24</sup> Full license available at the Independent Regulatory Commission website: Document Reference #: 2012/003/D

<sup>25</sup> Independent Regulatory Commission. “2012 to 2020 Integrated Resource Plan for the Commonwealth of Dominica.” May 2012.

array at a home in Castle Comfort and a 50kW solar array at the Brizee Mart facility in Canefield.<sup>26</sup>

Electricity consumption in Dominica is dominated by the household sector, which accounted for 45 percent of all electricity sold in 2012, down from a high of 52.5 percent in 2003. The relative consumption of the commercial sector has been growing in recent years and commercial sales (which include government accounts) accounted for 43 percent of total sales in 2012. The balance is made up of industrial (9 percent), hotels (1 percent), and street lighting (2 percent).

**Figure B.7: Electricity Sales in Dominica by Sector (MWh)**



Source: DOMLEC

**Electricity Prices**—The retail price of electricity<sup>27</sup> in Dominica averaged EC\$1.11 per kWh in 2012 (US\$0.41), among the highest in the Caribbean. This price includes a value added tax of 15 percent. The cost of diesel fuel and the cost of transmitting and distributing electricity over Dominica’s rugged terrain both contribute to the high retail tariff.

The retail price of electricity provided by DOMLEC to its customers is comprised of an energy charge<sup>28</sup> per kWh of electricity consumed, a fuel surcharge per kWh of electricity consumed, and a service charge (for commercial, industrial and hotel customers only) per kVA of installed capacity. The fuel surcharge is a cost recovery mechanism used by most Caribbean utilities since the extreme fuel price volatility that followed the global oil price shocks of 1973 and 1979. The fuel surcharge accounted for about 41 percent of the retail price of electricity in 2012 (averaged over the year).

<sup>26</sup> Independent Regulatory Commission. “2012 to 2020 Integrated Resource Plan for the Commonwealth of Dominica.” May 2012.

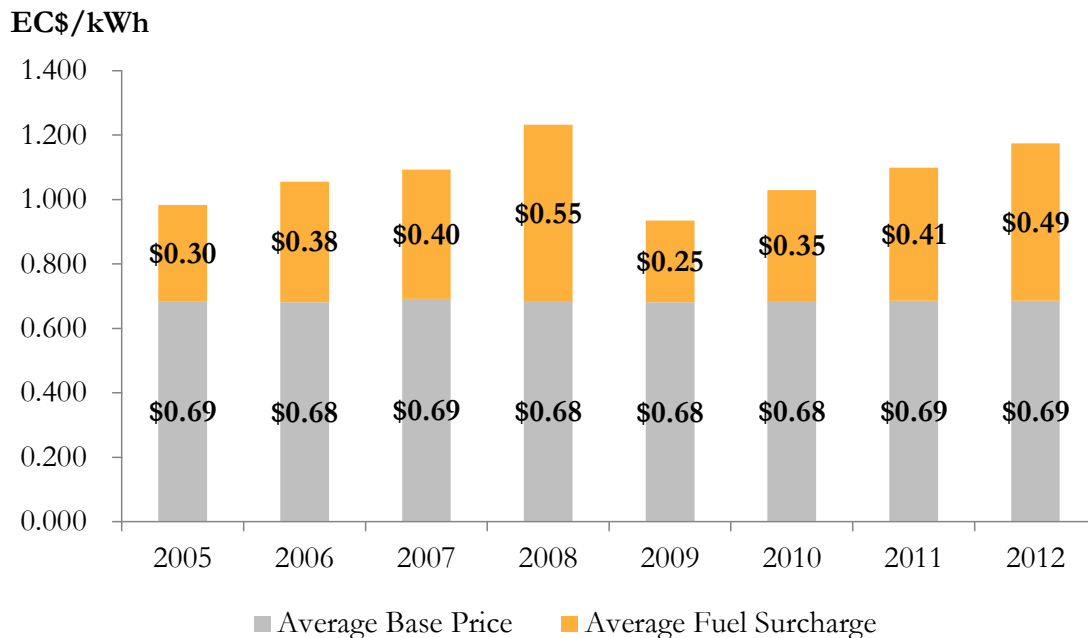
<sup>27</sup> Calculated as (aggregate sales revenue divided by total number of units sold).

<sup>28</sup> Sometimes referred to as the “base charge.”

The domestic energy tariff contains two rates, the higher rate being charged for monthly consumption above 51 kWh. The lower rate was implemented to provide a subsidy to the lowest-income (and therefore the lowest-consuming) domestic customers. The first 100 kWh is free of VAT. The average consumption of domestic consumers in 2012 was 111 kWh per month.

