



Draft Sustainable Energy Plan of the Commonwealth of Dominica

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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

1 Introduction

This document establishes the National Sustainable Energy Plan (“the Plan”) of the Commonwealth of Dominica. The Plan addresses the growing concerns about the predominance of imported fossil fuels in the country’s energy sector. The goal of the Plan is to increase the efficiency and sustainability of energy supply and demand, wherever it is economically feasible.

Dominica’s primary energy requirements are met almost entirely through the use of fossil fuels, all of which are imported. Oil-derived products make up over 95 percent of the total energy supply. Liquefied Petroleum Gas (LPG) contributes a further six percent to the total primary energy requirement. Hydropower makes up the remaining four percent.

The cost of fuel imports is a concern at the macroeconomic level, and for individuals. Lack of diversity in energy sources exposes the country to the volatility of fossil fuel prices, and instability in supply if fuel shipments are delayed.

The Government of Dominica is concerned about the effects of using fossil fuels on local and global environmental sustainability. In addition to global concern about carbon dioxide emissions, using fossil fuels leads to direct pollution effects on Dominica’s natural environment, which is a vital economic resource for the country, particularly for the tourism industry.

The Plan sets out how the Government intends to implement the National Energy Policy (“the Policy”). The Plan follows the layout of the Policy, providing detail for the specific policies that are in the Policy. The main components of the Plan are:

- **Summary of the Sustainable Energy Plan**—Summary of the actions and sub-actions of the Plan, and the time scale and implementing body for the actions
- **Plan for Fossil Fuels Management**—This component covers the Government’s plan to use the most economically efficient fuels and to use them as efficiently as possible
- **Plan for Electricity Supply**—This component covers the Government’s plan to provide efficient electricity supply, integrating renewable energy where economically feasible
- **Plan for Energy Efficiency and Conservation**—This component covers the Government’s plan to encourage energy efficiency and conservation as it applies to Dominican society as a whole
- **Plan for End-Use Sectors**—This component covers policies for sustainable energy that are specific to individual economic sectors, and are not covered in previous sections
- **Plan for Institutional Strengthening and Funding**—This component covers the administrative and institutional requirements to implement the Plan. It also provides guidance on potential funding sources.

2 Summary of Sustainable Energy Plan

The table below summarizes how the Government proposes to implement each component of the Policy, showing the:

- Actions and sub-actions that correspond to specific policies from the Policy
- The body that will be responsible for the actions and sub-actions. This means conducting the actions, gathering together additional actors that will participate in carrying out the action, and/or contracting outside consultants to carry out parts of the Plan
- The time scale for carrying out the actions. Immediate term means less than one year, short term means less than five years, medium term means less than 10 years and long term means more than 10 years.

Table 2.1: Summary of Sustainable Energy Plan

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
Policy for Fossil Fuels Management 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.	1	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	1.1	Work with the private sector to develop better forecasting systems based on the collection of detailed end-use information for petroleum demand.	MPWEP, METIDA	Immediate Term
			1.2	Study best approach to achieve efficient storage capacity, including a cost-benefit analysis and considering whether to build new facilities or better regulate existing facilities.	MPWEP	Immediate Term
			1.3	Revise existing regulations, or submit for consideration new legislation to Parliament, that will ensure adequate inventory levels and cushion effects of supply disruptions.	METIDA, MPWEP	Short Term
	2	Setting national standards for fuel quality, and seeking regional harmonization throughout the Organization of Eastern Caribbean States	2.1	Conduct a study on best practices for fuel efficiency standards in the Caribbean context, including a cost-benefit analysis of requiring that higher quality fuel be imported.	MPWEP	Immediate Term
			2.2	Work with the importers and other OECS standards institutions to revise existing regulations, or submit for consideration new legislation to Parliament, in order to ensure that minimum quality standards are developed for fuels imported into Dominica.	MPWEP, METIDA	Short Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
	3	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	3.1	Seek donor assistance to undertake a study of supply logistics for petroleum products within the sub-region.	METIDA	Immediate Term
			3.2	Prepare regulations to ensure that, as far as possible, fossil fuels are procured competitively to ensure that, as far as the supply logistics allow, supplies of petroleum products are the lowest price possible. This can include national combined purchasing.	METIDA	Short Term
Policy for Electricity Supply 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.	4	Creating regulations and incentives to encourage electricity generators, transmitters, and distributors to improve efficiency	4.1	Through negotiations with DOMLEC, design a system based on regional benchmarking that will ensure that line losses in excess of reasonable levels that result in more fuel than necessary being used are not passed on to the consumer in the fuel surcharge, but remain as a cost to DOMLEC.	IRC	Immediate Term
			4.2	Develop and submit a rate case (consistent with the timeline, format, and process required in DOMLEC's Transmission, Distribution and Supply Licence of 2014) including an optimized tariff structure. This will propose a rearranged tariff structure that incentivizes off-peak energy use, account for power factor, and encourage all customers, particularly large customers, to remain on the grid. Review the tariff study and either approve or deny the suggested tariff structure.	DOMLEC, IRC	
			4.3	Establish (and review on a regular basis) an overall heat rate target for diesel engine generation efficiency and ensure that generating plants are dispatched in the most economical way to meet the system loads. This means using the available mix of hydropower, conventional generation, and new renewable energy sources to provide reliable power at least cost. The system will be designed to ensure that any fuel usage which results from poor efficiency cannot be passed on to consumers in the fuel surcharge. However, it will remain a cost to DOMLEC. The heat rate target should be reasonable given system operating conditions, and may need to be updated as those conditions change.	IRC, DOMLEC	
			4.4	Require DOMLEC to demonstrate that its expansion planning is least cost and based on best practices in expansion planning, as required by the DOMLEC Transmission, Distribution and Supply Licence 2014.		

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
			4.5	Build on current efforts for distributed renewable generation to develop a Standard Offer Contract for small Independent Power Producers using renewable technology. Calculate and update the amount offered by the standard offer contract to reflect the value of electricity generated by small independent power producers.		
			4.6	Adequately train IRC's staff in the use of the appropriate system planning software, and ensure that its planning software is kept up to date with programme enhancements and updates.		
			4.7	Require DOMLEC to use fuel meters on each fossil fuel generating unit, and also implement a protocol for the periodic recalibration of these meters.		
	5	Extending electricity supply to unserved communities and remote, off-grid communities through grid access or microgeneration	5.1	Continue to ensure that electricity consumption under 50 kWh in the residential consumer tariff category receives a subsidy that is paid for by the consumption of larger amounts of electricity by other customers.	IRC	Immediate Term
			5.2	Conduct studies to identify communities without access to grid power, and then conduct a cost-benefit analysis to determine what the most economic technology is to deliver power to them. This should include consideration of grid connection, cooperative generation, or individual generation.	MSSCDGA	Immediate Term
			5.3	Provide financial assistance to fund the training of the staff of rural electricity cooperative organizations to manage, operate, and maintain the facilities, and the setting up of the accounting functions that will be required.		Short Term
	6	Providing the appropriate standards, guidelines, and regulatory system for the integration of renewable energy in the national electricity system	6	Monitor the implementation of the current renewable energy interconnection standards, guidelines, and regulatory systems.	IRC	Immediate Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
	7	Ensuring the development of local expertise to install, operate, manage, and maintain renewable distributed generation systems	7	Cooperate with local technical institutes and international training institutes to design and implement a curriculum for training Dominicans to install, operate, manage, and maintain renewable distributed generation systems.	MEHRD	Immediate Term
	8	Further facilitating the development of economically viable small scale renewable distributed generation	8.1	Continue to promote the development of economically viable renewable distributed generation and co-generation by conducting cost-benefit analyses of incentives to inform the design of a programme that will offer: fiscal incentives, procedures, and standards for system interconnection, stable and fair feed-in tariffs, and streamlined approval processes. To do this, Dominica will draw off the experience of similar countries.	MPWEP, METIDA, MF, MSSCDGA, IRC	Immediate Term
			8.2	Allocate the necessary resources to implement the programme of incentives, procedures, and standards.	MF, MPWEP	Short Term
	9	Designing and implementing a national programme of education and awareness in renewable energy	9.1	Develop curricula in schools to increase student awareness of renewable energy and the need for the country to reduce its energy costs through energy efficiency and renewable energy.	MPWEP, MEHRD	Immediate Term
			9.2	Develop renewable energy awareness programmes for the employees of Government by way of short in-house programmes and seminars.	MPWEP	
			9.3	Develop and implement short programmes of radio and television advertising informing Dominicans about energy efficiency and renewable energy.	MPWEP, MITCE	
	10	Promoting Hydropower (continuing the assessment of	10.1	Review and check existing data on hydropower capacity, and pilot the implementation of resource assessments for hydroelectric potential by establishing a stream gauging programme throughout Dominica.	MPWEP, DOMLEC, DOWASCO	Short Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
		hydropower resources; implementing, where feasible, new hydropower projects; and developing capacity for analysing data on hydro projects)	10.2	Undertake preliminary estimates of the costs of implementing micro hydro schemes at suitable locations, and undertake preliminary analyses to rank the cost-benefit of these possible developments to determine their economic potential to supply energy for various uses.	MPWEP, DOMLEC	
			10.3	Maintain a database of hydro resources which, along with preliminary estimates of costs, will be updated on a regular basis. These data should be included in the renewable energy database.		
	11	Promoting Geothermal Power (continuing development; establishing a legal framework; developing a regulatory framework; issuing environmental and planning regulations; strengthening capacity of Government entities and technicians; and fostering interconnection at national and international level)	11.1	Revise and pass the <i>Draft Geothermal Bill, 2013</i> . The Bill needs to be revised in the following areas: definition of the geothermal resource, procedure to allocate the right to use the resource, procedure for other approvals, institutional regulatory arrangements, environmental/planning and electricity supply controls, land rights and statutory rights, rights of a developer who invests in exploration, and sale of electricity generation.	MPWEP	See GAANT Chart (Table 4.1)
			11.2	Issue rules and principles that: (i) clearly define obligation for DOMLEC to buy least cost power from third parties; (ii) govern PPAs between DOMLEC and third party generators; and (iii) address how to treat stranded assets in tariff setting	IRC	
			11.3	Carry out an interconnection feasibility study to determine the parameters required for the commercial exploitation of the geothermal resource.	MPWEP	
			11.4	Carry out a technical feasibility study to determine the technical parameters for interconnecting the geothermal plant with the electricity system on Dominica		
			11.5	Participate in commercial agreements between the plant developer and DOMLEC.		
			11.6	Facilitate the construction and operation of a 10-15 MW plant to connect with DOMLEC's system.		

