BARBADOS EXPERIENCE

TITLE OF THE EXPERIENCE: Sustainable Energy Framework for Barbados (SEFB)

Country: Barbados

Institution: Division of Energy and Telecommunications, Prime Minister's Office

Other institutions involved: Inter-American Development Bank (IDB), Ministry of Agriculture and Rural Development, Ministry of Family, Youth Affairs, Sports and Environment (MFYSE); Ministry of Tourism (MT); Barbados Agriculture Management Company; and West Indies Central Sugar Cane Breeding Station.

Date: June 1, 2012 - Present

Related Principle: 10- Promote energy efficiency and development in the context of our efforts to foster environmental, social and economic sustainability, including the vision to become low carbon economies.

Context

Over the last nine years, the price of oil, the primary source of energy in the world, has risen steadily and has more than tripled moving from US$30 pet' barrel to the unprecedented level of over US$IOO per barrel. The increases in the international oil prices started in the latter half of December' 2001 and have trended upwards reaching a high ofUS$145 per barrel in 2008.

Barbados' too high dependency on fossil fuels risks undermining the country's competitiveness and its economic and social development. Almost the entirety of the country's electricity generation is fossil-fuel based; almost 82% with heavy fuel oil and the remaining 18% with diesel.

Power generation represents the main use of fuel in the country (50%) followed by transport (33%). Barbados produces some oil by the state owned Barbados National Oil Co., but domestic demand (10,000 barrels per day) greatly exceeds local supply (less than 1,000 barrels per day). The country spent US$393,538 million in 2011 on oil imports, representing 6% of Gross Domestic Product, which has led to a significant negative impact on direct production costs and therefore on the competitiveness of the Barbadian economy. The importation of petroleum products therefore represents a significant expenditure and drain on Barbados' foreign exchange reserves.

One of the major strategies that the Government has embarked upon is the use of renewable energy, energy efficiency and energy conservation measures to mitigate the high price of oil.

There are now over 40,000 solar water heaters installed on domestic and commercial buildings in Barbados and the island has the fifth highest penetration of solar water heaters in the world of over 45%.

Objectives

The Government is committed to promoting sustainable energy practices both on the supply side, mainly using renewable energy sources and on the demand side, by encouraging energy efficiency and energy conservation as a means to reduce the country's dependency on fossil fuels, enhance security and stability in energy supply, improve economy's competitiveness and achieve greater environmental sustainability.

Essentially the Government is seeking to build on the country's success with the development of the solar water heater industry in Barbados.

In this regard, the Government of Barbados is committed to initiating and continuing systemic changes aimed at ensuring that the reforms are sustainable, fiscal policy and management are consistent with principles of prudency, procurement and financial management processes are better integrated and the regulatory framework is consistent with international standards.

The Government of Barbados is seeking to replicate this success in other areas. A set of structural reforms in the energy sector are being undertaken aimed at promoting strong and sustained economic growth by reducing foreign oil dependency, increasing energy security, promoting renewable energy and energy efficiency, creating jobs and promoting public awareness and education as part of a Sustainable Energy Framework of Barbados.

Relevance

It is estimated that over US$12.95 million in energy costs are saved by consumers annually through the use of solar water heaters in Barbados.

Implementation

This effort is being clone as part of a broader effort within the Government’s medium term fiscal strategy which is aimed at improving efficiency of public expenditure and the maintenance of a prudent macroeconomic strategy.

In addition, the Cabinet has recently approved renewable energy and energy efficiency policies and new legislation (Draft Electric Light and Power Act) has been drafted to, inter alia, facilitate the sale of electricity to the grid by independent power producers. It is expected that this legislation will be approved by Parliament later this year. Draft rules with respect to Independent Power Producers and to encourage the use of Renewable Energy are being reviewed. The Cabinet h3s also recently approved a phase out plan for energy inefficient lighting and a capacity and institutional strengthening plan for the energy sector. A draft National Sustainable Energy Policy has also been prepared and is expected to be completed by July 2012.

Furthermore, the Government will shortly negotiate a Public Sector Energy Programme which will involve the retrofitting of streetlights and traffic lights with energy efficient lights and the retrofitting of at least twelve (12) government buildings using solar photovoltaic systems.
Being cognizant of the success of the solar water heater industry due to the introduction of fiscal incentives, the Government has also created a separate income tax allowance for the installation of

renewable energy and energy efficient systems. 1n addition, wind turbine systems, photovoltaic components and systems, wave or tidal power systems, fuel cell systems and geo-thermal heat pump systems are exempted from import duties.

The Government expanded the Sustainable Energy Framework of Barbados Project to include an additional U8$1 million in grant funding n'0111 the Global Environmental Facility (GEF) for the implementation of renewable energy demonstration projects. This programme will install 3,000 power monitors, 15,000 compact fluorescent lamps, 28 photo-voltaic systems and one micro wind system in selected households and other places.

