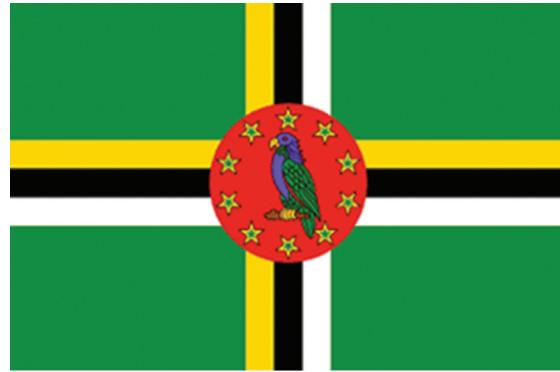


# DRAFT NATIONAL ENERGY POLICY

DECEMBER 2011



**Prepared by the Department of Sustainable Development of the General Secretariat of the Organization of American States with the expert advice of the Isada Consulting Group, Independent Consultant Mr. Basil Sutherland, and Castalia LLC under the European Union funded initiative “Caribbean Sustainable Energy Program (CSEP)”.**  
The views expressed herein are presented for informational purposes only and do not represent the opinions or official positions of the European Union, the Organization of American States, its General Secretariat, or any of its member States.

**DRAFT**

# TABLE OF CONTENTS



<b>1. RATIONALE FOR THE NATIONAL ENERGY POLICY .....</b>	<b>1</b>
<b>2. OBJECTIVES OF THE NATIONAL ENERGY POLICY .....</b>	<b>1</b>
<b>3. SPECIFIC POLICIES FOR ENERGY TRANSFORMATION AND USE .....</b>	<b>2</b>
<b>3.1 Policy for Fossil Fuels Management .....</b>	<b>2</b>
<b>3.2 Policy for Electricity Supply.....</b>	<b>2</b>
<b>3.3 Policy for Energy Efficiency and Conservation .....</b>	<b>4</b>
<b>4. POLICIES SPECIFIC TO END-USE SECTORS OF THE ECONOMY ..</b>	<b>5</b>
<b>4.1 Transport Sector.....</b>	<b>5</b>
<b>4.2 Agricultural Sector.....</b>	<b>5</b>
<b>4.3 Industrial and Commercial Sector.....</b>	<b>6</b>
<b>4.4 Domestic Sector .....</b>	<b>6</b>
<b>4.5 Tourism and Hospitality Sector.....</b>	<b>7</b>
<b>5. POLICY ON INSTITUTIONAL STRENGTHENING AND FUNDING .....</b>	<b>7</b>

## APPENDICES

<b>APPENDIX A: COUNTRY PROFILE .....</b>	<b>8</b>
<b>APPENDIX B: OVERVIEW OF THE ENERGY SITUATION .....</b>	<b>10</b>
<b>APPENDIX C: KEY ENERGY STAKEHOLDERS .....</b>	<b>24</b>
<b>APPENDIX D: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS .....</b>	<b>24</b>

(continued)

# TABLE OF CONTENTS

(continued)

## TABLES

<b>Table 1.1:</b> Dominica Key Country Data .....	9
---	---

<b>Table B.1:</b> Dominica Total Energy Supply (TOE 2000 – 2008) .....	10
--	----

## FIGURES

### **Figure B.1:**

Primary Energy Consumption by Source and Sector, 2010 (Quadrillion Btu) .....	10
--	----

<b>Figure B.2:</b> Dominica Total Energy Supply in 2008 .....	12
---	----

<b>Figure B.3:</b> Dominica Energy Supply and End Use .....	14
---	----

<b>Figure B.4:</b> Motor Vehicle Stock in Dominica .....	15
--	----

### **Figure B.5:**

Peak Demand and System Generating Capacity (2001 – 2010) kW.....	16
---	----

<b>Figure B.6:</b> Percentage of Gross Generation by Energy Source.....	17
---	----

<b>Figure B.7:</b> Electricity Sales in Dominica by Sector (%) .....	19
--	----

### **Figure B.8:**

Average Electricity Price Showing Fuel Surcharge Amounts (EC\$/kWh) .....	20
--	----

### **Figure B.9:**

Average Monthly Consumption by Customer Type (kWh) .....	23
--	----

# 1 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. Additionally, there is deep concern about the impact of climate change resulting from greenhouse gas emissions on Dominica, the Caribbean, and small island states in general. Climate change can increase the frequency of extreme weather events such as devastating hurricanes, cause coastal degradation, and affect plant and animal life. As a result, the Government of Dominica has decided to develop a strategic approach to energy generation and management that will lower costs and 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
- ◆ 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.

# 2 OBJECTIVES OF THE NATIONAL ENERGY POLICY

**THE POLICY REPRESENTS THE DESIRE OF THE DOMINICAN PEOPLE TO** improve their country for this generation and future generations.

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

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 usage, 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 or usage.

- ◆ 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 which can produce electricity cheaper 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.

**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.

### 3.1 Policy for Fossil Fuels Management

Currently in Dominica, fossil fuel storage is 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:

- ◆ Rationalising bulk storage facilities and providing adequate incentives and develop the necessary framework and reforms for fossil fuel storage capacity to allow for emergencies and late shipments;
- ◆ 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; and
- ◆ Setting national standards for fuel quality and seeking regional harmonization throughout the Organization of Eastern Caribbean States.

### 3.2 Policy for Electricity Supply

Currently in Dominica, electricity supply is provided by hydropower and diesel generation. Hydropower represents 21 percent of installed capacity, and, in 2010, it was responsible for 30 percent of electricity generation. The remaining capacity and generation is supplied by expensive, diesel powered generators. As a result, electricity tariffs in Dominica are above global norms, averaging EC\$1.07 per kWh in 2010.

- 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 efficient use of imported fossils fuels, and Dominica's domestic renewable energy resources.

## SPECIFIC POLICIES FOR ENERGY TRANSFORMATION AND USE



The Government will implement its policy for electricity supply by:

- ◆ Providing incentives to electricity generators, transmitters, and distributors to improve efficiency;
- ◆ Extending electricity supplies 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 to the national electricity system;
- ◆ Facilitating the development of small renewable distributed generation capacity;
- ◆ Ensuring the development of local expertise to install, operate, manage, and maintain renewable distributed generation systems;
- ◆ Designing and implementing a national programme of education and awareness in renewable energy.

