



ENERGY ACCESS - "MDGs" LINK AND THE CARIBBEAN COMMUNITY

The United Nations Summit on the Millennium Development Goals (MDGs) which was held in New York, USA from 20-22 September 2010, sought to assess the progress made towards achieving the MDGs, as well as, to find ways to accelerate the process. The Summit concluded with the general consensus that, despite the set-backs of the financial and economic crises, progress is being made towards achieving the MDGs, however, this is uneven and much more work needs to be done. There was an adoption of a global action plan to achieve the eight anti-poverty goals by the 2015 target date and the announcement of major new commitments for women's and children's health, and other initiatives against poverty, hunger and disease. *Also of significance was the recognition in the*

final declaration, of the "importance of addressing energy issues, including access to affordable energy, energy efficiency and sustainability of energy sources and use, as part of global efforts for the achievement of the Millennium Development Goals and the promotion of sustainable development" – thanks to UN-Energy.

Heads of Government of the Caribbean Community (CARICOM) who were among the 140 Heads of State and high ranking Government officials present at the Summit, pointed to challenges posed by the impact of the many crises, but nevertheless reaffirmed their countries' commitment to achieving the MDGs.

Energy The 'Missing MDG'

During a high-level meeting at the Summit, organized by the United Nations Industrial Development Organisation

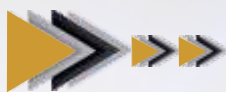
and the UN Secretary-General's Advisory Group on Energy and Climate Change, pointed out that, *"Energy is at the heart of every challenge we face today: be it economic growth, equity, climate change, poverty reduction, or food security"*. Dr. Rajendra Pachauri of India and Chair of the Intergovernmental Panel on Climate Change pointed to the fact that, *"energy remained the 'missing MDG'"*.

Indeed, seven of the eight MDGs (*See Box 1 on page 2*) cannot be achieved without access to reliable, modern and clean energy services, the core element

for dramatically reducing poverty, promoting gender equality, improving health, and facilitating economic development. The absence of reliable energy services means that neither health clinics nor schools can function properly. In addition, access to clean water and sanitation is constrained without effective pumping capacity. Food security is adversely affected, often with devastating impact on the vulnerable populations. Further, productive economic activities that could help lift people out of poverty are severely constrained. Women and girls who have to travel many miles and use a large part of their daylight hours to fetch firewood and water, tend to bear the brunt of the burden of the energy poverty problem rendering it a non gender-neutral issue. Further, the health hazards associated with smoke inhalation is a matter of life and death. *Based on analysis carried out jointly with the World Health Organization, there are more people*



Women and children bear the brunt of the burden of energy poverty problem



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Dr. Kandeh K. Yumkella, Director-General of UNIDO, Chair of both the UN SG's Advisory Group on Energy & Climate Change and UN-Energy

(UNIDO) and the United Nations Development Programme (UNDP), Dr. Kandeh K. Yumkella, Director-General of UNIDO, and Chair of both UN-Energy

Box 1

MDG		Energy Linkage
1. Eradicate extreme poverty and hunger		Energy inputs such as electricity and fuels are essential to generate jobs, industrial activities, transportation, commerce, micro-enterprises, and agriculture outputs
2. Achieve universal primary education		To attract teachers to rural areas, electricity is needed for homes and schools. After dusk study requires illumination. Many children, especially girls, do not attend primary schools because they have to carry wood and water to meet family subsistence need
3. Promote gender equality and empower women		Lack of access to modern fuels and electricity contributes to gender inequality. Women are responsible for most household cooking and water boiling activities. This takes time away from other productive activities as well as for educational and social participation. Access to modern fuels eases women's domestic burdens and allows them to pursue educational, economic and other opportunities.
4. Reduce child mortality		Diseases caused by un-boiled water and respiratory illnesses caused by the effects of indoor air-pollution from traditional fuels and stoves, directly contribute to infant and child diseases and mortality.
5. Improve maternal health		Women are disproportionately affected by indoor air-pollution, and water or food-borne illnesses. Lack of electricity in health clinics, lack of illumination for nighttime child birth, and the daily drudgery and physical burden of fuel and water collection and transport, all contribute to poor maternal health conditions, especially in rural areas.
6. Combat HIV/Aids, malaria, and other diseases		Electricity for communication equipment, such as radios and televisions, can spread important public health information to combat deadly diseases. Health care facilities, doctors, and nurses, all require electricity (for illumination, refrigeration, sterilization, etc.) to deliver effective health services.
7. Ensure environmental sustainability		Energy production, distribution, and consumption have many adverse effects on the local, regional, and global environment. These effects include: indoor, local, and regional air-pollution; Local air-borne particulates; land degradation; acidification of land and water; and climate change. Cleaner energy systems are needed to address all of these effects and to contribute to environmental sustainability.
8. Develop a global partnership for development		The World Summit for Sustainable Development (WSSD) called for partnerships between public entities, development agencies, Civil society, and the private sector to support sustainable development, including the delivery of affordable, reliable, and environmentally sustainable energy services.