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
			11.7	Develop and implement training programmes for geothermal technicians.		
			11.8	Carry out a technical feasibility study to determine the parameters for interconnection with Guadeloupe and Martinique.		
			11.9	Negotiate a power off-take agreement with Martinique and Guadeloupe.		
			11.10	Prepare bidding documents and conduct an international competitive auction for selecting the company that will develop and build a large-scale geothermal plant, or pursue negotiations with identified suitable and competent developers.		
			11.11	Prepare bidding documents and conduct an international competitive auction for selecting the company that will develop and build the inter-island transmission lines, or pursue negotiations with identified suitable and competent developers.		
			11.12	Commission large geothermal plant, and develop transmission lines to Guadeloupe and Martinique.		
	12	Promoting Solar Power (encouraging installation of solar energy technologies on all new public sector buildings, commercial buildings, and residences)	12.1	Develop a list of Government-owned facilities and institutions that have critical loads, such as hospitals and schools, which could be powered by photovoltaic sources; and carry out an initial pilot project to test these installations.	MPWEP	Immediate Term
			12.2	Carry out an initial pilot project to test installation of solar water heaters in public buildings.		Short Term
	13	Promoting Wind Power (continuing assessment of wind resources, and	13.1	Pilot the implementation of resource assessments for wind energy at sites which are thought to have good wind regimes and seek funding from appropriate agencies to undertake these resource assessments.	MPWEP	Immediate Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
		implementing appropriate arrangement for their exploitation)	13.2	Maintain a database of wind data and wind maps, along with preliminary estimates of costs for establishing wind turbines, which will be updated on a regular basis.		
	14	Promoting Waste-Based Energy (evaluating costs and benefits)	14	Encourage feasibility studies for using municipal waste for power generation while improving environmental management	MPWEP	Short Term
	15	Promoting Biomass Energy (evaluating costs and benefits)	15	Encourage feasibility studies for using biomass waste for power generation and production of liquid fuels	MPWEP	Short Term
Energy Efficiency and Conservation 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.	16	Developing public education programmes on improved consumption patterns and consumer behaviour in the end-use sectors	16.1	Complete the study of energy consumption patterns in all the major sectors of the Dominican economy, and identify areas for improvement.	MPWEP and DOMLEC	Immediate Term
			16.2	Design and implement a public information campaign that will promote energy conservation and energy efficient practices.	MITCE	Immediate Term
	17	Encouraging the use of energy-efficient appliances and technology by consumers	17.1	Conduct a study of best practices for how to incentivize customers to purchase commercially and economically viable energy efficient appliances.	MPWEP	Immediate Term
			17.2	Convene stakeholders from the Government, the banking sector, and the retail sector to discuss the findings of the study, and decide what kinds of incentives to offer.	MPWEP	Immediate Term
			17.3	Provide fiscal incentives to businesses and individuals that will encourage them to purchase commercially and economically viable energy efficiency technology.	METIDA	Short Term
	18	Encouraging appliance suppliers to import reliable, energy efficient appliances	18.1	Conduct quality standards testing to determine which appliances are most appropriate for the Dominican context, taking into account efficiency, durability, performance, and added cost as well as other applicable environmental and safety standards.	Bureau of Standards	Immediate Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
			18.2	Conduct cost-benefit analysis of offering tariff incentives for economically viable energy efficient appliances that meet established standards or import restrictions on appliances that fail to meet efficiency standards.	METIDA	Immediate Term
	19	Requiring retailers to label energy efficient appliances, and to inform customers about the efficiency and consumption of appliances	19.1	Design an appropriate labelling scheme (or identify an appropriate existing one) that will alert Dominicans to the potential benefits of energy efficient appliances, and require that retailers display them on products.	MPWEP	Immediate Term
			19.2	Conduct a public education campaign to make people aware of the labels and their significance, and how they relate to fiscal incentives that promote purchasing energy efficient equipment.	MITCE	Short Term
	20	Establishing standards for energy efficiency to inform the design, construction, and management of buildings in Dominica	20.1	Conduct research on best practices for energy efficient buildings in the Caribbean environment, and maintain awareness of any regional or sub-regional studies that could benefit Dominica, such as the Caribbean Development Bank's Regional Building Code initiative.	MENRPPF	Immediate Term
			20.2	Convene stakeholders, including Government officials, representatives of the construction industry, and property owners to weigh benefits and costs and determine appropriate building standards for Dominica based on the best practices study.		Immediate Term
			20.3	Implement building standards and lead by example by ensuring that Government buildings meet or are striving towards meeting standards.		Short Term
	21	Encouraging energy audits, especially for hotels and households	21.1	Study best practices in encouraging energy audits in all sectors of the economy, and recommend incentives.	MPWEP	Immediate Term
			21.2	Provide appropriate fiscal and financial incentives to encourage individuals and businesses to conduct audits.	MF	
	22	Encouraging retrofitting homes and buildings in the private sector with	22.1	Conduct a cost-benefit analysis of best practices for how to incentivize individuals and companies to retrofit their building with commercially and economically viable energy efficiency technologies.	MENRPPF	Immediate Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
		energy efficient equipment	22.2	Convene stakeholders in the Government, private sector, and NGO representatives to present the findings of the study and decide which incentives are appropriate to encourage energy efficiency retrofits.	MENRPPF	
			22.3	Offer fiscal and financial incentives through the commercial banking sector as well as through tax incentives for retrofits in the domestic and commercial sector.	MF	Medium Term
	23	Developing a plan to retrofit public buildings and streetlights with energy efficient equipment	23.1	Conduct energy audits to determine which public facilities (including buildings and streetlights) have the highest potential for energy savings from an energy efficiency retrofit.	MENRPPF	Short Term
			23.2	Carry out the energy efficiency retrofits in the facilities identified in the energy audits.	MPWEP	Medium Term
	24	Reporting progress on energy efficiency in national economic reports and statistics	24.1	Convene stakeholders from within the Government to determine what efficiency indicators are most appropriate to report.	MITCE	Immediate Term
			24.2	Gather information on efficiency gains from DOMLEC, the MAF, and the MITCE to calculate the indicators and publish them in national reports.		Short Term
Transport Sector It is the Government's policy to promote efficient vehicles, crafts, and a strong integrated public transport sector strategy.	25	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	25	The MPWEP will conduct cost-benefit analyses to estimate the overall impact on the economy of using the various types of vehicles, crafts, and fuels for different transport duties; and make recommendations as to the types of vehicles and crafts that should be encouraged in the transport fleet. This will include analysis of diesel, biodiesel, and electric power (including potential partnerships with electric vehicle makers). Analysis of different types of vehicles and crafts should include the analysis of the required infrastructure to support them. Analysis will also include studying the potential of producing biofuels or ethanol blends such as E10.	MPWEP	Immediate Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
	26	Optimizing the efficiency of the transport fleet and the fuel mix	26.1	Consult on possible changes in fuel and fleet mix based on the study. If warranted by the results of the study, the METIDA and the MF will collaborate to design and implement a tariff regime that offers reduced importation tariffs based on the fuel efficiency of the vehicle or craft. The tariff regime should be progressive and give the largest tariff reductions to the most efficient vehicles and crafts. Additionally, if appropriate, the METIDA and the MF will provide economically efficient incentives for domestic production of biofuels or ethanol blends such as E10.	METIDA, MF	Short Term
			26.2	Organize courses on defensive driving that will be offered in secondary schools, to the Taxi Drivers Association, and to the general public through public information campaigns.	MEHRD, MITCE	Immediate Term
	27	Organizing a regulated and rational public sector transit system	27.1	Conduct study on best practices in organizing public transport. This should include a cost-benefit analysis of investing in public transport for Dominica.	MPWEP	Immediate Term
			27.2	Convene stakeholders including government officials, Taxi Drivers Association members, and NGO representatives to discuss potential trade-offs and develop a Plan.		Immediate Term
			27.3	Implement the Plan to create a regulated and rational public transport sector.		Short Term
	Agricultural Sector It is the Government's policy to encourage sustainable practices in agriculture that provide economic and environmental	28	Promoting the use of energy efficient and sustainable agriculture methods	28.1	Conduct studies on best practices for energy efficient agricultural practices, including building standards, in the Caribbean.	MAF
28.2				Design and implement a targeted educational campaign coordinated with agricultural cooperatives to promote best practices in energy efficient agriculture, and inform farmers of the benefits available to them under the Electricity Supply and Energy Efficiency and Conservation plans.	Short Term	