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

- ◆ **Hydro**—The policy for hydro-power development includes:
  - continuing the assessment of hydropower resources by coordinating the efforts of the Ministry of Agriculture and Forestry, DOMLEC and 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
- ◆ **Geothermal**—The policy for geothermal power development includes:
  - continuing exploration of geothermal potential, including addressing concerns about reliability of geothermal and impacts on hot springs
  - implementing appropriate agreements with developers, financiers, electricity purchasers, and other relevant stakeholder for developing the plant, selling the electricity produced at the plant, and transporting the electricity
  - training geothermal technicians by December 2012 through a regional training program
- ◆ **Solar**—The policy for solar-power development includes:
  - encouraging the installation of solar energy technologies on all new public sector buildings, commercial buildings, and residences
- ◆ **Wind**—The policy for wind-power development includes:
  - continuing the assessment of wind resources
  - implementing the appropriate arrangements for the exploitation of wind resources for provision of electricity for local consumption, where this is likely to be least cost

### 3.3 Policy for Energy Efficiency and Conservation

In recent years, Dominica has experienced several small scale attempts to increase energy efficiency. For example, in 2007 the Government replaced 280,000 incandescent light bulbs with compact fluorescent light bulbs. The Government is looking to build on that success with further initiatives in energy efficiency and demand-side management.

**It is the Government's policy to rationalize the country's overall rate of energy consumption 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 energy efficiency and the energy consumption of appliances;
- ◆ Establishing standards for energy efficiency in buildings, where they do not currently exist, that will inform the design and construction 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 with energy efficient equipment;
- ◆ Reporting progress on energy efficiency in national economic reports and statistics.



# 4 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 three that directly affect the sectors of the economy listed below. (Sector policies that are components of one of the national policies already described are denoted in parentheses.)

## 4.1 Transport Sector

The transport sector in Dominica suffers from two main impediments 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, high cost, and emits more greenhouse gases than necessary.

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

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

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

## 4.2 Agricultural Sector

The agricultural sector represents 30 percent of Dominica's GDP. Improvements in sustainability in the agricultural sector are important to overall sustainability gains in Dominica.

**It is the Government's policy to encourage the use of sustainable practices in agriculture which provide economic benefits 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).

#### 4.3 Industrial and Commercial Sector

The commercial sector accounts for nearly 40 percent of electricity sales in Dominica. The industrial sector in Dominica is responsible for only 8.5 percent of electricity consumption in Dominica. However, it has growth potential, particularly if the cost of electricity is reduced as a result of this policy. Therefore, it is important to consider measures that will promote sustainability in this sector.

**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 sector 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;
- ◆ Encouraging factories and shops to produce renewable electricity and sell excess generation to the grid (Component of the Policy for Electricity Supply).

#### 4.4 Domestic Sector

The domestic sector is responsible for 45 percent of electricity consumption in Dominica. Therefore, any improvements in energy efficiency or uptake of renewable energy technology will promote Dominica's sustainability and has the potential to lower costs for households.

**It is the Government's policy that the domestic sector will 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);
- ◆ Providing incentives to facilitate the integration of efficient small renewable energy systems to the national grid (Component of the Policy for Electricity Supply);
- ◆ Directing the Ministry of Social Services, Community Development, and Gender Affairs develop and implement a programme to ensure that LPG is accessible for all persons in society, especially the most needy; and
- ◆ Providing incentives for energy efficiency audits and retrofits in homes (Component of the Policy for Energy Efficiency and Conservation).

**POLICIES SPECIFIC  
TO END-USE  
SECTORS OF THE  
ECONOMY**



**5 POLICY  
ON INSTITU-  
TIONAL  
STRENGTHENING  
AND FUNDING**

#### 4.5 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 Isle".

**It is the Government's policy that the Tourism and Hospitality sector will become part 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;
- ◆ Allowing 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 businesses;
- ◆ Encouraging hotels to become Earth Check certified.

**CURRENTLY, THERE IS NO SINGLE INSTITUTION WITHIN THE GOVERNMENT** of Dominica that oversees sustainable energy and ensures that government regulation is in line with its sustainable energy objectives.

**It is the Government's policy to integrate the capacity to ensure that government actions are in line with sustainable development objectives into an Energy Unit within the Ministry of Public Works, Energy and Ports.**

The sustainable energy component of the Energy Unit's mission will be to establish an investment and regulatory climate for developers of energy projects and technologies which will ensure Dominica's sustainable development. The Energy Unit will accomplish its mission by:

- ◆ Conducting careful economic assessments of the fiscal and economic measures required for the successful implementation of the Policy;
- ◆ Requiring project developers to conduct Environmental Impact Assessments, Social Impact Assessments, and Strategic Environmental Assessments that are in line with Environmental and Planning Regulations, as part of the planning and assessment process preceding the approval and implementation of major national projects in the energy sector;
- ◆ Capitalizing on regional relationships by working toward the implementation of regional approaches which lead to greater efficiency or cost savings in energy;
- ◆ Seeking appropriate funding to implement the Policy.

## APPENDIX A – COUNTRY PROFILE

### DOMINICA, THE “NATURE ISLE” OF THE CARIBBEAN, IS AN ISLAND OF

754 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 73,000 people. 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). 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\$10,400 and the labour force is approximately 25,000<sup>1</sup>. Economic activity includes: agriculture, (40 percent), industry (32 percent), and services (28 percent). The principal agricultural exports are bananas, citrus, mangoes, root crops, cocoa, and coconut products. The unemployment rate was estimated to be about 14 percent in 2009<sup>2</sup>. Inflation in 2010 was estimated to be about 3.2 percent<sup>3</sup>.



<sup>1</sup> US Central Intelligence Agency (CIA) World Factbook 2010 Estimate

<sup>2</sup> Public Information Notice of IMF Article IV Consultation (PIN) No. 11/110 August 4, 2011 which is available at <http://www.imf.org/external/np/sec/pn/2011/pn1110.htm>

<sup>3</sup> US Central Intelligence Agency (CIA) World Factbook 2010 Estimate.

## APPENDIX A – COUNTRY PROFILE

Electricity production was 99,181 MWh and consumption was 86,775 MWh in 2010. A total of 33,986 customer accounts were being supplied by the national grid at the end of 2010, inclusive of commercial, industrial and street lighting consumers. Of this amount, about 29,000 were domestic customers.

The island consumes 900 barrels (bbl) of crude oil equivalent each day, all of which are imported.

Key data about Dominica is summarized in Table 1.1.

**Table 1.1: Dominica Key Country Data**

Population <sup>2</sup>	72,813
Population per sq. km	101 per sq. km
Population growth (%) <sup>3</sup>	0.213
Literacy rate (%) <sup>1</sup>	94
Life expectancy (years) <sup>4</sup>	75.77
Land area (km <sup>2</sup> )	751
GDP (US\$ million, PPP)	\$758 million (2010 est.) <sup>4</sup>
GDP real growth (%) <sup>2</sup>	1 (2010 est.) <sup>4</sup>
GNI per capita (US\$, PPP) <sup>1</sup>	\$4,250
Aid as share of GNI (%) <sup>3</sup>	6.4

**Sources:**

1. 2009 estimate (*CIA World Factbook*).
2. 2007 estimate (*WDI Indicators*).
3. 10-year to 2007 average (*WDI Indicators*).
4. 2010 estimate (*CIA World Factbook*).

