

**St. Vincent and the Grenadines (SVG)**

**Sustainable Energy for SVG:**

# **The Government's National Energy Policy**

**March, 2009**

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# 1 Guiding Principles of the National Energy Policy

The Government of SVG recognizes that energy plays a major role in the diversification efforts of the country's economy and in the pursuit of poverty reduction;

The following guiding principles have been considered during the preparation of the National Energy Policy for St. Vincent and the Grenadines (SVG):

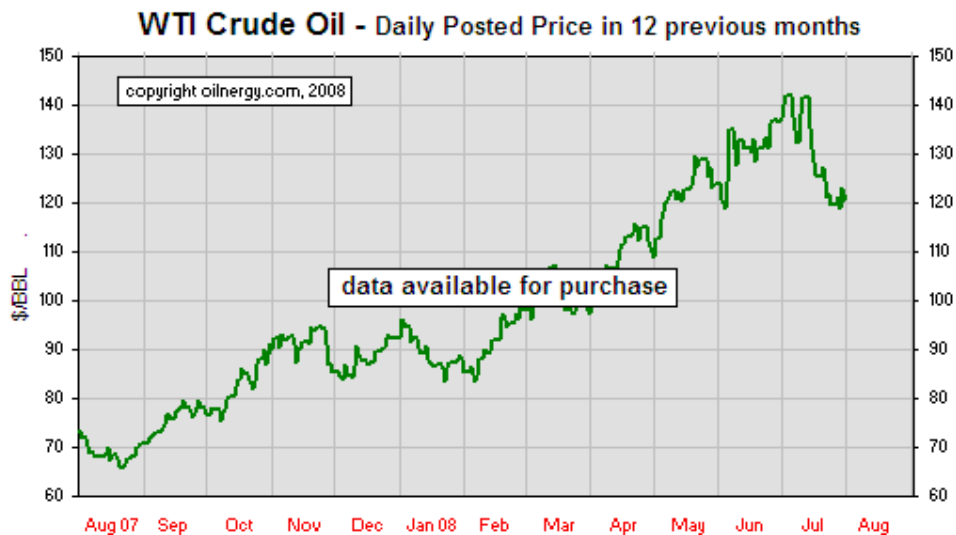
- Guarantee a clean, reliable and affordable energy supply to customers;
- Strengthen the national economy by reducing the dependence on import of fossil fuels;
- Stabilize and possibly reduce the energy consumption per capita in the medium and long term;
- Reduce the dependence on import of energy through continued and expanded exploitation of indigenous resources and improvement of energy efficiency and/or conservation of energy use;
- Liberalize the energy market by encouraging and accommodating private sector participation in energy development and energy services, thereby enhancing competitiveness and engendering lower prices;
- Take advantage of renewable, local energy resources, wherever this is possible from the aspects of availability (potential), energy demand, technical and social implications, economic feasibility, ecological harmony and sustainability;
- To always encourage and stimulate the efficient use of all energy resources, keeping in mind that all types of energy are either scarce or need significant amounts of capital to be tapped or transposed into applicable forms of energy use;
- In all its decision making with respect to energy services development, the Government will strongly promote the active participation of the energy sector, the general public, NGOs, etc.
- In delivering energy services, government will minimise subsidies to consumers and set prices and tariffs in such in way that they timely reflect full cost but taking into account ways to relieve the price burden on the lowest income households;
- Take advantage of national expertise and know-how as far as possible for the development and delivery of energy services. Where importation of resources is required, provide incentives for the use of the most available technology;
- Ensure that the measures taken in pursuing this energy policy is in line with the requirements and legal implications of the Caribbean Single Market Economy (CSME).