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
benefits						
Industrial and Commercial Sectors 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.	29	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	29.1	Design and implement a targeted educational campaign coordinated with industry and commercial representatives to promote best practices in energy efficiency, and inform factory owners and shop owners of the benefits available to them under the Electricity Supply and Energy Efficiency and Conservation plans.	METIDA	Immediate Term
			29.2	The METIDA will conduct industry specific studies and cost-benefit analysis of energy efficiency in manufacturing technology and building standards in industrial and commercial buildings. This will be done in collaboration with local business organization and representatives.	MPWEP	Immediate Term
			29.3	Provide tax incentives for companies that meet industrial and commercial energy efficient building standards scaled to the projected benefits measured in the cost-benefit analysis.	MF	Immediate Term
			29.4	Provide tax incentives to use economical energy efficient manufacturing technology scaled to the projected benefits measured in the cost-benefit analysis.	MF	Immediate Term
	30	Encouraging businesses to implement sustainable energy practices specific to their sectors, including where feasible exploiting geothermal energy for productive uses other than electricity generation	30	Design and implement a targeted educational campaign coordinated with industry representatives to promote best practices in energy use, and inform factory owners of the benefits available to them under the Electricity Supply and Energy Efficiency and Conservation plans.	METIDA, MITCE	Immediate Term
Domestic Sector It is the	31	Developing and implementing educational	31.1	Conduct research on best practices for energy efficiency in households including research on usage patterns and energy efficient behaviour.	MSSCDGA	Immediate Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
Government's policy that the domestic sector have a diversified supply of energy services, energy efficient appliances, and the option to produce electricity.		and action-oriented programmes to promote household energy efficiency and conservation	31.2	Conduct a public information campaign aimed at persuading households to adopt energy efficient behaviours that will reduce usage, as well as inform them of the way that the Energy Efficiency and Conservation and Electricity Supply Policies apply to them.	MITCE	Immediate Term
	32	Providing fiscal incentives to promote the use of solar water heating in new and existing homes	32.1	Conduct research on best practices for providing incentives for households to overcome barriers to adopting solar water heaters, drawing on the experience of Barbados.	MSSCDGA	Immediate Term
			32.2	Provide a programme of incentives and information that will help overcome barriers to adopting solar water heaters.	MSSCDGA MITCE	Short Term
	33	Developing and implementing a programme to ensure that LPG and other emerging technologies (consistent with the NEP's guiding principles) are accessible for all persons in society, especially the most needy	33.1	Conduct a cost-benefit analysis to examine the cost implications of subsidizing access to LPG and other emerging technologies for the neediest members of society in Dominica.	MSSCDGA	Immediate Term
			33.2	Prepare a programme of assistance to aid Dominica's neediest citizens in the procurement of their LPG supplies and other emerging technologies for cooking.	MSSCDGA	Short Term
	Tourism and Hospitality Sector It is the Government's policy that the sector become part of the national green approach to business, and	34	Reducing tax rates on energy saving hospitality devices and appliances	34.1	Conduct cost-benefit analysis of hospitality and tourism machines, devices, and appliances in consultation with representatives from the hospitality industry. This analysis will be used to determine the appropriate tax incentives.	MTLA
Incentivizing energy efficiency retrofits			34.2	Allow cost recovery of retrofitting hotels through a tax rebate over a five-year period.	MF	Immediate Term
Develop a special regime of recognition and promotion of the greening efforts of tourism and hospitality			34.3	Encouraging hotels to become Earth Check certified.	MTLA	Short Term

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
become a significant contributor to the reduction of Dominica's carbon footprint over time.		businesses				
Policy Implementation Approach 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	35	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	35.1	Create a transparent legal framework that will provide the institutional, legislative, and financial support required for the effective implementation of the Policy.	MPWEP, EPTD	Immediate Term
			35.2	Take the necessary administrative actions to give effect to the Energy Unit's policy priorities and needs, including hiring required staff with suitable skills sets. This includes hiring staff with the skills necessary to staff the Geothermal Management Unit within the Energy Unit.		Immediate Term
			35.3	Provide the Energy Unit with the resources to monitor and analyse cross-sectorial energy efficiency and conservation issues and performance.		Immediate Term
	36	Conducting careful economic assessments of the fiscal and economic measures required for the successful implementation	36	Ensure that Government's tax revenues streams are not unreasonably compromised when developing and offering new tax incentives, rebates, and relief through cost-benefit analysis.	MF	On-going

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
		of the Policy.				
	37	Requiring Environmental Impact Assessments, Social Impact Assessments, and Strategic Environmental Assessments that are in line with Environmental and Planning Regulations.	37.1	Conduct a study on best practices in Environmental Impact Assessments, Social Impact Assessments, and Strategic Environmental Assessments; revise and pass the <i>Draft Environmental and Planning Regulations, 2010</i> .	MENRPPF	Immediate Term
			37.2	Conduct training of employees in the Bureau of Standards to guarantee that they will be able to develop standards, regulations, and policies in coordination with other Government agencies. Ensure that they will also be able to gather data necessary for monitoring and evaluation, and enforce compliance.	EPTD	Immediate Term
			37.3	Develop and maintain an up-to-date national energy database containing all energy sector data required for energy planning purposes.	MPWEP	Short Term
			37.4	Ensure that project developers 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. The MPWEP will commission such studies itself if appropriate.	MPWEP	On-going
	38	Securing appropriate funding to implement the Policy and the Plan	38.1	Assess the financial ability of relevant Government entities to complete the tasks assigned to them in the Plan.	MF	Immediate Term
			38.2	Conduct research into available international funding sources for sustainable energy. This review should include, but not be limited to, the World Bank (including through support provided to the Eastern Caribbean Energy Regulatory Authority), the Inter-American Development Bank, the Organization of American States, and the Global Environmental Facility. It should also include developing a Nationally Appropriate Mitigation Actions (NAMA) strategy, with the goal of using the 'Supported NAMA' mechanism.	MPWEP, MFA	Immediate Term
			38.3	Design applications and terms of reference for projects that require support from international funding sources.	MPWEP	Short Term
	39	Capitalizing on regional relationships by working toward the	39	Monitor sustainable energy initiatives in the Region to identify those that respond to common challenges, and seek cooperation where appropriate	MPWEP	On-going

Policy	#	Action	#	Sub-Action	Body Responsible	Time Scale
		implementation of regional approaches that lead to greater efficiency or cost savings in energy				

3 Fossil Fuels Management

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. Being able to properly manage the uncertainty in fuel availability and pricing is critical to optimize energy usage and minimize delivered energy costs.