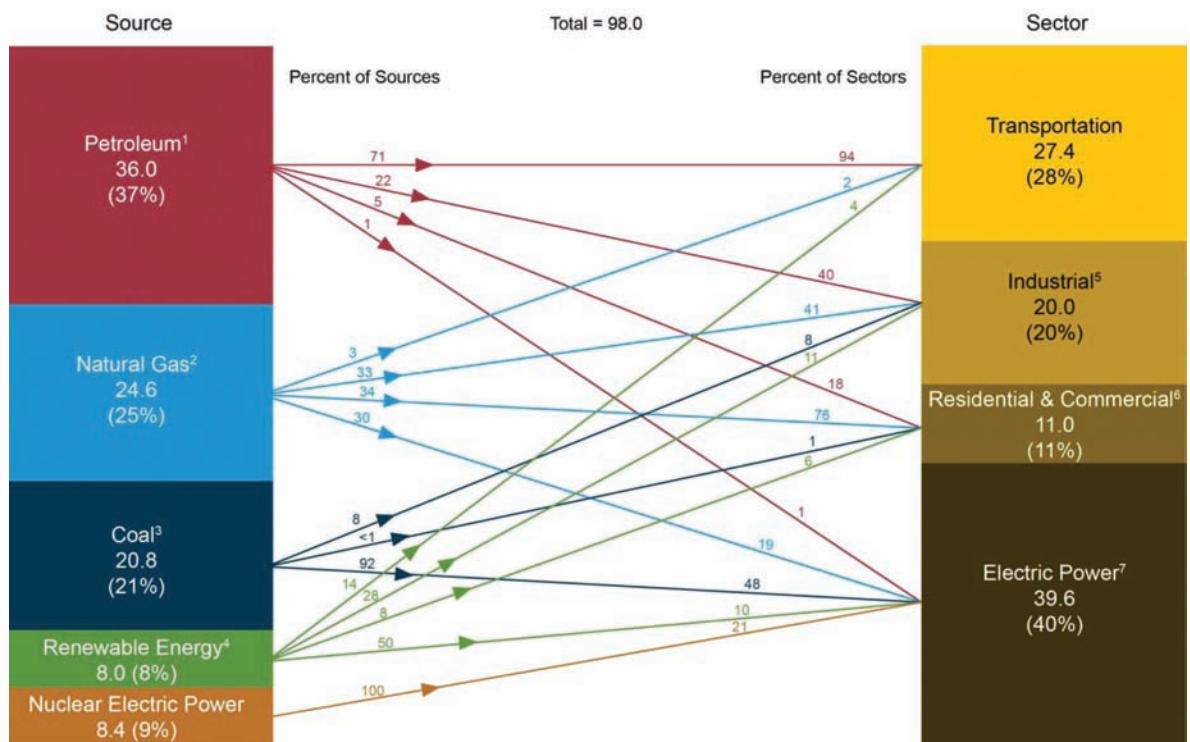
# APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

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. It is estimated that 62 percent of global primary energy consumption in 2010 was supplied by petroleum and natural gas, while the share of renewables (hydro, geothermal, wind, solar and biomass) was only about 8 percent. The balance was supplied by coal, and nuclear energy.

**Figure B.1: Primary Energy Consumption by Source and Sector, 2010  
(Quadrillion Btu)**



1. Does not include biofuels that have been blended with petroleum—biofuels are included in "Renewable Energy"
2. Excludes supplemental gaseous fuels
3. Includes less than 0.1 quadrillion Btu of coal coke net exports
4. Conventional hydroelectric power, geothermal, solar/PV, wind, and biomass
5. Includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants
6. Includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants
7. Electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and 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 2010, Tables 1.3, 2.1b-2.1f, 10.3, and 10.4.

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

Following the crises in 1973 and 1979 that drove prices up to record levels, 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, collapsing to almost US\$40 by the end of that year end and rising again to approximately US\$80 per barrel in 2009. The price in mid-November, 2011 is just over US\$100 per barrel. Caribbean countries, like several other small non-petroleum producing countries worldwide, have had tremendous difficulty affording petroleum products at these prices. The global energy situation remains volatile and unsettled, therefore significant risk remains for vulnerable countries such as Dominica.

The likely result of this recent history and continuing volatility of future oil supply and price is yet unclear. One year ago, the International Energy Agency (IEA) advised<sup>4</sup> that, "Oil is the world's vital source of energy and will remain so for many years to come, even under the most optimistic of assumptions about the pace of development and deployment of alternative technology; but the sources of oil to meet rising demand, the cost of producing it, and the prices that consumers will need to pay for it is extremely uncertain, perhaps more than ever."

The trajectory of future global oil supply and prices is critical to the prospects for the development of a sustainable energy future for the region—and at the moment, the global energy situation is at a crossroads. On the one hand, relatively low oil prices since late 2008 have provided much needed economic relief to struggling nations. On the other hand, low oil prices may cause investments in clean energy projects and in new oil production to be deferred, leading to a global shortage of *all forms of energy* once demand resumes, causing another round of severe price increases and the concomitant economic effects. In the future, expected demand for petroleum products is likely to far exceed the supply, with dire consequences for security of supply, global oil prices, and the very survival of a region that is heavily dependent on oil. This makes it imperative that countries like Dominica move expeditiously to exploit their renewable energy potential.

### 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>5</sup> The fifteen CARICOM states<sup>6</sup> are almost entirely dependent on imported oil and gas, but their energy situations are not monolithic: Trinidad & Tobago produces a large surplus of oil and gas for export; Belize and Suriname each produce the approximate equivalent of three-quarters of their local petroleum products consumption, and Barbados produces the equivalent of about one-eighth of its local consumption. The other CARICOM countries import all of their petroleum products which are supplied mostly from refineries in Trinidad and Tobago, Curaçao, Puerto Rico, St Croix, and increasingly from Venezuela.

The recent combination of record high, volatile energy and food prices and the recession of the late 2000s have had a dramatic negative impact on the economies of several CARICOM states. Many of the member states are largely dependent on extra-regional travel and tourism for significant foreign exchange earnings.<sup>7</sup> In order to cope with the

<sup>4</sup> In its World Energy Outlook 2008

<sup>5</sup> Trinidad & Tobago, an oil-producing CARICOM country, uses mostly natural gas for its electricity production

<sup>6</sup> CARICOM is comprised of 15 member and 5 associate member states

<sup>7</sup> The World Travel and Tourism Council (WTTC) rank the Caribbean as the region of the world with the largest relative contribution of travel & tourism to its economy.