## 2 Rationale for a National Energy Policy

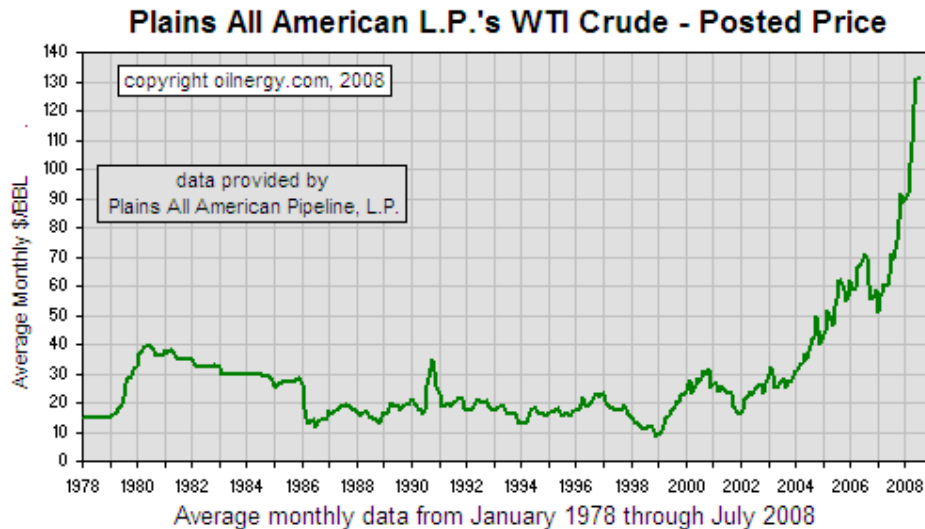
### 2.1 Global perspective

1. Average world oil prices in every year since 2003 have been higher than the average for the previous year. Prices in 2007 were nearly double the 2003 prices in real terms. Prices rose further into the third quarter of 2008, peaking at \$147 per barrel in mid-July, when they were well above the historical inflation-adjusted record price for a barrel of oil set in the early 1980s.

2. The spot price of WTI<sup>1</sup> crude oil increased from US\$122 per barrel in June 2008 to US\$145 per barrel in July 2008, in part because of perceptions of tenuous supply in several of the major exporting countries, By August 2008, the price fell back to less than US\$120 per barrel. WTI prices, which averaged US\$72 per barrel in 2007, are projected to average US\$119 per barrel in 2008 and US\$124 per barrel in 2009.



<sup>1</sup> WTI – West Texas Intermediate, type of crude oil that is used as benchmark for oil pricing.



3. A variety of factors have caused oil prices to increase, including strong demand growth in non-OECD Asia and the Middle East, no growth in production since 2005 from the members of the Organization of the Petroleum Exporting Countries (OPEC), rising costs for oil exploration and development, across-the-board increases in commodity prices, and a weaker U.S. dollar.

4. The 2006 edition of International Energy Outlook<sup>2</sup> and World Energy Outlook project that by the year 2030 total primary energy demand will increase by over 50%. In particular, increased international demand for oil and natural gas is directly attributable to burgeoning consumption in countries like China and India, where the use of oil and gas has increased at an average rate of 8% per annum over the last three years. The International Energy Agency (IEA) expects global demand for oil to grow by 41% by 2030.

5. How supply will keep with this demand is unknown: the IEA in its World Energy Outlook 2006 stated that “the ability and willingness of major oil and gas producers to step up investment in order to meet global rising demand are particularly uncertain.” The risk of supply failure is growing. The current and urgent challenge confronting the international community is the identification of plausible ways to maintain reasonable energy prices, mitigate the adverse effects of high petroleum prices, minimize fossil fuel supply

<sup>2</sup> Energy Information Administration / US Department of Energy, International Energy Outlook, June 2006

disruptions, lower the increase in consumption of fossil fuels and minimise climate change effects stemming from greenhouse gas emissions as well as design the energy supply in such a manner that it is environmentally and socially sustainable and allows access to modern energy services for all mankind.

6. Consumption of petroleum products globally has fuelled environmental concerns particularly as they relate to climate change. The smaller island states of the Caribbean are only minor contributors to greenhouse effects through the release of CO<sub>2</sub>, but are vulnerable to sea level increase and changes in climate conditions, such as lower precipitation and a higher occurrence and intensity of hurricanes. Several international conventions such as the Kyoto Protocol, attempt to secure commitments to reduce global emissions from energy-related activities. In parallel, there have been important technological advances designed to minimise adverse environmental impacts.

## **2.2 Regional setting**

7. The Caribbean Community consists of developing small island States and low lying coastal States, all of which exhibit unique and peculiar characteristics, including, inter alia, varying topographies, limited natural resources, small populations and fragmented markets with different energy product specifications.

8. CARICOM countries consume approximately 240,000 boepd<sup>3</sup> and approximately 95% of this amount is derived from fossil fuels. With the exception of Trinidad and Tobago and to a lesser extent Belize,<sup>4</sup> CARICOM countries are essentially net importers of crude oil and refined products, largely from extra-regional sources. Specifically, CARICOM Member States source petroleum products from Trinidad and Tobago (PETROTRIN), Curacao (PDVSA), and more recently Puerto Rico (Shell), and St. Croix (Hovensa). Table 1 illustrates CARICOM's Petroleum Demand and Supply Balances as at 2006.