The Plan will take into account information on:

- Supply and demand factors
- The supply chain and stockholdings of various fuels
- Industry actions to maintain supply reliability
- Supply disruptions and industry management
- Government responses to a liquid fuel emergency.

Government will cooperate with the wholesalers and retailers of petroleum products to continuously review their demand forecasts and impress on them and their customers the importance of collecting accurate and detailed information to facilitate this. It will also ensure that petroleum product wholesalers and retailers take account of the logistics of moving vessels bringing petroleum supplies to Dominica in making their plans for importing supplies.

3.1 Bulk Storage

Under the Plan, Government will increase the efficiency of bulk storage facilities for all types of fossil fuels used in the island. This may lead to consolidation into one modern terminal, subject to consultation with suppliers and current storage facility owners.

Petroleum reserve storage—unexpected oil supply disruptions due to national or international events, such as natural disasters, geopolitical instability, or acts of terrorism, must be mitigated. For example, the diversion of one or two supply tankers because of any of the above incidents could well deprive the island of its regular petroleum supplies for a protracted period.

Under the Plan, Government (in consultation with DOMLEC) will carry out a cost-benefit analysis to determine the level of fuel supplies that should be maintained by DOMLEC's fuel supplier. This study will take account of the costs of:

- Carrying the inventory of fuel
- Loss of electricity supplies to the economy in terms of lost production
- The economic loss from a shortage of transportation fuel
- The loss of welfare benefits to the citizens.

The study will make recommendations for the minimum storage of diesel fuel that should be maintained in Dominica.

The Plan will also implement measures to ensure that adequate stocks of LPG are kept in storage at locations which are sufficiently dispersed geographically to ensure that a natural disaster would not result in the entire storage being lost.

Actions:

1. The METIDA together with MPWEP will work with the private sector to study better forecasting systems based on the collection of detailed end-use information for petroleum demand.
2. The MPWEP will study best approach to achieve efficient storage capacity in consultation with the private sector, including a cost-benefit analysis and considering whether to build new facilities or better regulate existing facilities.
3. The METIDA with MPWEP will revise existing regulations, or submit for consideration new legislation to Parliament, in order to ensure adequate inventory levels and measures that will cushion effects of supply disruptions on fossil fuels as described above.

Time Scale: 1-2 Immediate Term, 3 Short Term

3.2 Fuel Quality Standards

Government will require that fuels imported into Dominica achieve certain minimum technical quality standards. This will ensure that customers receive the calorific value that fuels of the specified description should yield, and also that impurities will not cause undue maintenance problems for the users. However, Government also recognizes that regional supply logistics may require that these standards are tailored to what is generally available in the regional market place, because insisting on tighter standards may result in unwarranted additional costs.

Government will therefore require its institutions involved in setting national standards to develop national standards for fuel quality to be imported into Dominica; and, being mindful of the regional logistics of tanker borne fuel supplies, will seek to harmonize these standards with similar standards throughout the Organization of Eastern Caribbean States.

The minimum quality standards for liquid fuels will specify the allowable limits for:

1. Density
2. Kinematic Viscosity
3. Flash Point
4. Gross Calorific Value
5. Water content
6. Sediment
7. Ash content
8. Sulphur content
9. Vanadium Content
10. Sodium content
11. Asphaltene content
12. Hydrogen Sulphide

Actions:

1. The MPWEP will conduct a study on best practices for fuel standards in the Caribbean context, including a cost-benefit analysis of requiring that higher quality fuel be imported.
2. The METIDA and the MPWEP will work with the importers and other OECS standards institutions to revise existing regulations, or submit for consideration new legislation to Parliament, in order to ensure that minimum quality standards, for at least the parameters described above, are developed for fuels imported into Dominica.

Time Scale: 1 Immediate Term, 2 Short Term

3.3 Least Cost Fossil Fuel Supply

It is Government policy to ensure that competition to supply fossil fuels guarantees the lowest price possible for petroleum products.

Cost reduction may be aided by improved bulk storage as mentioned above, and in addition the Government will consider seeking reduced costs through the following measures:

- Changing regulation to promote competition;
- Purchasing fuel through national combined purchasing;
- Cooperation with other OECS member states to investigate the potential for any supply synergies among the states, such as pooling of volumes so that reduced prices can be obtained through larger volume purchases.

These measures are aimed at leveraging private sector competition and economies of scale to reduce the costs of fuel in Dominica.

Actions:

1. Government will direct the METIDA to seek donor assistance to undertake a study of supply logistics for petroleum products within the sub-region.
2. If appropriate, the METIDA will prepare regulations to ensure that, as far as possible, fossil fuels are procured competitively to ensure that, as far as the supply logistics allow, supplies of petroleum products are the lowest price possible. This can include national combined purchasing.

Time Scale: 1 Immediate Term, 2 Short Term

4 Electricity Supply

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 the development of Dominica's domestic renewable energy resources. To achieve these policy goals it will be necessary for Government to:

- Ensure that the energy resources available to the island are fully assessed in terms of their potential to economically contribute to the island's electricity supplies
- Evaluate the effect of their exploitation for electricity production on the local environment and on the island's carbon footprint
- Maintain an inventory of the available resources with potential to contribute to the country's electricity demand and update this inventory at regular intervals in line with changing economic conditions
- Ensure the implementation of demand-side-management (DSM) programmes to reduce the long-term demand for increased generating capacity
- Ensure that electricity supplies are generated and used as efficiently as possible and that losses are reduced to an economic minimum.

4.1 Efficiency in Transmission and Distribution

Government will ensure that the regulatory framework provides incentives that will improve the efficiency of electricity transmission and distribution and will lower costs for all customers.

The IRC will establish initial overall line loss targets through negotiations with DOMLEC. The loss targets should be based on benchmarking against other similar utilities in the region and elsewhere as well as the achievements of DOMLEC over the last several years.

Currently, the tariff structure in Dominica, does not provide incentives for customers to reduce consumption during peak hours. This means that peak demand will climb more quickly than it might otherwise, requiring further investment in peak capacity. The cost of that investment will ultimately be paid by all customers through higher tariffs. Additionally, high tariffs in Dominica have led several large consumers to leave the grid and self-produce electricity. This means that DOMLEC has lost some of its best customers. This ultimately results in higher tariffs for customers who remain on the grid, because they must cover the costs of all investments by the utility without the contribution of larger customers.

Action:

1. Through negotiations with DOMLEC, the IRC will design a system based on regional benchmarking that will ensure that line losses in excess of reasonable levels that result in more fuel than necessary being used are not passed on to the consumer in the fuel surcharge, but remain as a cost to DOMLEC.
2. DOMLEC will develop and submit to the IRC a rate case (consistent with the timeline, format, and process required in DOMLEC's Transmission, Distribution and Supply Licence of 2014) including an optimized tariff structure. This will propose a rearranged tariff structure that incentivizes off-peak energy use, account for power factor, and

encourage all customers, particularly large customers, to remain on the grid. IRC will review the tariff study and either approve or deny the suggested tariff structure.

Time Scale: Immediate Term

4.2 Efficiency in Generation

Government through the IRC will establish an overall heat rate target for diesel engine generation efficiency. This target will set overall efficiency targets for the portion of electricity that is generated by diesel fuel.

It will also ensure that generating plants are dispatched in the most economical way to meet the system loads. This means using the available mix of hydropower, conventional generation, and new renewable energy sources to provide reliable power at least cost.

Government will ensure that generation planning is such that it will use the principles of integrated resource planning to deliver the required generating capacity at least cost. The planning will take account of all the available energy resources—including geothermal, hydro, diesel, and other utility-scale renewable resources such as wind—as well as the most cost effective way to exploit those resources.

If system generation expansion is not properly planned, fuel costs will not be optimized, and feasible fuel saving options (such as use of renewables, cogeneration, and efficiency improvement measures) may be overlooked. Effective capacity planning requires a good load forecast combined with appropriate use of computer-based capacity planning model programme such as the Wien Automated System Planning (WASP) computer model or the Super OLADE Power System Generation and Inter-Connection Planning Model which are used for multi-year electricity system planning studies, making it possible to simulate, and optimize hydro and thermal power system expansion plans. These models are used by several developing country utilities, including some in the Caribbean region, to determine the least costly expansion path that will adequately meet the demand for electric power, subject to user-defined constraints.

Minimizing the total system costs of electricity also requires timely and efficient implementation of the selected capacity expansion path. Undue delays in planned implementation may result in the need to implement emergency additions which are more costly over the long-term and the excessive use of peaking units which are less efficient.