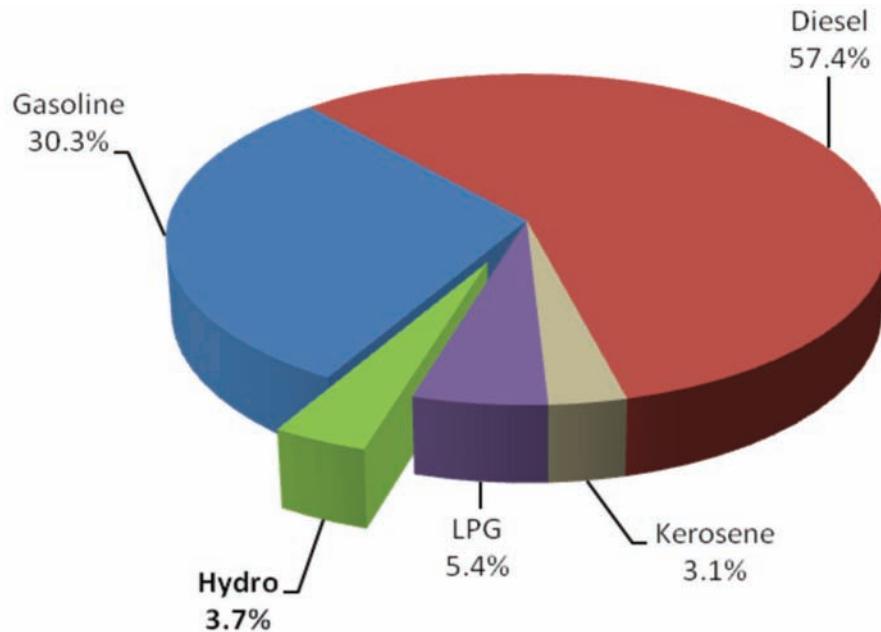
## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

negative impacts of rapidly increasing and highly volatile oil prices on their fragile economies, 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. In 2008, Costa Rica and Guatemala brought the number of PetroCaribe signatory countries to 19. Dominica is a signatory of the PetroCaribe Agreement. Together all the countries of the Eastern Caribbean currently consume about 11,000 barrels per day of oil.<sup>8</sup> Between the date of signature of the PetroCaribe Agreement in mid-2005, and the end of 2007, the debt of signatory countries to Venezuela stood at US\$1.1 billion.

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

Dominica's energy situation exhibits a high and growing dependence on oil. Excluding wood-fuel and other biomass sources<sup>9</sup>, Dominica's total (primary and secondary<sup>10</sup>) energy supply in 2008 was approximately 47,000 Tonnes of Oil Equivalent (TOE). Of this, renewable energy (hydro) accounts for 3.7 percent, down from a high of 8.5 percent in 2002. Fossil fuel consumption is 900 bbl per day of crude oil equivalent.

**Figure B.2: Dominica Total Energy Supply in 2008**



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

<sup>8</sup> PetroCaribe. "Latin America and the Caribbean Received 92,000 barrels per day of crude and products." Accessed 12/10/2011 at:

[http://www.petrocaribe.org/index.php?tpl=interface.en/design/salaprensa/home.tpl.html&newsid\\_temas=1](http://www.petrocaribe.org/index.php?tpl=interface.en/design/salaprensa/home.tpl.html&newsid_temas=1) -

<sup>9</sup> No data on fuelwood and biomass resources are compiled by the Ministry of Public Works, Energy and Ports.

<sup>10</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.

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

**Table B.1: Dominica Total Energy Supply (TOE<sup>11</sup> 2000 – 2008)**

Source	2000	2001	2002	2003	2004	2005	2006	2007	2008
Gasoline	15,261	15,223	14,091	14,677	14,718	15,036	14,029	12,853	14,288
Diesel	18,532	19,001	15,073	20,172	20,699	23,588	24,822	22,932	27,092
Kerosene	1,227	1,227	1,559	821	862	1,060	1,198	1,598	1,484
LPG	3,218	2,514	2,516	2,739	2,862	3,099	2,907	2,760	2,570
Hydro	2,716	2,325	3,089	2,453	2,901	2,397	2,390	1,882	1,767
Total	40,954	40,290	36,328	40,861	42,042	45,179	45,347	42,024	47,201

**Notes:**

1. Primary and secondary energy.
2. Excludes biomass

**Sources:**

Ministry of Public Works, Energy and Ports; Dominica Electricity Services Ltd

Dominica currently has seven importers of petroleum products who are the industry wholesalers and retailers, responsible for the importation and supply of the full range of oil and gas used on the island including aviation fuel, LPG and Bunker C. Fuel made available to these suppliers is refined in Trinidad, Curacao, Venezuela, and Panama. 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 while gasoline is usually between 92 to 95 octane. Government currently controls the price at which product is sold 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.

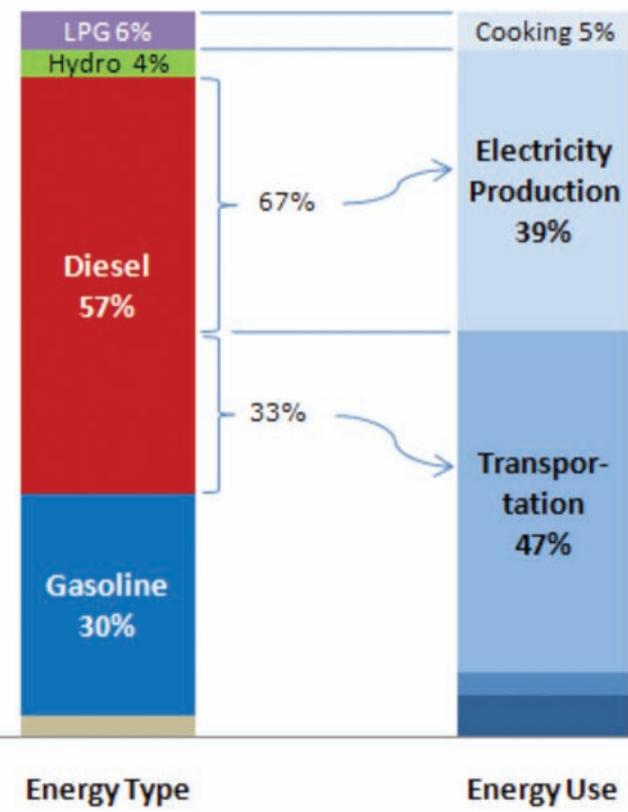
Dominica's energy consumption is dominated by transportation, which took accounted for 47 percent of all energy consumed in 2008, followed by the power sector, with approximately 40 percent of the total consumption.