The industrial tariff differentiates simply between a day rate (from 6 am to 10 pm) and a lower, night rate (10 pm to 6 am). The service charge is a demand charge, the purpose of which is to recover DOMLEC's cost of having capacity available to service the instantaneous demand of its non-domestic customers. Commercial and hotel customers also pay a service charge per kVA of installed capacity, plus a base rate and fuel surcharge.

**Figure B.8: Average Electricity Price Showing Fuel Surcharge Amounts (EC\$/kWh)**



Source: DOMLEC. Base price shown includes service charges

**Regulation**—Government has already established a transparent regulatory framework for the electricity sector. The IRC is empowered under the Act to implement a licensing regime which will require it to licence all industry participants involved in the following activities:

- Electricity generation in excess of 20kW
- Electricity distribution and supply
- Electricity transmission
- System operation
- Trading
- Electrical installation/wiring

The IRC has ultimate authority over the relationships between Government, DOMLEC, independent power producers (IPPs), and consumers. However, DOMLEC may negotiate commercial arrangements with IPPs. Government expects that policy development will diminish uncertainty amongst these stakeholders and will put in a place a strong, equitable, and transparent legislative structure to govern and regulate the electricity sector for the benefit of all stakeholders. To further this goal Government will ensure that the IRC develops into a robust entity with demonstrable and quantifiable benefits to the country and which becomes a model of best practices capable of replication outside of Dominica, in the other countries of the OECS.

The Government is conscious of the small customer base, the topography of the country, the resultant cost of investment, and the challenge these factors present to the financial viability of any electrical utility operating in Dominica. Therefore the Government will ensure that the customer base and commercial viability of the electrical utility are not undermined.

In the new policy matrix, the foregoing considerations will be shaped by the imperative of reducing electricity costs and tariffs, moving to a renewable energy platform, and Government's desire to ensure that the level of competition which is practical in the context of the Dominican market is achieved.

Government recognizes the value of investors and the need to create a supporting environment and culture to attract investment. Government also has a corollary responsibility to protect consumers and ensure that the supply of electricity meets that of international standards. Government will therefore hold all operators and service providers within the electricity sector to high regulatory and quality standards and the delivery of an uninterrupted power supply.

## **B.6 Sustainable Energy in Dominica**

Dominica has significant renewable energy resources, some of which are already in use. It may be possible to replace a large portion of imported fossil fuels with renewable energy using existing renewable energy technologies. The most promising resources are geothermal, hydro, solar, and wind. Biofuels and biomass sources may also exist but are not projected to be economically viable at this time.

Government has determined that renewable energy technologies will be pursued in an order of priority which ranks geothermal as number one, followed by hydro, solar, wind, biofuels, biomass and OTEC. If appropriate, cost benefit analyses will be conducted to determine the potential of each of these sources. The significant renewable resources are discussed in turn:

**Geothermal**—Dominica is ranked number one for geothermal potential<sup>29</sup> among the islands of the Lesser Antilles. To date, several estimates of the island's geothermal potential have been made. Preliminary estimates (Huttrer, 1998) indicate a geothermal resource of up to 1,390 MW. Recent test drilling has confirmed a resource of over 100MW in the Roseau Valley. 100MW would be sufficient to supply Dominica's entire power demand for the foreseeable future and to provide a sizable surplus for export via submarine transmission to Martinique and Guadeloupe.

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<sup>29</sup> This information was provided by Herve Traineau of CG, a subsidiary of BRGM, at a press conference of December 3<sup>rd</sup> 2009, at which a 5 month study of the geothermal potential of the Wotten Waven area was presented.

The specific policy directive of the Minister of Energy of Dominica is<sup>30</sup> that “*the Government of Dominica wants to see energy as a commodity with export potential.*” In accordance with this vision, the Government is engaged in geothermal energy exploration activities.

A project in the Wotten Waven area financed under the European Union (EU)-funded Geo-Caraibes Project is underway. Three test wells drilled in 2012 indicate a geothermal power production capacity of at least 100MW. Drilling production and reinjection wells began in late-2013. When this drilling is complete, it will be possible to begin construction of a power plant. The Government’s objective is to first construct a 10-15MW power plant to serve the domestic market, and later to develop a 100MW plant to export power to Guadeloupe and Martinique via submarine cables.

**Hydro**—Hydro power is currently used in Dominica. Since 2003, there have been several interventions on hydro power development performed by CREDP/GTZ, including:

- Revision of existing hydropower plants (2003/2004)
- Undertaking pre-feasibility studies on rehabilitation and upgrading of the hydro power stations new Trafalgar, old Trafalgar, and Padu (2005)
- Reviewing the New Town hydro power project proposal with DOMLEC (2005)
- Identifying new hydro power sites in rivers, proposing gauging stations and flow measurements (2006), and,
- Providing advice to DOMLEC on river gauging for new hydro sites (including visits to new hydro sites with DOMLEC, 2009).