Government will require DOMLEC to continue measuring the fuel used by its individual diesel engines. Government will develop formal protocols for the inspection and testing of fuel to create consumer confidence in the readings recorded by these meters. Government will also require periodic re-calibration and certification of the meters to be carried out by an independent authority.

Government will require that the accuracy of meters should be at least to the PMP7 guide, published by the Institute of Petroleum (IP) which recommends a system accuracy of 0.1 percent in normal operation.

Actions:

1. The IRC will establish (and review on a regular basis) an overall heat rate target for diesel engines generation efficiency and ensure that generating plants are dispatched in the most economical way to meet the system loads. This means using the available mix of

hydropower, conventional generation, and new renewable energy sources to provide reliable power at least cost. The system will be designed to ensure that any fuel usage which results from poor efficiency cannot be passed on to consumers in the fuel surcharge. However, it will remain a cost to DOMLEC. The heat rate target should be reasonable given system operating conditions, and may need to be updated as those conditions change.

2. Require DOMLEC to demonstrate that its expansion planning is least cost and based on best practices in expansion planning, as required by the DOMLEC Transmission, Distribution and Supply Licence 2014.
3. DOMLEC and the IRC will build on current efforts for distributed renewable generation to develop a Standard Offer Contract for small Independent Power Producers using renewable technology. The IRC will calculate and update the amount offered by the standard offer contract to reflect the value of electricity generated by small independent power producers.
4. The IRC will adequately train its staff in the use of the appropriate system planning software and ensure that its planning software is kept up to date with programme enhancements and updates.
5. The METIDA and the MPWEP and the IRC will also require DOMLEC to use fuel meters as described above and also implement a protocol for the periodic recalibration of these meters.

Time Scale: Immediate Term

4.3 Electricity for Very Poor or Remote Communities

In order to ensure that communities that are very poor or very remote also have access to electricity supplies, Government will provide subsidies for those that can be reached economically from the grid, and consider encouraging remote communities to consider off-grid small and medium scale micro-generation. This can include micro hydro and or wind systems using diesel backup.

In instances where these off-grid connected supplies are indicated, Government can promote the establishment of cooperative organizations by assisting with the training for operating and maintenance and in the setting up small and medium scale generation.

Actions:

1. The IRC will continue to ensure that electricity consumption under 50 kWh in the residential consumer tariff category receives a subsidy that is paid for by the consumption of larger amounts of electricity by other customers.
2. The MSSCDGA will conduct studies to identify communities without access to grid power and then carry out a cost-benefit analysis to determine the most economic technology to be used to deliver power to them. These analyses will include considerations of grid connection, cooperative generation, or individual generation. If a study shows that in any given situation, the most economical mode of supply is an alternative that is not grid-connected, it will go on to recommend ways in which Government should promote the establishment of local cooperatives that have the ability to operate and maintain micro-generation units.

3. The MSSCDGA will provide financial assistance to fund the training of staff of rural electricity cooperative organizations to manage, operate and maintain the facilities, and the setting up of the accounting functions that will be required.

Time Scale: 1-2 Immediate Term, 3 Short Term

4.4 Renewable Distributed Generation

Dominica has significant renewable energy resources, some of which can be exploited at the distributed scale. Distributed generation is defined as electricity generation that is located at or close to customer premises, and is interconnected directly to the distribution network. This definition implies that DG is: (i) grid-connected; (ii) located at premises close to the load being served; and (iii) implemented on a smaller scale than that of utility scale plants connected to a transmission grid.

Dominica appears to have the potential for the replacement of a significant proportion of its fossil fuel imports, particularly for electricity generation. Surveys and analysis suggest that geothermal, hydro, solar/photovoltaic, wind, biofuels and biomass are all possible sources of renewable energy in Dominica. Among those, hydro, solar, and wind are potential sources of distributed scale renewable generation.

Recognizing this potential, the Government and DOMLEC have worked together to take significant steps in encouraging distributed generation. These steps have included creating an interconnection agreement. The interconnection agreement provides the technical details of how distributed generators can connect to the distribution grid.

Actions:

1. The IRC will monitor the implementation of the current renewable energy interconnection standards, guidelines and regulatory systems.
2. The MEHRD will cooperate with local technical institutes and international training institutes to design and implement a curriculum for training Dominicans to install, operate, manage, and maintain renewable distributed generation systems.
3. The MPWEP, the MF, the MSSCDGA, and the IRC will continue to promote the development of economically viable, renewable distributed generation capacity and co-generation by conducting cost-benefit analyses of incentives to inform the design of a programme that will offer: fiscal incentives, procedures and standards for system interconnection, stable and fair feed-in tariffs, and streamlined approval processes. To do this, Dominica will draw off the experience of similar countries.
4. The MF and the MWPEP will allocate necessary resources to implement the programme of incentives, procedures, and standards.

Time Scale: 1-3 Immediate Term, 4 Short Term

4.5 Public Awareness and Education Campaign

To complement its efforts to develop the RE potential of Dominica, Government will need to raise public awareness of Dominica's renewable energy potential. This will be done by designing and implementing a national programme of education and awareness in renewable energy. This programme will target government staff in the ministries, as well as the general public.

Actions:

1. The MEHRD in collaboration with the MPWEP will develop curricula in schools to increase student awareness of renewable energy and the need for the country to reduce its energy costs through energy efficiency and renewable energy.
2. The MPWEP will develop renewable energy awareness programmes for the employees of Government by way of short in-house programmes and seminars.
3. The MPWEP in collaboration with the MITCE will develop and implement short programmes of radio and television advertising informing Dominicans about energy efficiency and renewable energy.

Time Scale: Immediate Term

4.6 Specific Renewable Resource Development

It is the Government's policy to promote the use of Dominica's domestic renewable energy resources for the production of electricity wherever economically viable. To achieve this Policy objective, the Plan sets out proposals for the development of renewable energy in Dominica as follows:

Promoting Hydropower—Government will continue the assessment of hydropower resources throughout Dominica. These efforts will be coordinated with those of the MAF, DOMLEC, and DOWASCO. Government will encourage and facilitate new hydropower projects wherever economically feasible; and develop capacity for analysing data on hydro projects.

Actions:

1. The MPWEP will collaborate with DOWASCO and DOMLEC to review and check existing data on hydropower capacity and pilot the implementation of resource assessments for hydroelectric potential by establishing a stream gauging programme throughout Dominica.
2. The MPWEP, in coordination with DOMLEC, will undertake preliminary estimates of the costs of implementing micro hydro schemes at suitable locations and undertake preliminary analyses to rank the cost-benefit of these possible developments to determine their economic potential to supply energy for various uses.
3. The MPWEP will maintain a database of hydro resources which, along with preliminary estimates of costs, will be updated on a regular basis. This data should be included in the renewable energy database.

Time Scale: Short Term

Promoting Geothermal Power—Government will continue the on-going development of the island's geothermal potential and the implementation of appropriate agreements with developers, financiers and other stakeholders. A Geothermal Resources Development Bill has been prepared for submission to Parliament. This Bill, when enacted into law, will provide for the regulation of geothermal resources with the objective of ensuring the sustainable development of the resource, and ensuring its allocation to the uses that are most economically beneficial to Dominica. It creates a complete, integrated regulatory framework and establishes institutions and rules specific to geothermal resource development, designed to complement the existing regulatory framework, contained in the Physical Planning Act,

2002 and the Electricity Supply Act, 2006. When the Bill is enacted, the legal framework for the orderly development of the island's geothermal resources will be complete and facilitate the investments required to develop the projects.

It is expected that two plants (developed in two phases) will have a combined capacity of around 110 MW. The first phase of the development is expected to supply DOMLEC with between 10 MW and 15 MW. The second development is expected to supply the neighbouring islands of Guadeloupe and Martinique each with 40-50 MW of electricity by way of undersea transmission and interconnection facilities.