At the end-use level, approximately 12.5 percent of Dominica's total commercial energy supply is estimated to be consumed by households for cooking and electricity, about 7 percent is consumed by business, industry and the public sector (in the form of electricity) and approximately 25 percent is lost, mostly as a result of the rejection of heat in the diesel engines during electricity generation. This heat rejection is an inherent and unavoidable consequence of the thermodynamics of the diesel cycle.

<sup>11</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)

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

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



\* Includes Commercial, Hotel, Industrial and Street Lighting electricity customers  
\*\* Includes DOMLEC own use

Sources: Central Statistical Office, DOMLEC, Isada Group estimates

### B.4 The Transport Sector

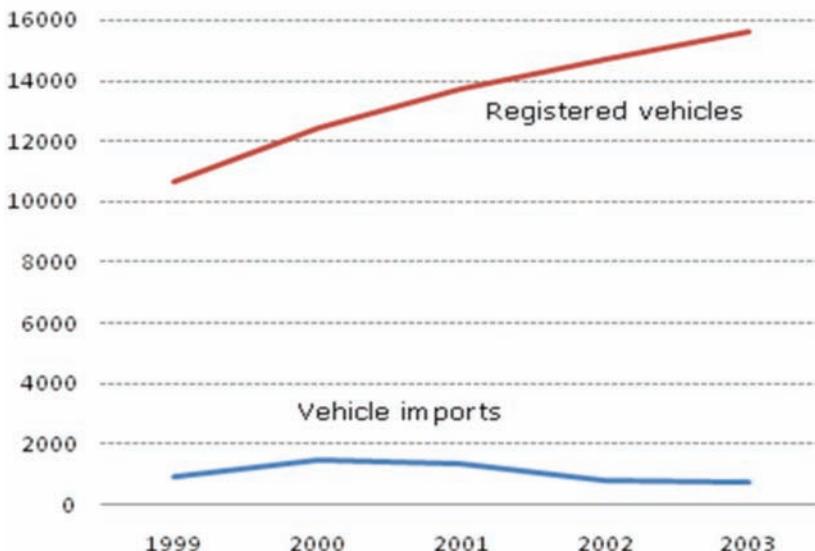
The topography of Dominica presents tremendous challenges to the planning and organization of a public transport sector. Nonetheless, Government recognizes the role of transport and logistics in national development.

There are approximately 17,500 vehicles in Dominica, not including motor cycles. It is estimated that 10 percent of the market is made up of cars, 20-25 percent are small SUVs and Pick Ups, and the remainder are buses. 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.

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

The market for imported used vehicles in Dominica is substantial and growing. Given the fact that imported vehicles are generally 5-12 years old at the time of their importation, they are likely to be less fuel efficient than a new vehicle of the same type and engine size. The country's entire vehicle stock is aging. The number of registered vehicles on island has increased by an average of 10 percent per annum in the years from 1999–2003, (the last year for which data are available), but the number of vehicles imported annually declined in 2008 when compared with the average number of imports for the period between 2000 and 2003.

**Figure B.4: Motor Vehicle Stock in Dominica**



*Source:* Central Statistical Office

The combined trends of declining imports of new vehicles and the growing market for used vehicles have the effect of increasing the proportion of older, less fuel-efficient vehicles in use, which puts upward pressure on fuel imports, fuel consumption and greenhouse gas emissions.

### B.5 The Power Sector

The power sector in Dominica is dominated by a single electric utility the Dominica Electricity Services Limited (DOMLEC). It is a vertically integrated utility which has a license to generate, distribute, and sell electricity. At the present time there are no independent power producers. Previously, DOMLEC's licence was exclusive, but since the passage of the new ESA in 2006, the way is now opened for the Independent Regulatory Commission (IRC) to licence other service providers.

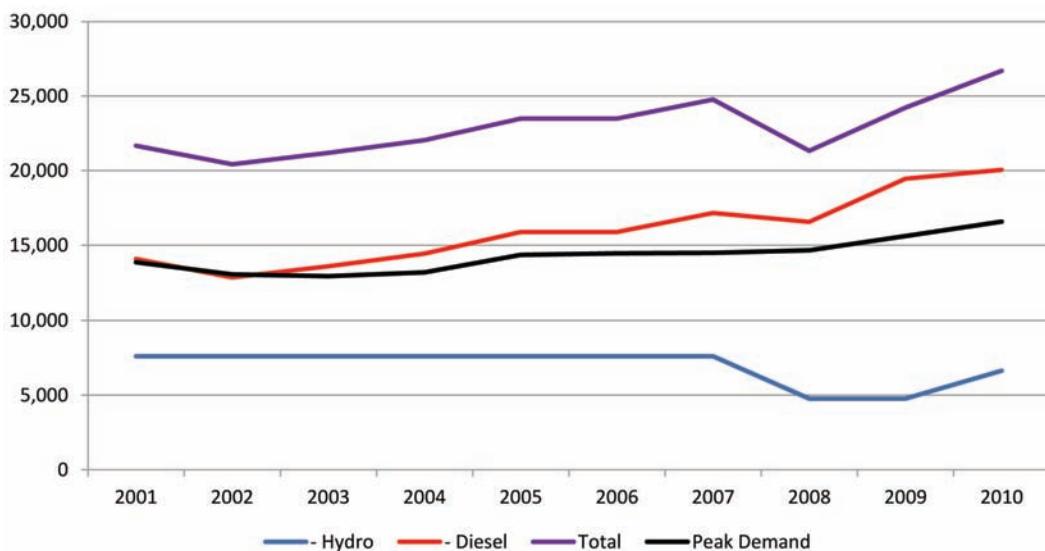
## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

Public electricity in Dominica is provided by DOMLEC which 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, with 52 percent of its shares being held by Dominica Private Power Ltd, a company registered in the Turks and Caicos Islands. Dominica Social Security holds 21 percent and 27 percent of the shares 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 2010 was 6.64 MW, which is about 25 percent of the total installed capacity. This is down from 31 percent in 2007, the reduction initially being due to serious damage caused to the Padu hydro plant by landslides that occurred during the passage of hurricane Dean in August 2007. Although the plant has since been repaired, an additional 4.3 MW of diesel capacity was added in 2009, meaning that the overall percentage of hydro capacity decreased. Hydro capacity in the dry season is reduced to 3.2 MW and is then about 12 percent of the total system capacity.

The hydro, diesel, and total available capacity and the peak demand over the period from 2001 to 2010 are shown in the graph at Figure B.5.