DOMLEC currently has 6.6 MW of hydro capacity and another 10 to 30 MW of hydro potential are available<sup>31</sup> for exploitation. Three of DOMLEC’s five hydro units have been refurbished since 2010.

**Solar**—Dominica enjoys high levels of solar radiation, in the order of 5 to 6 kWh/m<sup>2</sup>/day. This is more than sufficient to provide effective, widespread and economical use of solar thermal energy. Solar water heating is already used to providing hot water to private residences, hotels and other commercial buildings, but is not widespread.

A few privately owned solar photovoltaic (PV) installations are connected to the grid. Private businesses are importing PV panels on the island, so that amount of grid connected PV is expected to grow quickly.

**Wind**—Preliminary wind regime data<sup>32</sup> presented by DOMLEC indicate that Dominica’s general wind regime is likely to be consistent in direction and intensity, but that the wind speeds may not be particularly high. Two wind turbines have been erected by private companies—a 1 kW unit in 2002 and a 225 kW unit in 2008—and only the larger one is grid connected. Focus on

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<sup>30</sup> Comments made by Hon Charles Savarin, Minister for Public Utilities Energy and Ports, at stakeholder consultations on Dominica’s Sustainable Energy Policy, March 23 & 24, 2009. This is a policy position taken by the Government and is not restricted to the singular view of the Minister who made the pronouncement.

<sup>31</sup> Report on Hydropower Assessment Dominica; Martin Roth for Government of the Commonwealth of Dominica, on behalf of CREDP-GTZ, December 2003

<sup>32</sup> DOMLEC presentation *Sustainable Energy on the Nature Island*, Collin Cover, 25 March 2009. Presented at the OAS/Government consultation on a National Energy Policy and Sustainable Energy Plan for Dominica

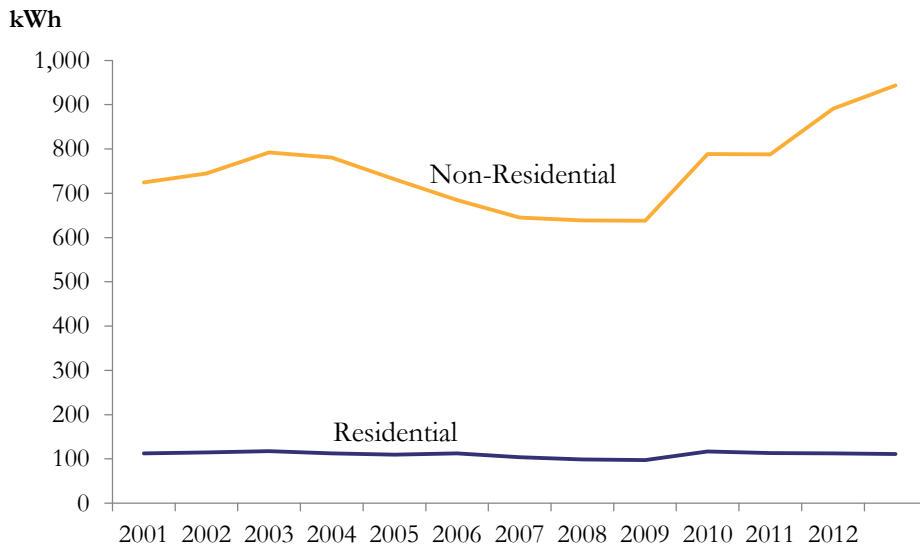
geothermal power generation has made exploration of wind a lower priority for Government and DOMLEC.

**Energy Efficiency & Conservation**—Government has launched an initiative to install LED streetlights in Dominica. The first light installations were begun in late-2013, with more planned for 2014. In 2007, Government implemented a Cuban-sponsored light bulb replacement programme that replaced 280,000 incandescent light bulbs in households with energy-efficient compact fluorescent bulbs.

DOMLEC’s supply-side energy efficiency results over the period have been only somewhat successful. On the generation side, fuel efficiency has not improved significantly in recent years, but DOMLEC has successfully reduced its distribution losses from over 18 percent (of gross generation) in 2000 to 9 percent as at the end of 2012.

DOMLEC has no specific demand-side energy efficiency plan in place. Despite the lack of a targeted approach to demand-side energy efficiency, the average monthly consumption of DOMLEC’s residential customers has essentially remained flat since 2001. Non-residential consumption has climbed in recent years, despite high energy prices. Figure B.9 compares residential and non-residential average monthly consumption.