Actions:

To support geothermal development, the Ministry of Public Works, Energy, and Ports will undertake the following specific actions (except for specific action 2, which will be undertaken by the IRC):

1. Revise and pass the *Draft Geothermal Bill, 2013*. The Bill needs to be revised in the following areas: definition of the geothermal resource, procedure to allocate the right to use the resource, procedure for other approvals, institutional regulatory arrangements, environmental/planning and electricity supply controls, land rights and statutory rights, rights of a developer who invests in exploration, and sale of electricity generation.
2. The IRC will issue rules and principles that: (i) clearly define obligation for DOMLEC to buy least cost power from third parties; (ii) govern PPAs between DOMLEC and third party generators; and (iii) address how to treat stranded assets in tariff setting
3. Carry out an interconnection economic feasibility study to determine the parameters required for the commercial exploitation of the geothermal resource.
4. Carry out a technical feasibility study to determine the technical parameters for interconnecting the geothermal plant with the electricity system on Dominica.
5. Participate in commercial agreements between the plant developer and DOMLEC.
6. Facilitate the construction and operation of a 10-15 MW plant to connect with DOMLEC's system.
7. Develop and implement training programmes for geothermal technicians.
8. Carry out a technical feasibility study to determine the parameters for interconnection with Guadeloupe and Martinique.
9. Negotiate a power off-take agreement with Martinique and Guadeloupe.
10. Prepare bidding documents and conduct an international competitive auction for selecting the company that will develop and build a large-scale geothermal plant or pursue negotiations with identified suitable and competent developers.
11. Prepare bidding documents and conduct an international competitive auction for selecting the company that will develop and build the inter-island transmission lines or pursue negotiations with identified suitable and competent developers.
12. Commission large geothermal plant, and develop transmission lines to Guadeloupe and Martinique.

Time Scale: In accordance with the Chart below

Table 4.1: Timeline for Implementation of Geothermal Plan

	Jun-14	Dec-14	Jun-15	Dec-15	Jun-16	Dec-16	Jun-17	Dec-17	2020
Pass geothermal bill	█								
Develop regulations specific to geothermal	█								
Complete interconnection economic feasibility study		█							
Carry out interconnection technical feasibility study		█							
Negotiate commercial agreements with DOMLEC		█							
Facilitate the construction and operation of a 10-15 MW plant			█	█	█				
Develop and implement training programmes for geothermal technicians.			█						
Determine the technical parameters for interconnection with Guadeloupe and Martinique						█			
Negotiate a power off-take agreement with Martinique and Guadeloupe.							█		
Select company to develop large geothermal plant								█	
Select the company to develop and build the inter-island transmission lines								█	
Commission large geothermal power plant and transmission									█

Promoting Solar Power—Government will encourage the installation of solar water heaters on all new public sector buildings, commercial buildings, and residences. Offering fiscal incentives has been shown in several Caribbean countries to be critical for the large scale adoption of solar water heating at the residential level and this initiative will be explored by Government.

The Government will also facilitate the development of programmes to use photovoltaic systems where feasible to power security lights or critical loads following natural disasters.

Actions:

1. The MPWEP will develop a list of government-owned facilities and institutions that have critical loads, such as hospitals and schools, which could be powered by photovoltaic sources and carry out an initial pilot project to test these installations.
2. The MPWEP will carry out an initial pilot project to test installation of solar water heaters in public buildings.

Time Scale: 1 Immediate Term, 2 Short Term

Promoting Wind Power—Government will continue efforts to assess the wind resources in Dominica to produce information and data which could be used to justify the development of wind power turbines.

Actions:

1. The MPWEP will pilot the implementation of resource assessments for wind energy at sites which are thought to have good wind regimes and will seek funding from appropriate agencies to undertake these resource assessments.

2. The MPWEP will maintain a database of wind data and wind maps, along with preliminary estimates of costs for establishing wind turbines, which will be updated on a regular basis.

Time Scale: Immediate Term

Promoting Waste-Based Energy—Waste-based energy technologies generate electricity from waste that would otherwise decompose or be stored in a landfill. Depending on the technology, gas from decomposing waste or the waste itself can be combusted to produce electricity. There are several technologies in commercial use; some may be appropriate for use in Dominica.

Actions:

1. The MPWEP will encourage feasibility studies for using municipal waste for power generation while improving environmental management.

Time Scale: Short Term

Promoting Biomass Energy—Biomass grows quickly in Dominica’s tropical climate and could potentially serve as an energy crop. The Island’s agriculture industry may also have existing crop residues that could be used.

Actions:

1. The MPWEP will encourage feasibility studies for using biomass waste for power generation and production of liquid fuels.

Time Scale: Short Term

5 Energy Efficiency and Conservation

Technical analysis of potential energy efficiency gains in markets similar to Dominica has demonstrated that there is a great potential to reduce energy costs and greenhouse gas emissions by improving the way that energy is used. Energy efficiency and conservation are often referred to as the ‘low hanging fruit’, because it is possible to reduce costs and emissions through efficiency and conservation gains for a much lower cost (and more quickly) than by producing energy with renewable energy.

It is the Government’s policy to reduce Dominica’s energy intensity while increasing its economic growth by adopting best practices in energy efficiency and conservation. To do this, the Government will:

- Incentivize Dominicans to adopt energy saving behaviours and consumption habits
- Ensure that energy efficient appliances are available in local markets
- Improve the energy efficiency of buildings in Dominica
- Report the progress that Dominica makes on energy efficiency.

There are many opportunities to save electricity through behavioural change that leads to conservation. Using highly efficient technologies such as energy efficient refrigerators and lighting will reduce energy usage, because these appliances perform the same action more efficiently; additionally, building codes that lower costs of cooling and lighting through better design, conserve energy.

5.1 Energy Conservation

There are many practices that can be improved to reduce energy use. The most obvious ones are things like turning out the light when you leave the room. However, there are many others that may not be so obvious. For example, using 120v appliances can be inefficient because it requires a converter that wastes electricity. Leaving appliances plugged in when they are not in use leads to ‘ghost consumption’. Examples such as this will be studied and presented to the public in an educational campaign aimed at improving energy efficiency and conservation practices.

Actions:

1. The MPWEP will collaborate with DOMLEC to complete a study of energy consumption patterns in all the major sectors of the Dominican economy, and identify areas for improvement in conservation and efficiency.
2. The MITCE will design and implement a public information campaign that will promote energy conservation and energy efficient practices.

Time Scale: Immediate Term

5.2 Encourage Uptake of Energy Efficient Appliances

It is the Government’s policy to provide fiscal incentives (designed to include the banking sector) to encourage the use of energy-efficient appliances and technology by consumers. Additionally, the Government plans to provide incentives, guidelines, and quality standards appropriate for Dominica that will encourage appliance suppliers to import reliable, energy

efficient appliances. Finally, Government policy will require retailers to label energy efficient appliances and to inform customers about the energy efficiency and the energy consumption of appliances.

Economically viable energy efficient appliances can save money and lower emissions; however, uptake of energy efficient appliances is not as high as it could be. This is because of different categories of barriers that prevent energy consumers from acting on what should be a good money-saving opportunity:

- **Limited access to capital**—Many consumers would need to borrow to install the efficient technologies, and cannot find financiers willing to lend to them—or are charged prohibitive interest rates
- **Limited and uncompetitive equipment supply**—There is a chicken and egg problem; given limited uptake of many technologies in Dominica, they can be hard to purchase on the island, or are sold only at uncompetitive prices. Limited availability and high costs in turn slow down uptake
- **Incomplete information**—Where a technology is not widely used, people may be unaware of its benefits, again creating a chicken and egg problem
- **Agency problems**—These take place when the person who should invest in the equipment is not the same person who uses it—this happens in the public sector, in the development of new construction, and in leased buildings.

These barriers have led to limited uptake of energy efficient technology in Dominica. However, the actions of the Sustainable Energy Plan will overcome these barriers.

Actions:

1. The MPWEP will conduct a study of best practices for how to incentivize customers to purchase commercially and economically viable energy efficient appliances.
2. The MPWEP will convene stakeholders from the Government, the banking sector, and the retail sector to discuss the findings of the study and decide what kinds of incentives to offer.
3. The METIDA will provide fiscal incentives to businesses and individuals that will encourage them to purchase commercially and economically viable energy efficiency technology.
4. The Bureau of Standards within the METIDA will conduct quality standards testing to determine which appliances are most appropriate for the Dominican context, taking into account efficiency, durability, performance, and added cost as well as other applicable environmental and safety standards.
5. The METIDA will conduct cost-benefit analysis of offering tariff incentives for economically viable energy efficient appliances that meet established standards or import restrictions on appliances that fail to meet efficiency standards.
6. The MPWEP will design an appropriate labelling scheme (or identify an appropriate existing one) that will alert Dominicans to the potential benefits of energy efficient appliances and require that retailers display them on products.

7. The MITCE will conduct a public education campaign to make people aware of the labels and their significance and how they relate to fiscal incentives that promote purchasing energy efficient equipment.