**Figure B.5: Peak Demand and System Generating Capacity  
(2001 – 2010) kW**

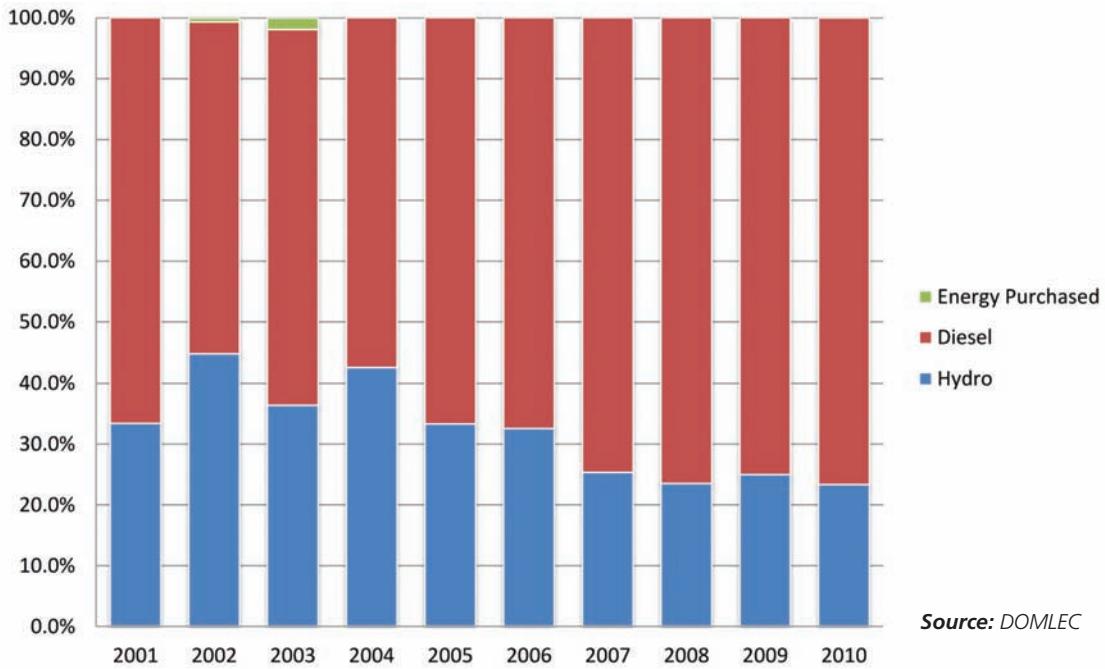


Source: DOMLEC

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

Hydroelectric power accounted for 23.3 percent of gross generation in 2010. This proportion was down from 44.8 percent in 2002 and 42.6 percent in 2004, due to increased demand for electricity, which has had to be supplied by additional diesel generation.

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



DOMLEC has set targets for the amount of electricity that it will generate by renewable energy of 30 percent by 2013 and 40 percent by 2017.<sup>12</sup>

Dominica's power sector has undergone significant regulatory changes in recent years. Under the provisions of the Electricity Supply Act of 2006, which was drafted with technical assistance from the World Bank, DOMLEC is now regulated by the Independent Regulatory Commission (IRC) and has been granted an exclusive license for power production and distribution up to year 2015. The licence period was originally to 2025 but has been reduced by Government in its attempt to restructure the sector and encourage greater efficiency by the electrical utility. The reduction in the licence period is of great concern to DOMLEC which alleges that this change could potentially have adverse consequences for the Company's long term investment and viability.

<sup>12</sup> Presentation made by Mr. Collin Cover, General Manager of DOMLEC at the Multi-sector Stakeholder Consultation on March 25, 2009, Roseau, Dominica. These targets may, however, have to be revised as they were made against the background of an expected annual growth rates of 1 to 2 percent between 2013 and 2017. Since then, growth rates of 8 percent and 9 percent were achieved in 2009 and 2010 respectively, and it now appears that it will be impossible to achieve the above targets without making use of geothermal energy, which may or may not be available before the end of the period.

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

In addition, the new power sector regulations allow for private entities to be licensed to self-generate power and to supply power to the grid. Several of DOMLEC's larger customers appear to have chosen to self-generate.<sup>13</sup> These companies give a number of reasons for their actions, primarily the rising price of power supplied by DOMLEC and problems with the power supply during recent years. DOMLEC is making every effort to address the concerns of its commercial customers and appears to have 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 already approved guidelines for the development and operation of small renewable energy systems such as wind and solar photovoltaic system, including a policy for interconnection. Two connections were approved by the IRC in 2010 and other applications are pending.

However, there appears to be significant levels of uncertainty in other areas of policy and the regulatory regime. Some of the major issues in this regard are:

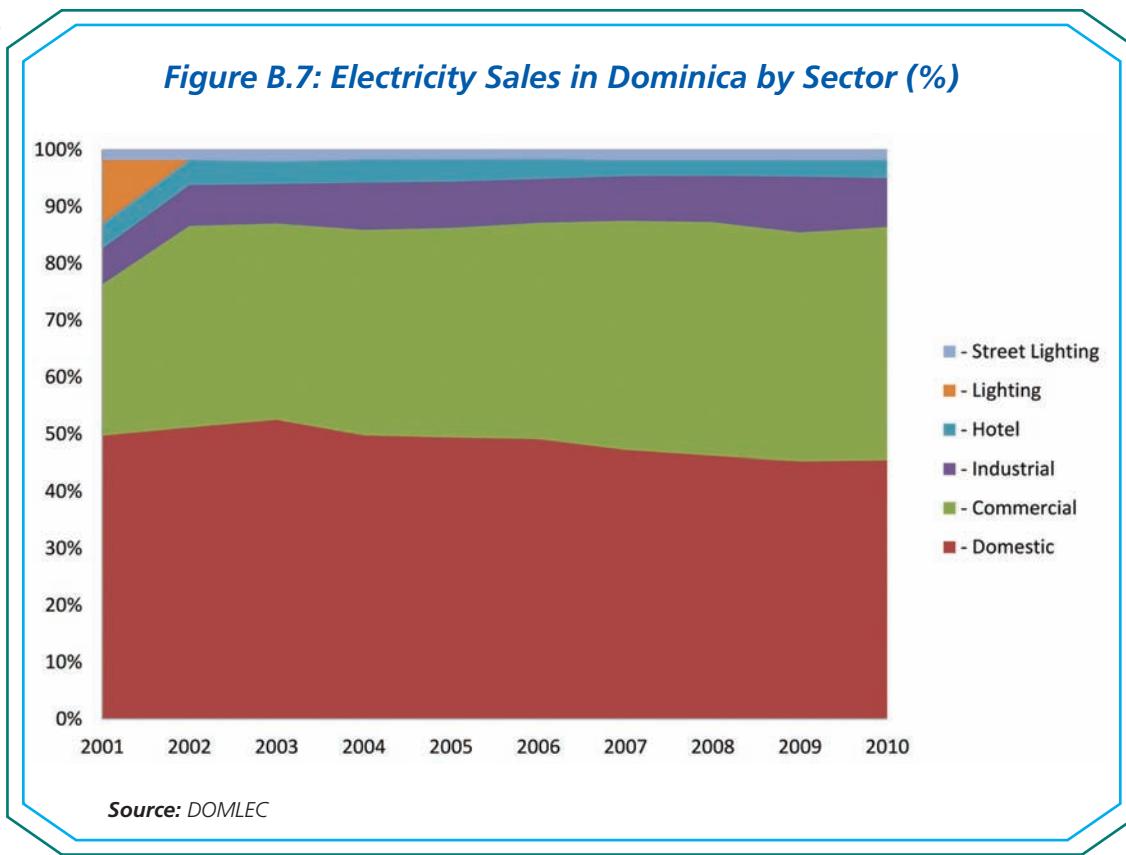
- ◆ DOMLEC's view that the timeframe between the passage of the ESA in 2006 and 2015 does not allow sufficient time for the necessary long-term investment cycle of power companies (typically 20-25 years for diesel power investment) to take place. DOMLEC was privatized in 1996;
- ◆ DOMLEC's view is that the short license term will prevent the signing any long-term power purchase agreement (for the purchase of electricity generated by geothermal, for example) with private developers. DOMLEC's licence is subject to renewal after 2015;
- ◆ Government proposals to enhance national generating capacity by proceeding with plans for the development of a new 5–15 MW fossil fuel plant at Jimmit, to be financed by a grant from the Government of Venezuela. A feasibility study of the proposed facility will be conducted and in order to ensure efficiency and maximisation of resources, the details of the proposed operation of this facility and integration of its output with that of DOMLEC will be reviewed and put in place.