Access to modern energy services is a prerequisite to achieving MDGs and poverty reduction

Source: UNDP

dying from smoke from biomass for cooking than from malaria or tuberculosis today.

There are two dimensions to the problem of lack of energy access or energy poverty viz, lack of access to electricity, and reliance on traditional biomass (such as firewood, charcoal, animal dung, etc.) for cooking. Approximately 40% or 2.6 billion people in the world today rely on firewood and other traditional biomass fuel (e.g. animal dung) for cooking and heating, and about 20% or 1.4 billion have no access to electricity. According to an International Energy Agency Report, produced in conjunction with UNIDO and UNDP, the MDG of eradicating extreme poverty by 2015 would be possible only if an additional 395 million people obtain access to electricity and an additional 1 billion are provided with access to clean cooking facilities.

Caribbean Community Situation

In CARICOM, the lack of access to electricity and modern cooking fuel is a mammoth problem in Haiti, and a significant challenge in Suriname (with 70% access), Guyana (with 90%), Belize (with 90%) and Jamaica (with 97%). The challenge is far less for the remaining CARICOM Member States which have 95

-100% access to electricity.

In Guyana, Belize and Suriname, the problem is mainly confined to the hinterland communities and there have been significant strides in addressing this situation through rural electrification or hinterland electrification strategies in these countries. Although the proportion of the population without access to electricity in Jamaica is relatively small, it is significant and is a cause for concern as it translates to approximately 100,000 people, which is larger than, or about the size of the population in at least four Member States. The Government's Rural Electrification Programme which is being implemented since 1973 targets 100% access as a near-term objective pending the availability of resources.

The issue of energy access in Haiti tops first place as the most significant energy sector challenge for CARICOM. Moreso, as the approximately 7 million people (more than 75% of the population) without access to electricity in Haiti surpasses the combined population of 6.3 million for the rest of CARICOM. It is evident therefore, that strategies for the achievement of the MDGs in Haiti, as with many other territories, will necessarily have improving energy access as the key ingredient.

Energy Justice

It is considered that the Energy Access Agenda should be positively impacted by the Climate Change Agenda, as the latter promises greater availability of funding in developing countries to assist their low carbon development strategies. Notwithstanding, many commentators have raised the caution flag, highlighting the need to ensure *energy justice*, arguing that while the energy access agenda is not necessarily in conflict with climate change agenda, for those in extreme poverty (such as the seven million in Haiti), the former is far more urgent than the latter (especially since their contribution to the climate change problem will remain infinitesimally small).

In seeking to improve energy access and reduce energy poverty, *no effort should be spared in ensuring that sustainable energy solution options are pursued*, especially where these options provide special advantages such as being decentralized (e.g. micro, mini, off-grid generations from indigenous RE sources). However, those populations characterized by abject poverty should not necessarily be made to suffer until only RE solutions can be found. In other words, the question is, *why should they remain in their misery for years* until say a bio-fuels powered generation solution can be provided, when today, a fossil fuel solution can be supplied to immediately bring them the electricity for lighting, refrigeration and motive power (for productive purposes), and cleaner cooking fuel without the indoor air pollution and health hazards? This, especially as much of the world continues on its merry way enjoying multiple cars and sports utility vehicles per family.

Every effort should be made by CARICOM and the International Community to enable nations with overwhelming energy access challenges like Haiti, to explore *all options* available for lifting their populations out of energy poverty towards achievement of the MDGs. *It seems that a proposal that the next General Assembly declare 2012 as the Year for Universal Energy Access* is timely, as such a move would herald the start of a global campaign on energy access.