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<sup>3</sup> boepd = barrels of oil equivalent per day

<sup>4</sup> Belize recently began exporting crude but still imports refined products.

Table 1: CARICOM Region Petroleum Supply Demand Balance 2006 '000/Day														
Country	Crude Oil					Refining			Products					Local Cons.
	Production	Exports*	Exports**	Imports*	Imports**	To Refining	Capacity	Thruput	Output	Exports#	Exports##	Imports#	Imports##	
Barbados	0.95	0.95	-	-	-	-	-	-	-	3.30	-	10.76	-	7.46
Belize	2.22	-	2.03	-	-	-	-	-	0.13	-	-	2.89	-	3.01
Jamaica	-	-	-	-	20.50	-	35.00	20.70	20.21	12.36	-	24.01	30.60	62.46
Suriname	13.50	-	-	-	-	13.50	7.20	7.20	13.38	4.53	0.10	8.88	-	17.63
T&T	145.00	-	75.00	85.00	-	155.00	160.00	155.00	152.00	54.00	78.00	-	-	20.00
Others	-	-	-	-	-	-	-	-	-	3.00	-	45.00	-	42.00
<b>Totals</b>	<b>161.67</b>	<b>0.95</b>	<b>77.03</b>	<b>85.00</b>	<b>20.50</b>	<b>168.50</b>	<b>202.20</b>	<b>182.90</b>	<b>185.72</b>	<b>77.20</b>	<b>78.10</b>	<b>45.00</b>	<b>30.60</b>	<b>152.56</b>
*Regional ** Extra Regional											# Regional		## Extra Regional	
Sources: Barbados National Oil Company; Belize: Central Statistical Office; Gov of Jamaica: MITEC and PetroJam; Petrotrin; Staatolie.											Feb 1,2007			

9. Owing to increasing international demand for petroleum and rising petroleum prices, CARICOM countries are grappling with critical issues relating to security of supplies and pricing and transportation arrangements for petroleum products traded in the region. With a view to ameliorating the deleterious economic effects of high petroleum prices, many CARICOM States have availed themselves of support available from Trinidad and Tobago's Petroleum Stabilization Fund implemented in July 2004, and the Energy Co-operation Agreement (PETROCARIBE) signed in June 2005. As adumbrated in the Energy Co-operation Agreement, the primary purpose of the PETROCARIBE arrangement is to contribute to the social and economic development of Caribbean countries, through the principles of integration outlined in ALBA<sup>5</sup>.

10. In June 2005, eleven (11) CARICOM Member States<sup>6</sup> signed the Energy Co-operation Agreement (PETROCARIBE), while so far nine (9) CARICOM Member States<sup>7</sup> have signed bilateral agreements with Venezuela. With respect to the Trinidad and Tobago's Petroleum Stabilization Fund, TT\$750 million (US\$ 125 million) of grant funds have been disbursed as at the end of December 2006.

11. With respect to the refining capacity of the CARICOM region, there are three

<sup>5</sup> Bolivarian Alternative for the Americas.

<sup>6</sup> Eleven Members of CARICOM signed the Framework Agreement - Antigua and Barbuda, The Bahamas, Belize, Dominica, Grenada, Guyana, Jamaica, Suriname, Saint Lucia, St. Kitts and Nevis and St. Vincent and the Grenadines

<sup>7</sup> Nine Members signed bilateral agreements - Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, Suriname, St. Kitts and Nevis and St. Vincent and the Grenadines

refineries with a total capacity of 202,000 bpd<sup>8</sup>. The total expenditure for planned refinery upgrade projects for all 3 refineries has been projected to exceed US\$1.5 billion. In light of the scarce resources available to the Governments of the region for economic development, opportunities exist for integration or rationalization of regional refining industry and production capacities in the energy sector.

12. Currently, a CET<sup>9</sup> of 10% to 20% is applied on petroleum products imported from extra-regional sources. Products originating from refineries within the CARICOM Single Market (CSM) and imported crude oil are zero rated. At the Seventeenth Inter-Sessional Meeting of the Conference of Heads of Government of the Caribbean Community, the Heads “welcomed the expression of willingness of Trinidad and Tobago to facilitate PETROCARIBE and to support the application for suspension of the Common External Tariff by Member States when made to the COTED<sup>10</sup>”

13. In 2006 CARICOM implemented the CSM, with plans for the CARICOM Single Economy (CSE) to come on stream in 2008. With a view to achieving one of the principal CARICOM Single Market and Economy (CSME) objectives of accelerated, co-ordinated and sustained economic development and convergence, it is incumbent upon Member States to secure adequate energy supplies; increase renewable energy sources; ensure environmental protection, and promote measures for solidarity among Member States in times of energy crises.