Electricity consumption in Dominica is dominated by the household sector, which accounted for 45.5 percent of all electricity sold in 2010, 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 41 percent of total sales in 2010. The balance is made up of industrial 8.6 percent, hotels 3.2 percent, and street lighting 1.8 percent.

---

<sup>13</sup> The number and total power capacity of these self-generators is unknown. In addition, no licenses for generation have yet been issued by the IRC and the regulatory status of the existing self-generators is uncertain.

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION



**Electricity Prices**—The retail price of electricity<sup>14</sup> in Dominica averaged EC\$1.03 per kWh (US 38 cents) during 2010, amongst the highest in the Caribbean. This includes a value added tax of 15 percent. Averaged over the year, the fuel surcharge accounted for about 34 percent of the retail price of electricity in that year. Much of the existing expense can be attributed to high costs for transmission and distribution, due to Dominica's sparse population and rugged terrain.

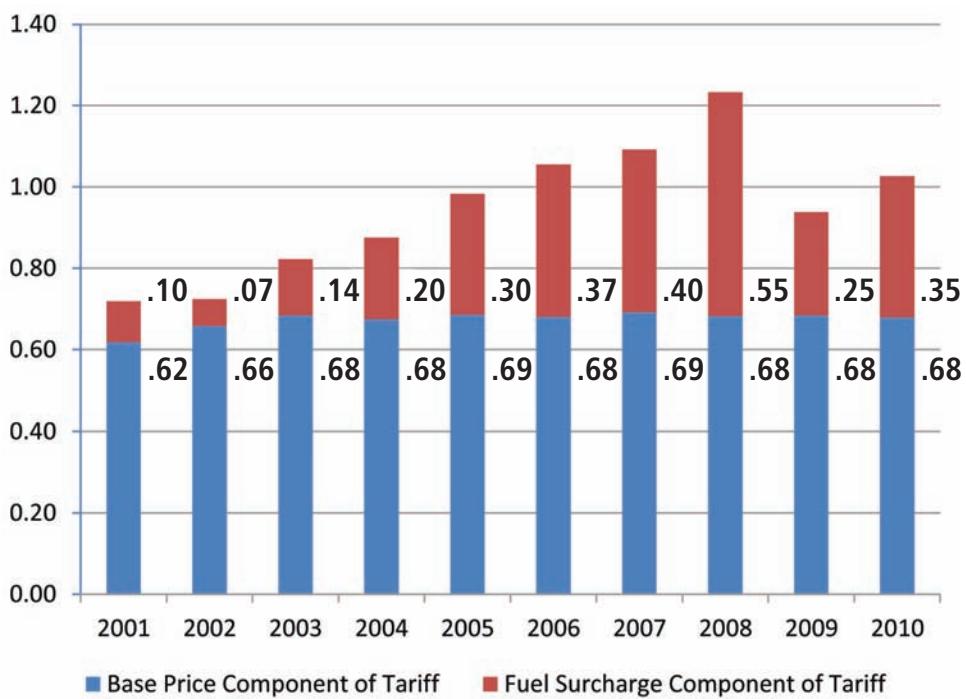
The retail price of electricity provided by DOMLEC to its customers is comprised of an Energy Charge<sup>15</sup> per kWh of electricity consumed, a Fuel Surcharge per kWh of electricity consumed and a Service Charge (for commercial, industrial and hotel customers only) per kVA of customer installed capacity. The domestic energy tariff contains two rates, the higher rate being charged for monthly consumption from 51 kWh and over, while the industrial tariff has two rates, charged according to the time of day that the electricity is consumed, with the higher charge applied to the daytime (peak) hours. The first 50 kWh is free of VAT. The average consumption of domestic consumers in 1999 was greater than 100 units per month and the lower rate has been implemented to provide a subsidy to the lowest-income (and therefore the lowest-consuming) domestic customers. 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, whether used or not, to service the instantaneous demand of its non-domestic customers. The fuel surcharge is a cost recovery mechanism that has been implemented by most Caribbean utilities in response to extreme fuel price volatility that followed the global oil price shocks of 1973 and 1979.

<sup>14</sup> Calculated as (aggregate sales revenue divided by total number of units sold)

<sup>15</sup> Sometimes referred to as the "base charge"

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

**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 to regulate 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, West Indies Power Ltd and independent power producers (IPPs) and consumers. However, DOMLEC will be allowed to negotiate commercial arrangements with IPPs. Government expects that its further development and elaboration of policy will diminish any concerns and uncertainty amongst these critical stakeholders and will put in place a strong equitable and transparent legislative and general 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.

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

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 seek to ensure that in developing and implementing its policy objectives, including the further introduction of IPPs, the liberalization of the sector, and the introduction of renewable energy, 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 emergent 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. The island appears to have the potential for the replacement of a large proportion of the country's fossil fuel imports, for the provision of energy services to its people. Surveys and analysis suggest that the preferred use of renewable sources of energy based on availability of resources is geothermal, hydro, solar/photovoltaic, wind, biofuels and biomass. The latter two are not projected as being viable options for Dominica.