Developments & Opportunities - CARICOM Energy Sector



Joseph Williams,
Programme Manager, Energy
CARICOM Secretariat

— By Programme Manager, Energy —

It is my pleasure to provide an update on three developments related to earlier mandates from the Conference of Heads of Government of the Caribbean Community, and the Third Joint Meeting of the Council for Trade and Economic Development (COTED) and the Council for Human and Social Development (COHSOD) concerning support to Member States in the area of sustainable energy development, as well as, pertaining to the overall advancement of energy sector developments in CARICOM. These are:

- i) **The Submission of a Draft Report on a Study of Energy Pricing** in the Community which, pending review and acceptance by Member States, will pave the way for final deliberations on the CARICOM Energy Policy;
- ii) **The Finalization of a Contribution Agreement for the EU-funded Caribbean Renewable Energy Capacity Support (CRECS) Project** which will make available **1.5 Million Euros** for capacity strengthening to support RE development; and
- iii) **The Signing of a Technical Cooperation Agreement with the IDB for US\$400,000** to develop the Caribbean Sustainable Energy Roadmap.

All of these matters have been on the Agenda for sometime, but the recent finalization of various documentation has now paved the way for full implementation. Given the importance of these, I propose to take some space to discuss each:

Energy Pricing Study and Finalization of the CARICOM Energy Policy

Progress with the finalization of the CARICOM Energy Policy (since the submission of the draft Report by the Task Force on Energy) has been slow due to a lengthy delay in completing the Energy Pricing Study, owing to many issues including the unavailability of funding. The recent submission of the draft Report of this long outstanding Study which was mandated by the Heads of Government, now allows for tangible re-engagement and discussion of the Draft Policy with a view to finalizing same.

Some commentators have expressed the view that the development of the CARICOM Energy Policy has been overtaken by time and events. The main concern expressed in this regard, is that most Member States have gone on to pursue bilateral agreements with Venezuela under the PetroCaribe Initiative, with Venezuela having de facto responsibility for the Regional energy policy based on the framework agreement.

However, rather than obviating the need for a CARICOM Energy Policy, these issues may be seen as challenges to be grappled with in arriving at a Regional energy policy. Given the importance of a secure and affordable supply of energy to the economic development and well-being of all, a Community policy on energy is indispensable, even if only to communicate the energy sector priorities of the Community and to guide engagement with the International Community. Further, there remains outstanding, some trade-related issues (viz access, pricing and trade in Natural Gas) which need to be addressed as they formed part of the initial discussions among the Heads of Government in 2003, and which themselves gave rise to the need for a CARICOM Energy Policy. Following circulation and review, it is proposed that the Study and Draft CARICOM Energy Policy be submitted to the COTED in early 2011.

Caribbean Renewable Energy Capacity Support (CRECS) Project

The Contribution Agreement for the Caribbean Renewable Energy Capacity Support (CRECS) Project was finally signed after much delay due to administrative issues, since the signing of the Financing Agreement in 2008. The CRECS Project will make available **€1.5 Million** for capacity support for RE development in the Community. The main elements of the Project are:

I. Support to the CARICOM Energy Programme

- Develop model 'Regional' electricity and energy supply legislation
- Energy Programme to make RE presentation to sensitise FIVE Associations – Bankers, Utility, Architects, etc.
- Project Officer for strengthening of the CARICOM Energy Unit

II. Capacity Strengthening of Stakeholders

- Formulate National RE legislation or draft amendments to existing electricity supply legislation for eight Member States
- Develop regulations under the St. Kitts and Nevis' Geothermal Resources Development Ordinance
- Update existing RE Module and implement in Masters Programme in Regional tertiary institutions

III. Increasing Public Awareness

- Develop Regional Energy Awareness Programme
- Stage Energy Awareness Week in six (6) Member States

see page 4

IV. Support to Haiti and Engagement with Dominican Republic

- Conduct missions to Haiti and establish framework for support
- Carry out baseline assessment and development of an energy sector strategy for Haiti
- Conduct missions to the Dominican Republic and develop framework for South South Cooperation

V. Encourage Investments in RE and Leverage Risk Guarantee Mechanism

- Review, screen and update pipeline of RE projects and develop portfolio of financing options
- Support energy investment forum in collaboration with other energy sector partners
- Host capacity strengthening workshop - RETScreen Training
- Develop and implement strategy for Solar Water Heaters and RE in the Public Sector
- Host workshop on Innovative Financing Mechanisms

VI. Carbon Trading Opportunities and Investments

- Host Regional High Level Seminar for Carbon Finance in association with Partners
- Support preparation of RE Projects for Carbon Financing under CDM

C-SERMS Technical Cooperation Agreement

The Technical Cooperation (TC) Agreement supporting the development of the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) will allow the Energy Programme to carry out a mandate for a new approach to be taken to sustainable energy development in the Community, which is more targeted and strategic. This TC will facilitate the first phase of the development of the C-SERMS.