### **2.3 Energy Situation in SVG**

14. St. Vincent and the Grenadines (SVG) is a multi-island state comprising the main island of St. Vincent and seven smaller inhabited islands with about 30 uninhabited islets and cays constituting the Grenadines. Together, they occupy a total landmass of 388 km<sup>2</sup>. The estimated population of SVG is approximately 110,000 people, with less than 100,000 of those living on the main island St. Vincent.

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<sup>8</sup> bpd = barrels per day

<sup>9</sup> CET = Common External Tariff

<sup>10</sup> Summary of Recommendation and Conclusions of the Seventeenth Inter-Sessional Meeting of the Conference of Heads of Government of the Caribbean Community, Port of Spain, Trinidad and Tobago, 9-10-February 2006



15. SVG is heavily dependent on imported petroleum products for electricity generation, transportation, cooking, and other energy requirements. SVG has an energy mix with more than 96% petroleum base and about 3% hydro power. All islands except St. Vincent depend entirely on diesel generation for their electricity supply.

16. SVG's state-owned utility VINLEC is the sole provider of electricity to the main island St. Vincent, and the Grenadines islands of Bequia, Union Island, Canouan, and Mayreau. The company operates diesel and small hydro power stations on mainland St. Vincent, while the Bequia, Union Island, Canouan and Mayreau islands are completely reliant on diesel powered systems. The other Grenadines islands are supplied by privately owned electricity systems on the basis of diesel plants.

17. Almost half of the electricity delivered is consumed by the domestic sector, while the commercial sector (includes the public consumption for hospitals, schools, administration buildings etc.) is in a very close second position. Industry and street lighting are of minor importance.

18. SVG has substantial renewable energy sources to provide for heat (solar thermal, biomass) and electricity (wind, geothermal, hydro, and solar) and possibly fuel (biomass). Those resources can cover larger shares of the energy needs as this is presently not taking place. While the use of hydro power for electricity generation has a long-standing tradition, the active tapping of solar energy for hot water production is of recent nature. Both technologies are mature and competitive.

19. According to preliminary studies elaborated with assistance from the German Agency for Technical Cooperation (GTZ) within the Caribbean Renewable Energy Development Programme (CREDP) further potential exists for additional hydro power exploitation through rehabilitation and expansion of existing plants and development of new sites. The conservatively estimated unused hydro power potential is in the range of 5 – 10 MW, namely from the rivers of Wallilabou and Bucament.

20. The use of solar collectors for hot water production is already wide-spread and

mainly common on larger domestic buildings. To date all collectors are imported models, mainly brought in from Barbados. It is obvious that the installation of such appliances could be further extended to ensure that all hot water needs are covered by solar energy. This refers mainly to private households which currently use other means of hot water generation, but also and in particular to all larger consumers of warm water, such as hospitals, hotels and restaurants.

21. There is considerable wind energy potential mainly on the eastern side of St. Vincent and Bequia and on all of the smaller islands. Traditionally, wind power has been utilized in the past for grinding of grains.

22. With assistance from CREDP/GTZ, potential wind sites for small wind parks have been identified. Since September 2005, VINLEC records wind data at a site at Brighton. The measured mean wind speed of the first nine months is above 8 m/s in 10 m height indicating even higher wind speeds in 40 to 50 m, which is the average hub height of a standard wind turbine suitable for St. Vincent. Another wind measurement tower has been put into operation at Ribishi Point close to the landfill site in March 2007, recording wind speeds and directions at 10m and 30m height.

23. Biomass resources are currently mainly exploited in a non-sustainable manner through the use of charcoal. There are no known biogas plants or other applied technologies that make use of biomass resources in a modern way. The potential to extract oil from coconuts or other seeds (like *Jatropha* – also known as Barbados nut in the region) and use this oil either in its pure form or transfer it into biodiesel has so far not been examined.