Time Scale: 1, 2, 4, 5, 6 Immediate Term; 3, 7 Short Term

5.3 Improve Energy Efficiency in New Buildings

The same barriers that have prevented uptake of energy efficient appliances affect buildings. Therefore, Government has a three-pronged policy approach to improve the energy efficiency of new and existing buildings in Dominica. First, for new buildings, Government policy is to establish standards for energy efficiency, where they don't currently exist, that will govern the design and construction of buildings in Dominica. Second, for existing buildings, Government policy is to provide fiscal and other incentives to encourage energy audits for businesses, especially hotels, and households. Third, Government will incentivize energy efficiency retrofits for existing buildings. Government intends to be a leader in energy efficiency retrofits by conducting energy audits and then developing a plan to retrofit public buildings with energy efficient equipment. For the domestic and commercial sectors, Government policy calls for providing incentives for preferential financing by the commercial banking sector for retrofitting homes and buildings in the private sector with energy efficient equipment.

Together these policies provide a holistic approach to improving the energy efficiency of buildings in Dominica. New buildings will be constructed with energy efficiency standards that are recognized as best practice and existing building will be audited to determine potential energy efficiency gains, and then financial incentives will encourage energy efficiency retrofits. The following actions provide the details of how these policies will be put into action.

Actions:

1. The MENRPPF will conduct research on best practices for energy efficient buildings in the Caribbean environment and maintain awareness on any regional or sub-regional studies that could benefit Dominica, such as the Caribbean Development Bank's Regional Building Code initiative.
2. The MENRPPF will convene stakeholders, including Government officials, representatives of the construction industry, and property owners to weigh benefits and costs, and determine appropriate building standards for Dominica based on the best practices study.
3. The MENRPPF will implement building standards and lead by example by ensuring that Government buildings meet or are striving towards meeting standards.
4. The MPWEP will study best practices in encouraging energy audits in all sectors of the economy and recommend proposed incentives.
5. The MF will provide appropriate fiscal and financial incentives to encourage individuals and businesses to conduct audits.
6. The MENRPPF will conduct a cost-benefit analysis of best practices for how to incentivize individuals and companies to retrofit their buildings with commercially and economically viable energy efficiency technologies.

7. The MENRPPF will convene stakeholders in the Government, private sector, and NGO representatives to present the findings of the study and decide which incentives are appropriate to encourage energy efficiency retrofits.
8. The Ministry of Finance will offer fiscal and financial incentives through the commercial banking sector as well as through tax incentives for retrofits in the domestic and commercial sector.
9. The MENRPPF will conduct energy audits to determine which facilities (including buildings and streetlights) have the highest potential for energy savings from an energy efficiency retrofit.
10. The MPWEP will carry out the energy efficiency retrofits in public buildings identified in the energy audits.

Time Scale: 1-4 Immediate Term, 5-8 Short Term, 9 10 Medium Term

5.4 Report Energy Efficiency and Conservation Progress

It is Government policy to report progress on energy efficiency in macroeconomic reports. The purpose of this is to provide a public benchmark on efficiency gains that have been made or not made.

Reporting will provide an important check to ensure that efforts to reduce energy consumption are having their proposed benefits. For example, indicators should be able to demonstrate that the same or more economic activity is taking place per unit of energy expenditure. If this is not happening, it is important to be aware of it and discover why proposed benefits are not being realized and if necessary, to eliminate programs that are not providing benefits.

Actions:

1. The MITCE will convene stakeholders from within the Government to determine what efficiency indicators are most appropriate to report.
2. The MITCE will gather information on efficiency gains from DOMLEC, the MAF, and the MF to calculate the indicators and publish them in national reports.

Time Scale: 1 Immediate Term, 2 Short Term

6 End-Use Sectors

The Policy contains tailored policies for end-use sectors that are large energy consumers, and this section sets out the Plan to achieve sector specific goals. The sectors included are:

- Transport Sector
- Agricultural Sector
- Industrial and Commercial Sectors
- Domestic Sector
- Tourism and Hospitality Sector

Of course, all of these end-use sectors will benefit from incentives and regulations that affect Dominica as a whole, such as interconnection agreements for distributed scale renewable energy generation and incentives for using energy efficient buildings.

6.1 Transport Sector

It is the Government's policy to promote efficient vehicles, crafts, and a strong integrated public transport sector strategy. The transport sector is the largest user of fossil fuels, representing 52 percent of total fuel consumption. The Government intends to improve the efficiency of fossil fuel use in transportation (thereby reducing fossil fuel consumption for transportation), including:

- **Improving efficiency of motorized transportation of private citizens and businesses**—This means encouraging private citizens to use efficient vehicles
- **Optimizing the fuel mix**—This means ensuring that the transport fleet in Dominica utilizes the most economically efficient mixture of available fuel types
- **Organizing Public Transportation**—This means providing public transport that uses efficient vehicles and uses efficient routes.

Government support for efficient use of fossil fuels in transportation will be based on the economic viability of individual interventions.

6.1.1 Improving Efficiency of Motorized Transportation, and Optimizing Efficiency of the Transport Fleet and the Fuel Mix

Government wishes to encourage the use alternative fuels for transportation, such as diesel, biodiesel, E10¹, or the use of electric vehicles, wherever their use is economically feasible and more environmentally friendly than the current fuel mix.

Actions:

1. The MPWEP will conduct cost-benefit analyses to estimate the overall impact on the economy of using the various types of vehicles, crafts, and fuels for different transport duties and make recommendations as to the types of vehicles and crafts that should be encouraged in the transport fleet. This will include analysis of diesel, biodiesel, and electric power (including potential partnerships with electric vehicle makers). Analysis of different types of vehicles and crafts should include the analysis of the required

¹ A mixture of 10 percent ethanol and 90 percent gasoline

infrastructure to support them. Analysis will also include studying the potential of producing biofuels or ethanol blends such as E10.

2. The METIDA and MF will consult on possible changes in fuel and fleet mix based on the study. If warranted by the results of the study, the METIDA and the MF will collaborate to design and implement a tariff regime that offers reduced importation tariffs based on the fuel efficiency of the vehicle or craft. The tariff regime should be progressive and give the largest tariff reductions to the most efficient vehicles and crafts. Additionally, if appropriate, the METIDA and the MF will provide economically efficient incentives for domestic production of biofuels or ethanol blends such as E10.
3. The MEHRD and MITCE will organize courses on defensive driving that will be offered in secondary schools, to the Taxi Drivers Association, and to the general public through public information campaigns.

Time Scale: 1,3 Immediate Term, 2 Short Term

6.1.2 Public Transport

It is Government policy to organize a regulated and rational public transport system. The public transport system in Dominica is inefficiently organized; this leads to inefficient use of energy as well as a higher cost of transport. Further, the unorganized nature of transport subjects the population to unreliable transport services and leads to increased traffic congestion. Government will take action to remedy the situation.

Actions:

1. The MPWEP will conduct a study on best practices in organizing public transport and a cost-benefit analysis of investing in public transport for Dominica.
2. The MPWEP will convene stakeholders including government officials, Taxi Drivers Association members, and NGO representatives to discuss potential trade-offs, and decide on a course of action.
3. The MPWEP will implement the resulting plan to create an orderly and rational public transport sector.

Time Scale: 1-2 Immediate Term, 3 Short Term

6.2 Agricultural Sector

In the agricultural sector² it is the Government's policy to encourage the use of sustainable practices in agriculture that provide economic and environmental benefits.

To best understand how the agricultural sector can reduce its energy use, the Plan first calls for studying what is already known about energy saving practices in the Caribbean context. After that, educational campaigns will encourage farms to achieve the greatest economically efficient reduction of energy usage possible.

The agricultural sector is a significant consumer of energy; therefore gains in energy efficiency will make a large contribution to promoting sustainability in Dominica.

² "Agricultural Sector" does not include agribusiness which involves industrial processing plants. Agribusiness is dealt with on the section on the Industrial Sector.

Actions:

1. The MAF will conduct studies on best practices for energy efficient agricultural practices, including building standards, in the Caribbean.
2. The MAF will design and implement a targeted educational campaign coordinated with agricultural cooperatives to promote best practices in energy efficient agriculture and inform farmers of the benefits available to them under the Electricity Supply and Energy Efficiency and Conservation plans.

Time Scale: Immediate Term

6.3 Industrial and Commercial Sectors

In the industrial and commercial sectors, Government policy is to encourage sustainable methods of industry and commerce including reducing waste, recycling, and reuse of materials, electricity production from renewable energy sources, and the incorporation of sustainable energy practices into business practices.