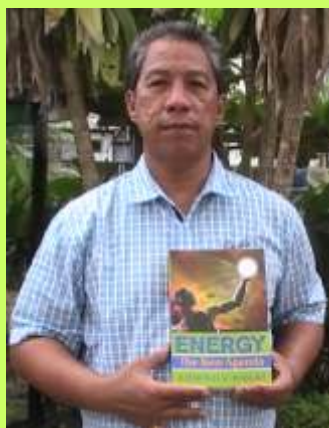
The main elements under this **FIRST PHASE** are:

- **Development of a First Level Roadmap and Strategic Framework (C-SERMS-1)** through the engagement of a consultant who will first do background work in mapping Regional RE resource, EE potential, energy initiatives, identification of gaps – policy, regulatory frameworks, capacity, etc, and use these as the basis for setting feasible sustainable energy targets and strategy options for achieving them. This staged approach will allow for the early establishment of goals around which the Community's efforts can be focused while more detailed assessments are pursued.
- **Designing and establishing the C-SERMS Platform** for engaging stakeholders input to the development of the C-SERMS-1.
- **Providing support for research and development of innovative sustainable energy projects.**
- **Engagement of the C-SERMS Project Manager.**

It is proposed that the **SECOND PHASE** (which is outside of the scope of the current IDB TC and will overlap with the first phase) will involve additional work to refine the targets of the first phase, as well as, to establish mechanisms for performance monitoring and planning. The main elements of the second phase are:


- **A comprehensive assessment of ALL renewable energy resources and the potential for energy efficiency improvement in ALL CARICOM Member States.** In other words, a comprehensive and wide-scale measurement of the wind, hydro, biomass, etc, potential will be done for each Member State. Similarly, all facilities in the public sector and other major industries will undergo an energy efficiency assessment. This will build on the existing work being done in Member States and will allow for the first time, for a comprehensive understanding of the full potential for RE and EE in the Community with data at the national level being the property of Governments. This will form a baseline data set for investments, carbon financing projects, but more importantly to refine targets under the C-SERMS and will inform the more detailed elaboration of strategies.
- **The establishment of a framework for tracking and monitoring of progress towards targets, i.e. a Regional energy balance/model framework.**
- **Expanded support for the operation of the C-SERMS Platform,** the mechanism to be used to engage input and feedback from all stakeholders in the Region.

CONGRATULATIONS TO QUIZ WINNER



Quiz Winner, Mr. Cornel Wijngaarde poses with his prize in hand

Congratulations! to Mr. Cornel Wijngaarde of Suriname who was first to submit the correct answers to the Quiz in Issue 3. Mr. Wijngaarde was awarded the prize of a copy of the book titled “Energy – The New Agenda” by Dr. Raymond Wright.

 wishes to thank all those who participated in the Quiz.

MINISTERS WITH RESPONSIBILITY FOR ENERGY – Part 4

INTERVIEW WITH THE HONOURABLE RICHARD FREDERICK, MINISTER OF PHYSICAL DEVELOPMENT AND THE ENVIRONMENT – SAINT LUCIA



HON. RICHARD FREDERICK,
Minister of Physical Development
and the Environment, Saint Lucia

Energy: What is your vision for the energy sector in Saint Lucia over the next ten years?

Min. Frederick: Within the next ten years, the energy sector in Saint Lucia should be significantly, if not completely diversified. Saint Lucia can no longer continue its dependence on energy produced by a fossil fuel base.

The cost of production of electricity is directly related to the fluctuating cost of fuel on the global market. Fluctuating fuel prices on the global market therefore indirectly impact negatively on the ability of households to accurately budget their energy usage. Additionally, when a small country with a population in the region of 160,000 persons spends in excess of \$180 million annually on the purchase of fuel for electricity production, a mechanism or mechanisms must be formed to halt this financial resource drain which equates to expenditure in excess of \$1000 per person for energy production. In this regard, I see Saint Lucia placing little or no reliance on fossil fuel for its energy production ten years from now.