### **3 Policies and Goals**

#### **3.1 *Planning and Management***

The growing importance being accorded to energy issues necessitates the need to ensure that there is the ability to effectively plan and manage the national energy sector so as to assist in reducing the

uncertainty in decision making for the public and private sector. Through this policy Government will strengthen its capacity to formulate, implement and monitor energy policies and programmes in a coordinated manner.

For this task to be fulfilled effectively it is essential that the database on all relevant aspects of the energy sector is complete and consistent and continuously kept up-to-date. In addition, the implementation of the National Energy Policy and the coordination of individual actions require an appropriately staffed designated authority within the Government and it may be necessary to create and develop new sections and add new staff positions within the public and private sector.

The goal for planning and management in the energy sector is:

**Efficient and well-coordinated planning and management activities to achieve sustainable supply and use of energy.**

### **Policies**

- 3.1.1 Ensure that energy planning and management addresses the efficient and sustainable use and management of imported and natural energy sources
- 3.1.2 Improve, expand and maintain a database on all energy-relevant aspects
- 3.1.3 Improve decision-making and encourage more effective co-ordination of energy sector planning and management
- 3.1.4 Promote the delivery of efficient and cost-effective energy services
- 3.1.5 Designate an authority with adequate resources within the Government that is responsible for the National Energy Policy and coordinates its implementation with the various Government Departments

- 3.1.6 Create appropriate staff positions within VINLEC and other state-dependent institutions in order to implement the National Energy Policy
- 3.1.7 Provide educational programmes relating to energy sector issues, including in particular conservation, efficiency and use of renewable energy sources
- 3.1.8 Elaborate (and regularly update) an Action and Implementation Plan detailing potential energy sources and technologies, timescales and investments required to service SVG's growing energy demand in a sustainable manner
- 3.1.9 Ensure that international funding and technical assistance is made available and the energy policy is developed within the context of regional approaches and objectives.

### **3.2 Power Sector**

Reliable and affordable electricity is essential for the economic and social development of Saint Vincent and the Grenadines. Key issues include increasingly high costs for imported fuel and the option to use cost-efficient natural resources, such as hydro, wind, solar and geothermal energy. Further problems arise from the country-wide inexperience of using such resources, the partially inefficient generation of electricity with older diesel and hydropower schemes and the inefficient consumption of electricity.

The goal for the power sector is:

**Safe, efficient, reliable, affordable and environmentally friendly electricity generation and supply for all parts of St. Vincent and the Grenadines.**

#### **Policies**

- 3.2.1 Improve the efficiency of power production, transmission and distribution to optimise costs and fuel consumption

- 3.2.2 Promote sound energy efficiency and conservation practices for all consumers
- 3.2.3 Explore the existing potentials of renewable energy sources for electricity generation
- 3.2.4 Support the introduction of new commercially proven generation technologies that are environmentally, economically, financially and socially viable
- 3.2.5 Access imported fossil fuels at lowest costs, respecting environmental concerns and supply security
- 3.2.6 Establish mechanisms that allow for a fair access to the transmission/distribution grid and provide the basis for a stronger involvement of the private sector in electricity generation.

### **3.3 Renewable Energy**

Indigenous Renewable Energy Sources (RES) in the form of solar, wind, hydro and geothermal provide the most appropriate long-term alternative sources to replace imported petroleum products for electricity generation and heat production in SVG. Key issues in renewable energy include a lack of technical expertise and relatively weak institutional structures that would allow public or private investors to tap such resources in a timely manner and secure environment. The current situation is further defined by insufficient knowledge about the RES potentials, lack of financial commitment and support to renewable energies as well as insufficient private sector participation and investment.

The goal for renewable energy is:

**Increase the utilisation of renewable energy technologies on all islands of Saint Vincent and the Grenadines.**

#### **Policies**

- 3.3.1 Promote the increased use of appropriate renewable energy technologies, which are technically and commercially proven, financially and economically viable, and environmentally friendly.
- 3.3.2 Analyze the potentials of renewable energy sources on all islands, make site-specific assessments and elaborate project proposals.
- 3.3.3 Develop local expertise in the production, installation, operation, management and maintenance of technically and economically proven renewable energy systems.
- 3.3.4 Encourage private sector participation in the development, financing and management of renewable energy projects.
- 3.3.5 Design and initiate a national Renewable Energy education and awareness for all sectors of the civil society.
- 3.3.6 Provide financial and fiscal incentives that allow Renewable Energy technologies to be market competitive, taking into account economical benefits from the use of such technologies.
- 3.3.7 Investigate options and potential benefits from importing biofuels to Saint Vincent and the Grenadines.
- 3.3.8 Consider the mandatory installation of solar thermal collectors for all major users of hot water.