Commercial consumers use a large percentage of the energy consumed in Dominica. In Dominica, the industrial sector consumes little energy, because the industrial sector is small. This is partially because energy is expensive. More efficient energy practices and lower energy costs could promote industry, helping the Dominican economy and the environment simultaneously.

Actions:

1. The METIDA in collaboration with the MITCE will design and implement a targeted educational campaign coordinated with industry and commercial representatives to promote best practices in energy use, and inform factory owners and shop owners of the benefits available to them under the Electricity Supply and Energy Efficiency and Conservation plans.
2. The METIDA will conduct industry specific studies and cost-benefit analysis of energy efficiency in manufacturing technology and building standards in industrial and commercial buildings. This will be done in collaboration with local business organization and representatives.
3. The MF will provide tax incentives for companies that meet industrial and commercial energy efficient building standards scaled to the projected benefits measured in the cost-benefit analysis.
4. The MF will provide tax incentives to use economical energy efficient manufacturing technology scaled to the projected benefits measured in the cost-benefit analysis.
5. Design and implement a targeted educational campaign coordinated with industry representatives to promote best practices in energy efficiency, and inform factory owners of the benefits available to them under the Electricity Supply and Energy Efficiency and Conservation plans.

Time Scale: Immediate Term

6.4 Domestic Sector

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

policy is met through a public awareness campaign targeted at households and through providing subsidized cooking gas for the poorest.

6.4.1 Public Information Campaign to Inform Households about Sustainable Energy

An information and education campaign that is targeted at households and delivers information specific to households is required.

In addition to the public information campaign, it is the Government's policy to provide fiscal incentives to promote the use of solar water heating in new and existing homes. This is a highly efficient way to reduce energy costs.

Actions:

1. The MSSCDGA will conduct research on best practices for energy efficiency in households including research on usage patterns and energy efficient behaviour.
2. The MITCE will conduct a public information campaign aimed at persuading households to adopt energy efficient behaviours that will reduce usage as well as inform them of the way that the Energy Efficiency and Conservation and Electricity Supply Policies apply to them.
3. The MSSCDGA will conduct research on best practices for providing incentives for households to overcome barriers to adopting solar water heaters drawing on the experience of Barbados.
4. The MSSCDGA and the MITCE will provide a programme of incentives and information that will help overcome barriers to adopting solar water heaters.

Time Scale: 1-3 Immediate Term, 4 Short Term

6.4.2 Access to Cooking Gas for the Neediest in Dominica

Although LPG for cooking is generally available throughout the island, some people are unable to afford their supplies and sometimes resort to charcoal and fuel wood for cooking. The use of fuel wood and charcoal causes deforestation and leads to health problems from smoke inhalation. For these reasons Government will ensure that the population is able to afford LPG for cooking and other emerging technologies (consistent with the NEP's guiding principles) and does not resort to using charcoal or fuel wood.

Actions:

1. The MSSCDGA will conduct a cost-benefit analysis to examine the cost implications of subsidizing access to LPG and other emerging technologies for the neediest members of society in Dominica.
2. Based on the outcome of these surveys and studies, the MSSCDGA will prepare a programme of assistance to aid Dominica's neediest citizens in the procurement of their LPG supplies and other emerging technologies.

Time Scale: 1 Immediate Term, 2 Short Term

6.5 Tourism and Hospitality Sector

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

The Plan will help the tourism and hospitality sector become more efficient by procuring better equipment and retrofitting its facilities. Additionally, the Plan will offer incentives and promotion for hotels to become energy efficient and, achieve appropriate certification.

Actions:

1. The MTLA will conduct cost-benefit analysis of hospitality and tourism machines, devices, and appliances in consultation with representatives from the hospitality industry. This analysis will be used to determine the appropriate tax incentives.
2. The MF will allow cost recovery of retrofitting hotels through a tax rebate over a five-year period.
3. The MTLA will develop a special regime of recognition and promotion of the greening efforts of hotels, encouraging them to become Earth Check certified.

Time Scale: 1-2 Immediate Term, 3 Short Term.

7 Institutional Strengthening and Funding

The Plan lays out an ambitious strategy to improve sustainability in Dominica. To implement the Plan, the Government will have to set aside its own resources as well as seek out assistance from international funding sources.

7.1 Strengthening the Capacity of the Energy Unit

It is the Government's policy to empower and develop the capacity of the Energy Unit to ensure successful implementation of the Policy and the Plan. This means undertaking the necessary administrative actions to give effect to its policy priorities and needs. It also means establishing the Geothermal Development Unit and hiring staff for it. Doing these things will require the assistance of the Establishment, Personnel and Training Department (EPTD) to hire required staff with suitable skills sets and provide the public sector institutional capacity to monitor and analyse cross-sectorial energy efficiency and conservation issues and performance.

Actions:

1. The MPWEP will create a transparent legal framework that will provide the institutional, legislative, and financial support required for the effective implementation of the Policy and Plan
2. The MPWEP in collaboration with the EPTD will take the necessary administrative actions to give effect to the Energy Unit's policy priorities and needs, including hiring required staff with suitable skills sets. This includes hiring staff with the skills necessary to staff the Geothermal Management Unit within the Energy Unit.
3. The MPWEP in collaboration with the EPTD will provide the Energy Unit with the institutional capacity to monitor and analyse cross-sectorial energy efficiency and conservation issues and performance.

Time Scale: Immediate Term

7.2 Institutional Responsibilities of the Energy Unit

Aside from contributing to the actions identified in the previous section, the Energy Unit will be responsible for measuring the impact of the Sustainable Energy Plan. It is Government policy that:

- The Energy Unit conduct careful economic assessments of the fiscal and economic measures required for the successful implementation of the Policy. The Energy Unit and Ministry responsible for Finance will ensure that Government's tax revenues streams are not unreasonably compromised when developing and offering new tax incentives, rebates, and relief;
- The Energy Unit develop regulations and policies in coordination with other government agencies;
- The Energy Unit work in close coordination with the Unit responsible for geothermal energy;
- The Energy Unit retain outside experts to conduct Environmental Impact Assessments, Social Impact Assessments, and Strategic Environmental Assessments, as part of the planning and assessment process preceding the

approval and implementation of major national projects in the energy sector. The Energy Unit will also retain outside experts to advise on large energy transactions as necessary;

- The Energy Unit maintain database of relevant energy indicators to facilitate monitoring and evaluation of policies and projects.

Actions:

1. The MF will ensure that government's tax revenues streams are not unreasonably compromised when developing and offering new tax incentives, rebates, and relief through cost-benefit analysis.
2. The MENRPPF will conduct a study of best practices in Environmental Impact Assessments, Social Impact Assessments, and Strategic Environmental Assessments; it will also revise and pass the *Draft Environmental and Planning Regulations, 2010*.
3. The EPTD will train employees in the Bureau of Standards to guarantee that they will be able to develop standards, regulations and, policies in coordination with other government agencies. The EPTD will also ensure that the Bureau of Standards will be able to gather data necessary for monitoring and evaluation, and enforce compliance.
4. The MPWEP will develop and maintain an up-to-date national energy database containing all energy sector data required for energy planning purposes, this will include a map of the country's renewable energy resources.
5. The MPWEP will ensure that project developers 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. The MPWEP will commission such studies itself if appropriate.

Time Scale: 1-2 Immediate Term, 3 Short Term, 4-5 On-going

7.3 Funding to Implement the Policy and the Plan

It is the Government's policy to secure appropriate funding to implement the Policy and the Plan. Many of the actions specified in this Plan will require realigning existing personnel and resource allocations within the Government. Likewise, some actions will require outside consultants and funding from outside sources.

Actions:

1. The MF will assess the financial ability of relevant Government entities to complete the tasks assigned to them in the Plan.
2. The MPWEP and MFA will conduct research into available international funding sources for sustainable energy. This review should include, but not be limited to, the World Bank (including through support provided to the Eastern Caribbean Energy Regulatory Authority), the Inter-American Development Bank, Organization of American States, and the Global Environmental Facility. It should also include developing a Nationally Appropriate Mitigation Actions (NAMA) strategy, with the goal of using the 'Supported NAMA' mechanism.

3. The MWEP will design applications and terms of reference for projects that require support from international funding sources.

Time Scale: 1-2 Immediate Term, 3 Continuous

7.4 Regional Relationships

The Government intends to capitalize on regional relationships by working toward the implementation of regional approaches that lead to greater efficiency or cost savings in energy.

Actions:

1. The MWPEP will monitor sustainable energy initiatives in the Region to identify those that respond to common challenges, and seek cooperation where appropriate.

Time Scale: On-going



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