Energy: With regard to your Government's commitment to making Saint Lucia a Sustainable Energy Demonstration Country. What progress has been made towards achieving this goal?

Min. Frederick: The Government of Saint Lucia is steadfast in its commitment towards making Saint Lucia a Sustainable Energy Demonstration Country. In this regard, we have signed an Agreement for geothermal exploration, for which preparations are well on the way. At the signing of this Agreement, our local electricity company (LUCELEC) also signed a Power Purchase Agreement with the developers. Based on tests which were carried out, we are hopeful that this development will yield energy in excess of our peak demand for exportation.

The Government has also acceded to a request from LUCELEC to commence the procedure for compulsory land acquisition for the purpose of setting up a wind farm. At this juncture, whilst LUCELEC is still inclined to proceed with this initiative, the cost of the land is seemingly prohibitive and they are pursuing the acquisition of an alternative site through private treaty. There are also a number of experimental photovoltaic systems located on top of a few buildings which send energy back to the national grid. This is proving successful and expansion in the use of this technology seems distinctly possible. Other waste to energy proposals are also being explored by the Government. All of these initiatives are being pursued in an effort to ensure that we rely in the not to distant future on sustainable energy.

Energy: In your view, how important is the Regional approach to the further development of the Region's Energy Sector?

Min. Frederick: I believe in the philosophy of there being strength in numbers. A Regional, but I daresay not only Regional but integrated approach, is

extremely important. We may be confronted with situations where, as a Region we may reach the critical mass for energy exploration in a given regard. Yet, it may be prohibitive in terms of cost, for any one country to venture on its own.

Further, one country may possess a different natural resource from another, from which energy can be explored. As a Region, we can pool our resources together whether it be waste, hydro or geothermal and supply energy to every country in the Region with greater ease and at a much reduced per unit cost than any one country would be in a position to do on its own.

Energy: What impact will the recently approved National Energy Policy have on Saint Lucia's energy sector and overall national development?

Min. Frederick: The National Energy Policy could not have been adopted by the Cabinet of Ministers any later. The energy sector is a growing one and there is plenty to be done before we can arrive at full sustainability. There is quite a bit of room for developing the various sectors of energy which invariably impacts positively on national development.

As a nation develops, so does its people with the spill-off being a reduction in poverty. Even if we are desirous of rapidly developing the energy sector, we are mindful that it needs to be regulated so as to ensure that Saint Lucia does not become a testing ground for unproven technology. In this regard, the policy calls for the establishment of a commission that will assess the record of a potential developer and the success of the technology being proposed, thus bringing consistency into the framework.

All in all, I see this policy impacting positively on the energy sector and on national development thereby resulting in an improved standard of living and a reduction in poverty in Saint Lucia.

Sweet Power: Ethanol as a Transportation Fuel in Jamaica



Submitted by Centre of Excellence for Renewable Energy – PCJ, Jamaica

If you drive or have been driven in a gasoline engine vehicle in Jamaica since November 2009, then your journey would have been partially fueled from a clean and renewable energy source in the form of sugar cane ethanol. This is because, following a one year pilot, Jamaica became the first Caribbean nation to legislate the use of biofuels when the Government in November 2009 mandated the use of 10% ethanol in gasoline in both 87 and 90 grades gasoline.

What is ethanol? Ethanol is an alcohol which inter alia can be used as a clean-burning fuel and is produced from renewable feedstocks such as sugarcane, sweet sorghum and corn. It falls within the category of high-octane fuels, meaning it is highly efficient and preventative of engine knock. It can be used as an oxygen additive to gasoline, thereby replacing the harmful additive, methyl tertiary butyl ether (MTBE).

Anhydrous ethanol (ethanol with less than 1% water) can be blended with gasoline in varying quantities up to pure ethanol (E100). The use of ethanol as an additive reduces greenhouse gas emissions by 70%.

Why E10?: The rationale for the E10 Programme was based on the need to diversify the energy supply, improve energy security and obtain economic and environmental benefits. Additionally, the use of 10% ethanol has been shown to have little or no negative impact on gasoline engines.