In order to ensure the sustainability of these initiatives, the Government of Barbados decided to take a two-fold approach with the IDB as follows:

(i) Develop Programmatic Policy Based Loans in the sums of US$45
million and US$70 million for the Energy Sector as instruments to catalyze the regulatory, policy and legislative measures required to promote sustainable energy. (The proceeds of the loans have already been disbursed).

(ii) The implementation of a Sustainable Energy Investment Programme (Energy Smart Fund) for the commercial sector based on a loan of US$10 million 1'1'0111 the IDB.

While the Energy Policy Based Loans focus on regulatory and policy actions required to promote energy efficiency and renewable energy, the Smart Fund is a package of financial instruments and technical assistance to address the main market failures that mitigate against the country's adoption of renewable energy and energy efficiency policies and practices.

The Smart Fund will help to overcome these problems by providing the finance to overcome the access to capital problem, funding campaigns to develop a critical mass of users of some of the most promising technologies and develop a new market equilibrium in which these technologies become the norm. The Smart Fund has been established and capitalized for the accessing of the proceeds of the Fund.

All of these initiatives will be pursued within the context of a National Sustainable Energy Policy which will be finalized by the end of July this year.

Expected results

This comprehensive programme will create an institutional, policy and operational framework that will set the appropriate incentives to generate substantial energy savings. It will contribute to a reduction of oil imports and hence liberate funds for other purposes. It is projected that Barbados will be able to reduce oil imports cumulative costs over twenty years from U8$2.648 billion to U8$1.978 billion.

Unexpected achievements

The island's record with the development of solar water heaters is still unmatched anywhere in the Caribbean and on a per capita basis in the world.

Seeking Sustainable Results

To facilitate this process, the Government entered into a Technical Cooperation Agreement with the Inter-American Development Bank (I DB) to develop a Sustainable Energy Framework for Barbados (SEFB). This study, which has been completed and accepted by the Government, assessed the energy matrix and analyzed the potential for renewable energy, energy efficiency and bio-energy in Barbados.

This report recommends that the objectives of the SEFB should unlock economically viable investments in renewable energy and energy efficiency that will reduce Barbados' dependency all fossil fuels and thus reduce energy costs, improve energy security and enhance environmental sustainability.

1t suggests that by promoting and implementing renewable energy and energy efficiency technologies that are economically viable, Barbados can substantially improve its energy mix in the next twenty years. This energy mix would be one where renewable energy generation would account for 29 percent of electricity consumption and the remaining 71 percent would come from conventional fossil fuel-based resources.

This energy mix could by 2029:

Cut total electricity costs by OS$283.5 million - the net effect of higher capital costs (by US$386.5 million) but lower fuel costs (by US$670 million).
Cut C02 emissions by 4.5 minion tons.
Reduce reliance on fossil fuels to about 71 percent.

It would also result in an overall 22 percent reduction in projected electricity consumption based on the use of energy efficiency measures.

To date 15 government owned buildings have been audited which show that there is potential for twenty-five to thirty per cent savings on Government's electricity bill. The Government will therefore commence the retrofitting of its buildings to significantly reduce its energy costs.

The Government currently owns and occupies a significant amount of office space and considers that it can achieve savings on its annual energy costs by utilizing the roofs of these buildings to generate photo-voltaic electricity by the installation of photo-voltaic systems. A pilot project for the erection of solar systems on the roofs of nineteen (19) government-owned buildings will commence later in the year (2012). Tenders have been received and contracts for the execution of this work will shortly be awarded

Good practices and concrete lessons

This success of the solar water heater industry has shown that a combination of fiscal incentives and local entrepreneurial spirit can lead to a change in the energy use paradigm. This combination is also expected to promote more economic growth in the country by bringing success to other areas through the implementation of this new fiscal strategy.

The implementation of this fiscal strategy requires a great effort in ten11S of the modernization of the energy sector. In particular, it is necessary to focus on the institutional arrangements to ensure an appropriate implementation of policy and regulation, to promote renewable energy and energy e1Ticiency as well as sound macro-economic stability.

Although many renewable energy and energy efficiency technologies are commercially viable, their uptake in Barbados is low, mainly due to limited access to capital, limited and uncompetitive renewable energy and energy efficiency equipment supply and lack of information.

The Government however recognizes that though providing the regulatory and fiscal framework for renewable energy and energy efficiency, it cannot do it alone. This area is ripe for private sector investment as well as private/public partnerships. The private sector is being encouraged to become actively involved and through smart partnerships and collaborative approaches lend impetus to this

national cause.

It is to be noted that the transition to energy systems which use new technologies is slow. It is therefore considered that there will be a need to engage in some element of market reform in terms of liberalization with a view to creating a competitive, transparent and level playing '!1eld for new actors in the renewable energy market.

Key persons involved in the design, implementation, and evaluation

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