**Figure B.9: Comparing Average Monthly Consumption by Customer Type (kWh)**



Source: DOMLEC



## Appendix C: Key Energy Stakeholders

Access to energy is critical to life, quality of life and development. Framed in this way all individuals and entities in a society are, at some level, a stakeholder with Government. In fact, anyone who pays for energy would resent being excluded from the list of stakeholders.

The key energy stakeholders in Dominican society are:

- Government
- Importers of petroleum products
- DOMLEC
- The Dominica Association of Industry and Commerce
- The Dominica Taxi Association
- The Dominica Hotel and Tourism Association
- Environmental associations
- Dominican households.

Each of these groups has an interest in the development of a National Energy Policy and strategy and a role to play in its successful implementation.

The Government will establish a National Energy Committee comprising representatives of the Ministry of Public Works, Energy and Ports, national stakeholders as identified, and such consultants, technical experts and invitees, as the Minister determines, in order to discuss issues of mutual concern, send representation on energy policy issues to Government and to review the implementation of the National Energy Policy.

## Appendix D: Strengths, Weaknesses, Opportunities, and Threats

The identification of the energy sector’s strengths and weaknesses represents the internal assessment of the sector issues while the consideration of the likely opportunities and threats represents the analysis of the impact on the sector of the external environment.

The SWOT analysis, when considered with the energy sector situation presented in Appendix B, allows the identification of the goals and policy actions that can be employed to foster the strengths of the sector, address the weaknesses, capitalize on the opportunities and mitigate the threats to the long-term development of the sector.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>▪ Has good proven renewable energy resources, particularly in the form of geothermal, solar, and hydro energy</li> <li>▪ Has experience with operating hydro plant over several decades</li> <li>▪ Geothermal drilling is ongoing</li> <li>▪ Has an established network of petroleum suppliers and distributors</li> <li>▪ Has a well-established power production and distribution system with more than 95 percent of the population having access to electricity</li> <li>▪ Relatively low electricity distribution losses by Caribbean standards (approximately 9 percent).</li> <li>▪ Has a well-defined regulatory framework for the electricity sector, founded on the Electricity Supply Act of 2006, which has established the principles of market liberalization including an independent regulator.</li> <li>▪ Government oversight of the electricity and energy sectors</li> <li>▪ Public trading of electrical utility shares on the Eastern Caribbean Stock Exchange</li> </ul>	<ul style="list-style-type: none"> <li>▪ Growing dependence on imported fossil fuels</li> <li>▪ No known fossil fuel resources</li> <li>▪ High and growing energy import bill</li> <li>▪ High cost of electricity (the highest in the OECS)</li> <li>▪ Lack of a well-defined institutional structure for planning and implementing renewable energy projects</li> <li>▪ Lack of a well-organised data-gathering infrastructure for energy supply and consumption data</li> <li>▪ Electricity system fuel efficiency is low (unchanged since 2001)</li> <li>▪ Large stock of old, inefficient motor vehicles</li> <li>▪ Rugged terrain imposes constraints on physical development and maintenance of electricity and road networks</li> </ul>
Opportunities – External Environment	Threats – External Environment
<ul style="list-style-type: none"> <li>▪ Existence of proven technologies to exploit geothermal and other renewable energy sources</li> <li>▪ Favourable relations with energy-rich countries in the Caribbean and Latin America</li> <li>▪ Favourable and on-going relations with multilateral development institutions</li> <li>▪ On-going international interest in geothermal energy investments in Dominica</li> </ul>	<ul style="list-style-type: none"> <li>▪ Continued high dependence on imported petroleum products</li> <li>▪ Continued volatility and long-term upward trend of oil prices</li> <li>▪ Dominica’s status as a price-taker</li> <li>▪ Potential impact of natural hazards on the energy sector</li> <li>▪ Geo-political influences on international energy</li> </ul>

<ul style="list-style-type: none"> <li>▪ Potential to earn carbon credits for utility-scale renewable energy projects</li> <li>▪ PetroCaribe and the ALBA represent a means of financing of energy products and services</li> </ul>	<p>supply and demand</p> <ul style="list-style-type: none"> <li>▪ Potential impact on local economy of high energy prices</li> <li>▪ Potential impact on international economic competitiveness caused by chronically high energy costs and inefficient energy use</li> <li>▪ Continued global economic stagnation and pressure on financing for renewable energy projects</li> <li>▪ The accumulation and deferral of debt as provided for under the terms of PetroCaribe have the potential to adversely affect national debt management strategies and ultimately impact on sustainable economic development.</li> </ul>
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