Jamaica's E10 Programme: In November 2008, the Government introduced E10 in 87 gasoline distributed to service stations in Kingston and some other sections of the island. This phased introduction continued up to November 2009 when there was a full roll out of 10% ethanol in both 87 and 90 grade gasoline

used by land-based consumers. The gasoline sold to marine interests does not contain ethanol owing to water separation issues.

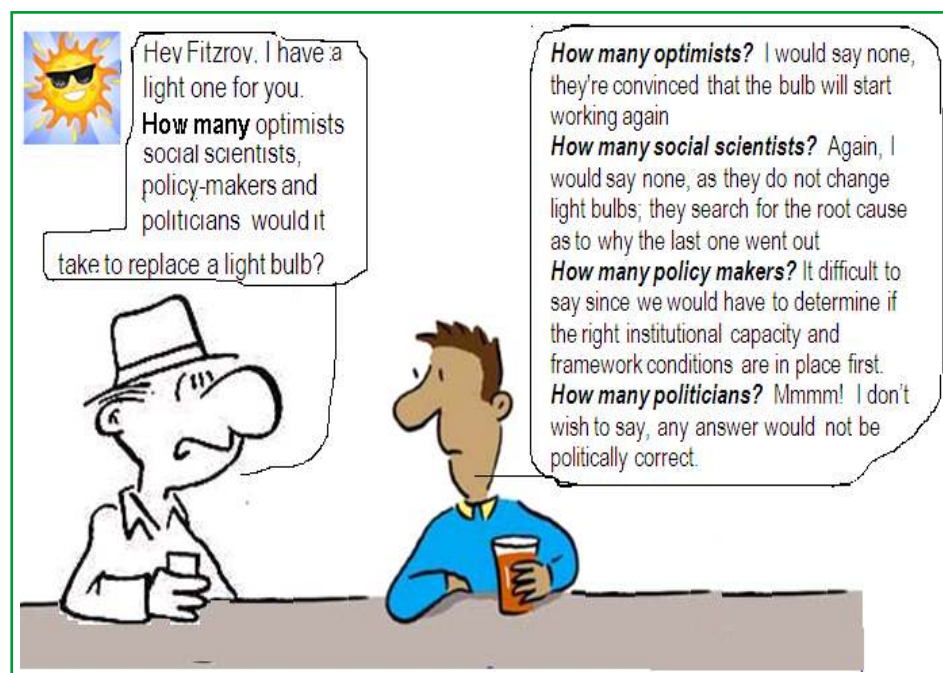
Success Factors: The E10 Programme, which is associated with an annual consumption of about 70,000,000 litres of ethanol, was supported by: i) a successful pilot study in 2006; ii) the construction of distribution infrastructure; iii) the preparation of fuel specifications, regulations and legislation; iv) the development of a marketing campaign for local gas stations and consumers; v) the preparation of inspection, testing and quality control regimes; and vi) the appointment of technical teams to address issues.

A major plank of the E10 Roll-Out plan involved engaging key stakeholders such as the Petroleum Corporation of Jamaica, Petrojam, Petcom, the Marketing Companies (Chevron, Total, Texaco, etc), the Bureau of Standards, and the National

Environment and Planning Agency. These agencies worked collaboratively under the guidance of the Ministry of Energy, to ensure that the E10 Roll-Out goals and objectives were met.

Benefits of the Programme: The E10 Programme has been successful. The benefits to the country include: i) Reduced tailpipe emissions, thereby improving air quality; ii) Improved engine performance and lifecycle; iii) Reduced MTBE usage and imports; iv) Improved energy security and supply; and v) Savings of about US\$92 million on the energy bill.

Editor's Note: It has been observed that some uncertainty exists concerning the prospect of an expanded role for the ethanol blend for the transportation sector in Jamaica, given the fact that there seems to be competition with the input for the production of rum which is a one of Jamaica's premier exports. Whatever the Jamaican Government's policy position going forward, the Jamaica E-10 programme is a significant first in CARICOM and should provide many valuable lessons for informing policies in the neighbouring territories.



Professor A. Anthony Chen is Professor Emeritus of Applied Atmospheric Physics. Although now retired from the Mona Campus of the University of the West Indies, he continues to teach and carry out research on renewable energy resources. In 1994 he founded the Climate Studies Group Mona (CSGM) and continues to be publicly involved in its work. The work of this outstanding son of Jamaica in the area of Climate Studies was lauded by the Institute of Jamaica in 2005, when he was awarded the Silver Musgrave Medal.

