Policy Reform for Sustainable Energy in Latin America and the Caribbean

INTRODUCTION
Reliable and affordable energy services are essential to the modern world. Secure access to these services and the stability of their prices are key concerns for policymakers worldwide. For countries that are predominantly dependent on imported fossil fuels for their electricity generation, there are many associated long-term risks in this regard, including the potential economic disruptions due to petroleum prices volatility, the vulnerability of fuel shipping and storage systems to terrorism and climate change impacts (i.e., increased strength and propensity of hurricanes), and negative environmental impacts associated with fuel combustion. However, there exist stable alternatives to the current patterns of fossil fuel consumption. Modern renewable energy technologies have seen dramatic decreases in costs, coupled with increased efficiency and reliability over the past two decades. The tables below illustrate the cost reductions that have been achieved since 1980 and offer projections for further reductions through 2020.

Despite the technological advancements of sustainable energy technologies and the growing concerns for energy security and the global environment, widespread use of renewable energy systems for power generation and substantial energy efficiency measures in Latin America and the Caribbean is not expected without key changes in energy markets. Utility investment decisions regarding grid-tied power and off-grid energy services are largely driven by rate of return expectations for private power projects. Financial arrangements for electricity utilities favor low upfront costs and continued fuel costs (fossil fuel) over high upfront costs and low fuel costs (renewable energy). The same sentence to high up-front costs is hindering the widespread deployment of energy efficiency technologies.

In addition to the basic structure of the market, other factors may favor conventional fossil fuel power systems including:
- Fuel subsidies offered by many countries
- Fuel storage and delivery infrastructure costs born by the public
- Attracts investment for domestic infrastructure projects
- Many systems are modular and can be expanded as needed
- Fuel subsidies offered by many countries
- Availability of low cost project finance
- Long-term competitive price stability
- High tech job creation
- Flexibility to delivery distributed and household energy

Large-scale renewable energy systems, such as wind farms, biomass electricity, hydropower, and geothermal, offer considerable economic, environmental, and energy security benefits that may be considered by policymakers when considering reforms that will diversify the electricity generation portfolio. These benefits include:
- Reduced vulnerability to fuel supply disruptions
- Long-term competitive price stability
- Flexibility to deliver distributed and household energy to peri-urban and rural populations
- Minimal emissions of greenhouse gases - climate change
- Minimal local pollutants - including air and water emissions
- Attracts investment for domestic infrastructure projects
- High tech job creation
- Many systems are modular and can be expanded as demand grows

Abundant renewable resources, including solar, wind, geothermal, biomass, and hydro may be found throughout Latin America and the Caribbean offering many countries of the region the possibility to utilize domestic natural resources for the production of clean electricity. In fact, renewable energy technologies can help meet the surging growth in electric power demand - both on and off-grid - throughout the region. Additionally, when coupled with the implementation of energy efficiency improvements significant reductions in fossil fuel use for power generation can be achieved.

CONCLUSION
Sustainable energy technologies, including renewables and energy efficiency have the potential to significantly reduce the amount fossil fuels that are consumed for the production of electricity in Latin America and the Caribbean. It is clear that there are many benefits to be accrued by diversifying power generation resources to include these technologies. While the benefits - including power system price stability, infrastructure security, environmental protection, and rural economic development - may be convincing, policy and regulatory reform is required to help level the playing field with regard to conventional fossil fuel systems.

The outlook for clean energy in Latin America and the Caribbean is more promising today than ever before. The fusion of a heightened interest and appreciation for renewable energy and energy efficiency benefits, combined with increasingly competitive modern technologies has led to a situation in which these systems can provide the most economically sound, long-term investment in the growing power needs of the hemisphere.

For further information please review the webpage for the Office For Sustainable Development and Environment of the General Secretariat of the Organization of American States (OAS/USDE, http://www.oas.org/usde). This USDE Policy Brief series provides a forum for discussion on issues pertinent to sustainable development to help transfer good practice and lessons learned from project design and implementation. This is the fifth in a series that includes topics on:
- Water Resources Management
- Transboundary Aquifers
- Biodiversity Conservation
- Trade and Economic Integration
- Natural Hazard Mitigation

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BENEFITS OF RENEWABLE ENERGY
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- Long-term competitive price stability
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- Minimal emissions of greenhouse gases - climate change
- Minimal local pollutants - including air and water emissions
- Attracts investment for domestic infrastructure projects
- High tech job creation
- Many systems are modular and can be expanded as demand grows

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In addition to the basic structure of the market, other factors may favor conventional fossil fuel power systems including:
- Fuel subsidies offered by many countries
- Fuel storage and delivery infrastructure costs born by the public
- Petroleum exploration tax (and other economic) incentives
- Availability of low cost project finance
- The absence of charges for environmental impacts

Conventional energy systems struggle to reach isolated, low-density rural populations, whereas, renewable energy systems such as solar and wind power can often provide electricity and hot water where power lines cannot reach.