While the opportunity for renewable energy investment in new technologies exists in Dominica, based on potential and technical assessments, the Government has determined that RETs 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:

**Hydro**—Hydro power is the other resource for power generation currently being used in Dominica. Since 2003, there have been several interventions on hydro power development performed by CREDP/GTZ, such as:

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

## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

Approximately 8 MW of hydro power has already been utilized by DOMLEC and it is considered that another 10 to 30 MW of hydro capacity are available<sup>16</sup> for exploitation.

**Geothermal**—Dominica is ranked number one for geothermal potential<sup>17</sup> among the islands of the Lesser Antilles, with regard to its gross estimated geothermal resources. 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 are available, and this 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.

The specific policy directive of the Minister of Energy of Dominica is<sup>18</sup> that “*the Government of Dominica wants to see energy as a commodity with export potential*” and in accordance with this vision, the Government is currently engaged in two separate geothermal energy exploration activities.

The first, a project financed under the EU-funded Geo-Caraibes Project, is located in the Wotten Waven area and is well under way; the exploration results so far indicate a geothermal power production capacity of 100+ MW and exploratory drilling is scheduled to be completed before end-2009.

The second is a privately-financed venture being performed by West Indies Power Dominica Ltd, under an exploration license granted by the Government, in the Soufriere/Scotts Head area.

**Solar**—Dominica enjoys high levels of solar radiation, on 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 in use for providing hot water to private residences, hotels and other commercial buildings, but is not widespread.

A few micro-scale (< 5 kW) solar photovoltaic (PV) installations exist, owned by private individuals; so far, however, only one is grid-connected.<sup>19</sup> PV implementation continues to be constrained by high initial outlay per unit of installed capacity and low conversion efficiencies (which consequently requires large areas of PV panels for any significant energy output).

**Wind**—Small amounts of wind energy resource development have taken place in Dominica, despite previous discussions of such initiatives. 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.

---

<sup>16</sup> Report on Hydropower Assessment Dominica; Martin Roth for Government of the Commonwealth of Dominica, on behalf of CREDP-GTZ, December 2003

<sup>17</sup> This information was provided by Herve Trainea of CG, a subsidiary of BRGM, at a press conference of December 3rd 2009, at which a 5 month study of the geothermal potential of the Wotten Waven area was presented.

<sup>18</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>19</sup> DOMLEC at present has no policy or guidelines for grid connection of private renewable energy sources

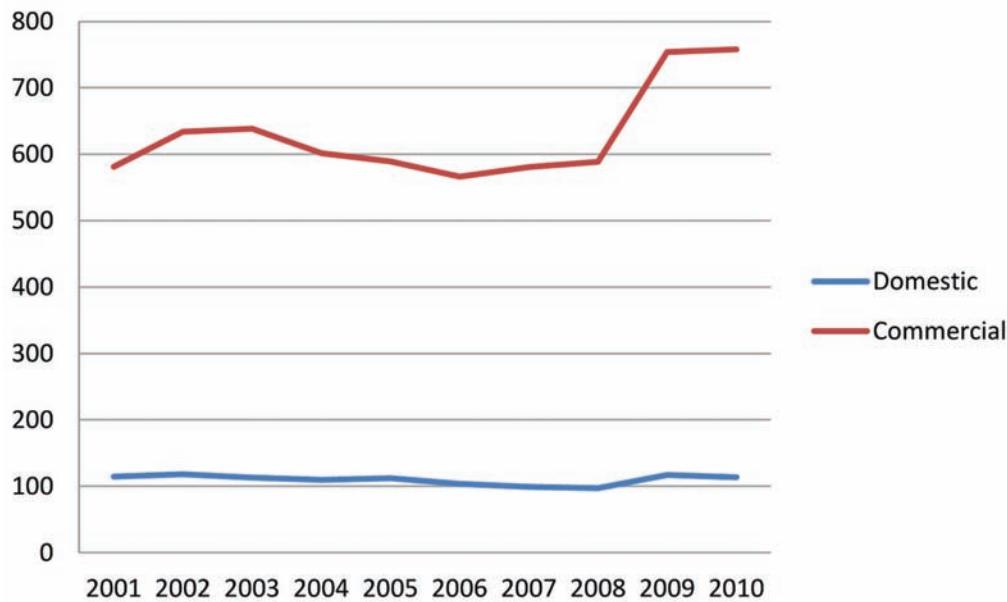
## APPENDIX B – OVERVIEW OF THE ENERGY SITUATION

Preliminary wind regime data<sup>20</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. Additional, site-specific investigations are being planned by DOMLEC.

**Energy Efficiency & Conservation**—Government implemented a Cuban-sponsored light bulb replacement programme in 2007 which replaced 280,000 incandescent light bulbs in households with energy-efficient compact fluorescent bulbs. In order to derive maximum benefit and for effective planning, future programmes of this nature will measure the specific effects of this programme on domestic sector consumption.

DOMLEC's supply-side energy efficiency results over the period have been only somewhat successful. On the generation side, fuel efficiency has not improved at all over the period, but the company has successfully reduced its distribution losses from over 18 percent (of gross generation) in 2000 to about 12 percent as at the end of 2009. 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 customers has declined<sup>21</sup> by 11 percent since 2002, after being essentially flat over 1999 – 2002. This outcome may be the result of the 70 percent increase in electricity prices over 2002 – 2008.

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



Source: DOMLEC

<sup>20</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

<sup>21</sup> The average monthly consumption of domestic customers declined even faster - by 18% over 2002 - 2008

## 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 stake holder 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

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 PUEP, 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 Section 2, 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 extensive experience with operating hydro plant over several decades</li> <li>◆ Appears to have very good potential geothermal energy resources (~1390 MW, Huttner, 1998)</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>◆ 73 percent of the power company's diesel plant is less than 20 years old</li> <li>◆ Relatively low electricity distribution losses by Caribbean standards (approximately 11 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 in 2008)</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 1999)</li> <li>◆ The absence of, and urgent need for this new policy as perceived by stakeholders.</li> <li>◆ No recent development of new renewable energy supply (the most recent was hydro in 1991)</li> <li>◆ Large volume of used car imports, significant and growing stock of energy-inefficient motor vehicles</li> <li>◆ Rugged terrain imposes constraints on physical development and maintenance of projects and transportation efficiencies</li> </ul>

## APPENDIX D – STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

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 ongoing relations with multilateral development institutions</li><li>◆ Ongoing international interest in geothermal energy investments in Dominica</li><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>	<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 supply and demand</li><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>