### **3.4 *Petroleum Sector***

Importation of petroleum products, including LPG, accounts for a significant and steeply increasing proportion of total national imports of SVG. Moreover, they are fundamental to SVG's socio-economic development and will continue to be so for the foreseeable future. The maintenance of a reliable and cost-effective supply of petroleum products is essential.

The cost of fuel imports per unit should be minimized through good supply contract negotiations and management. The overall volume of petroleum derivate imports should increase at a lower rate than economic growth through appropriate conservation and efficiency measures and by substituting the use of petroleum with renewable energies.

A clean environment is crucial to the economic and social well-being of the people of SVG. Irresponsible use and handling of petroleum products can cause significant damage, particularly in fragile island coastal and marine environments. For this reason, the proper importation, handling, storage and use of petroleum products and management of waste petroleum derivates (mainly lubricants) is an important issue.

The goal for the petroleum sector is:

**Safe, reliable and affordable supplies of petroleum products and its efficient and clean handling and use.**

#### **Policies**

- 3.4.1 Ensure a secure and reliable supply of petroleum products at lowest import costs available, and conforming to agreed product standards and specifications
- 3.4.2 Encourage fuel conservation and efficient end-use, thereby reducing dependence on imported petroleum products.
- 3.4.3 Ensure that new and existing petroleum storage and handling facilities conform with standards approved for SVG.
- 3.4.4 Ensure that adequate storage facilities for petroleum products are available throughout SVG at strategic locations.

3.4.5 Promote the collection, transportation, environmentally responsible re-use, disposal, or removal of waste oil and other petroleum by-products to minimize adverse impacts on soil, ground-water, and near-shore fisheries.

### **3.5 Transportation**

Road, air and marine transport provide an essential service that enables economic and social development. The transportation sector in SVG consumes a large proportion of the imported petroleum products in the form of gasoline, diesel and aviation kerosene. Clearly the introduction of measures that conserve transports fuels and increase the efficiency of their use will have long-term economic and environmental benefits for SVG.

The goal for transportation is:

**Efficient, environmentally clean and cost-effective transportation.**

#### **Policies**

- 3.5.1 Improve fuel conservation and efficiency for the land and marine transport sectors
- 3.5.2 Minimise the detrimental impact of petroleum product consumption in the transport sector on land, atmosphere and marine environment.
- 3.5.3 Provide the basis and sufficient incentives for improvements of the public transport system as alternative to individual vehicle use.
- 3.5.4 Improve road conditions and traffic management as to avoid congestions and prioritize public transport busses.
- 3.5.5 Investigate consequences and benefits of substituting the use of gasoline by LPG for taxis.



- 3.5.6 Take adequate measures to minimize the import of outdated and high-consuming second-hand cars
- 3.5.7 Introduce a taxation system that gives incentives for the use of fuel-efficient passenger cars and other vehicles
- 3.5.8 Introduce regular motor check-ups to avoid unnecessary emissions and limit the fuel consumption to the lowest possible level.

### **3.6 Energy Efficiency**

Energy efficiency is a cross-cutting issue that touches the generation and consumption of electricity as well as the use of fuel in the transport sector. From society's perspective, achieving greater energy efficiency generally requires less investment than does new generation, and also means less energy-related environmental impact. From an individual's perspective, it can mean significant savings over the long term. However, despite the obvious benefits, there has historically been a lack of energy-efficiency initiatives in SVG.

The goal for energy efficiency is:

**Minimized energy input and lowest possible energy intensity for all energy-related services**

#### **Policies**

- 3.6.1 Promote energy audits for key energy consuming sectors, such as industries, hotels, restaurants and public buildings
- 3.6.2 Provide fiscal incentives for the import of energy-efficient appliances
- 3.6.3 Strengthen consumer information on purchase and use of energy-efficient appliances

- 3.6.4 Carry out studies on consumption patterns in different sectors to be used in the design of appropriate energy-efficiency measures
- 3.6.5 Raise the general awareness about energy efficiency among the civil society, e.g. by organizing regular energy weeks
- 3.6.6 Establish standards for the insulation of new buildings that will be equipped with air-conditioning systems
- 3.6.7 Consider further fiscal measures in respect of incandescent light bulbs.
- 3.6.8 Continue the grant of fiscal incentives for the use of energy-saving light bulbs.