The policy challenges for off-grid applications are different than grid-connected needs, but are also crucial in creating a receptive investment environment for sustainable energy technologies. Since renewable already have significant cost advantages in many off-grid applications, the policy focus is not so much on energy portfolios and financial transfers, but rather in ensuring that utilities continue to make investments in rural areas where populations may be dispersed and sparse. As rural electrification offers lower returns due to its intrinsic characteristics - mainly a widely scattered market - it is generally not attractive to private capital. A first step toward the development of a successful rural electrification strategy is a commitment, at the national level, to furthering the electrification process. Often this means continued financial obligations - subsidies - on the part of the government to reach the nations poorest citizens. Additionally, strategies to break the model of centralized generation combined with grid-extension, and accepting that distributed generation may be less costly and technologically attractive are often successful in rural areas. Policy options in this regard include:

- **Rural Concessions.** Argentina has designed an innovative rural electrification policy, with the support of the Global Environment Facility (GEF) and the World Bank, which gives exclusive power provision concessions for specified rural areas, combined with a uniform kWh subsidy. Franchise rights for rural concession areas are given to the private sector entities that enter and provide electric services to rural households and community centers.

- **Provide Direct Subsidies for Rural Electrification.** The state may provide direct subsidies for investments in rural electrification, where the market conditions are not otherwise attractive for rural cooperatives or private utilities. It is advisable that such subsidies be direct, and targeted at the investment costs for the projects. In Chile, through its National Rural Electrification Program, the State provides subsidies of 60%–70% of the initial investment costs for off-grid rural electrification projects.

- **Subsidy Repackaging.** Many rural energy needs have traditionally been assisted through subsidies on the conventional fuels being used, including diesel and kerosene. Since renewable costs do not generally require fuel expenditures, but rather in the initial capital investments, it is important to restructure rural energy subsidies so that they can also apply to renewable technologies. This is being practiced in Brazil where the CCC Fund (Conto de Consumo de Combustíveis - Diesel Subsidy Fund) may be utilized to invest in solar, wind, and biomass energy where these technologies are more appropriate.

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Using natural renewable energy sources and Exemptions from Taxes.

This system is basically a tax collected on the use of renewable energy systems such as solar, wind, and small hydro generators by guaranteeing power sale contracts to the renewable energy projects. It can be applied to all large suppliers with diverse energy portfolios. It can serve as the guiding force behind multiple efforts that are working with the governments of Dominica, Saint Kitts and Nevis, and Saint Lucia to prepare geological resource development laws for each country.

Countries need long-term energy solutions, and in order to obtain these they may elect to design policies that create a market, which is receptive to the needs of long-term investments such as renewable technologies. Several approaches have been presented here, and there are many other options available. A comprehensive discussion in the development of energy policy can be found in the Report of the Round Table on Renewable Energy Policy Manual, on the REIA website at http://www.oas.org/reia/english/Documents/RE_policy_manual.htm.

POLICIES FOR OFF-GRID RENEWABLE ENERGY

There are many factors that can contribute to growth and quality of life improvements in rural areas, but electrification is certainly a key component. Reliable electricity can contribute to improvements in key sectors including:

- health care (vaccine refrigeration, lighting, water heating)
- education (TV/VCR and computers, lighting, tape players)
- economic opportunities (small business development, agricultural applications)
- municipal water (water treatment, water pumping)
- residential (lighting, TV, small appliances, computers)

Government sets substantial environmental and economic benefits for St Lucia resulting from sustainable energy development, especially if it involves an environment-friendly indigenous fuel source.

POLICIES TO ENCOURAGE THE DEVELOPMENT AND USE OF GRID-TIED RENEWABLE ENERGY SYSTEMS AND ENERGY EFFICIENCY TECHNOLOGIES

When policymakers set out to alter energy market conditions, a first step involves articulating clear goals and objectives for the sector. A national plan may outline the general direction and identify the areas of the market where policy initiatives should focus. With the support of the Renewable Energy in the Americas (REIA) initiative in the General Secretariat of the Organization of American States (OAS/OEA), the governments of Saint Lucia prepared and subsequently adopted a National Sustainable Energy Plan (SEP) in 2001. This SEP now serves as the guiding force behind multiple efforts that are working with the governments of Dominica, Saint Kitts and Nevis, and Saint Lucia to prepare geological resource development laws for each country.

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