His academic credentials include a Ph.D. in Atmospheric Physics from the University of the West Indies, Mona (1972), an M. Sc. in Atmospheric Physics from the University of Maryland (1967), an M.A. in Teaching from Harvard University (1961), and a B.Sc. in Physics and Mathematics from Boston College (1960).

Professor Chen has an extensive list of publications ranging from books, journal articles, conference papers, and reports to Government and industry. His list of referred publications contains over 30 titles, and most notably he served as the Lead author for the Small Island Section of Chapter 11 *Regional Projections* of Working Group I publication *Climate Change 2007*,

The Physical Science Basis for Intergovernmental Panel on Climate Change (IPCC) 4th Assessment. ***The IPCC was jointly awarded the Nobel Peace Prize along with Al Gore in 2007.***

He has been the Principal Investigator/ Co-Principal Investigator for several funded projects. These include the Organization of American States project, *Solarimetry*, to map the solar radiation of Jamaica, and the Environmental Foundation of Jamaica project, *Large Scale Generation of Electricity by Wind Turbines at Munro College*, to assess the potential for large scale generation of electricity by wind at Munro College.

His renewable energy resource studies include: *Windmill as a Source of Energy?*, Jamaica Journal, 1983; *Model of Solar Radiation Using Total Cloud Cover and Percentage Sunshine Measurements*, Energy Engineering, 1983; *Techniques for Assessment of Wind power in Meteorological Data for Solar and Wind Energy Applications*, Technical Publication 161, Commonwealth Science Council, London, 1985; *Solar Radiation, Instrumentation and Data Collection*, Proceedings of Solar Energy Workshop Antigua, 1989; *Wind Power in Jamaica*, Solar Energy, 1990; *Stochastic Simulation and Forecasting of Hourly Average Wind Speed Sequences in Jamaica*, Solar Energy, 1991; *Solar Radiation in Jamaica*, Solar Energy,



Professor A. Anthony Chen

1994; *Generation of Electricity by Wind Turbines at Munro College*, Jamaica Journal of Science and Technology, 1999; *Modelling of Wind Speed and Power Across Jamaica*, Jamaica Journal of Science and Technology, 2001 & 2002.

In addition to being instrumental in gaining international recognition for the University of the West Indies by being the first to do research on the upper layer of the atmosphere within the Caribbean, and therefore attracting US Government funding, Professor Chen also initiated an undergraduate degree programme in Alternative Energy (Wind, solar and Hydro) at the University. He also lectures on energy to non-science students and has now become an advocate for a low carbon economy. ***Congratulations Professor Chen!!!***

CIPORE

Caribbean Information Platform on Renewable Energy (CIPORE) is the 'one stop point' for Renewable Energy Information in the Caribbean. Visit CIPORE on line at: www.cipore.org

Policy Instruments for Advancing Renewable Energy Development in CARICOM: AN OVERVIEW OF "QUOTA OBLIGATION"

—by Maxine Nestor, Regional Energy Policy Advisor—



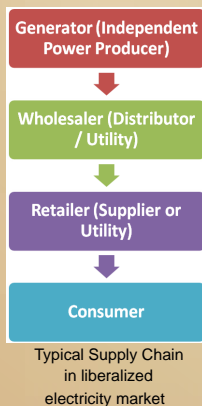
Ms. Maxine Nestor
Regional Energy Policy Advisor

What is Quota Obligation?

Quota obligation, also referred to as *Renewables Portfolio Standards (RPS)* or *Tradable Green Certificate (TGC)* or 'green certificate system', is another support scheme used in many countries *to stimulate increased contribution of electricity generated from renewable energy sources (RES)*. This is a direct promotional, generation-based, quantity-driven support mechanism where an obligation is set in governing statutory instruments for a party in the electricity supply chain (generally the utility) to supply or purchase a prescribed percentage of electricity from RES.

Elements of the Renewable Portfolio Standards

RPS requires the utility to either: (i) supply a percentage of energy sales (MWh); or (ii) have a fixed percentage of installed generation capacity (MW) from RES. If the utility fails to meet this obligation, a predetermined sanction would apply. The required percentage for RE penetration may be increased incrementally on a periodic basis and made applicable to energy sales recorded subsequent to a specified date.



Renewable Energy Certificates (REC) or TGC or 'green certificates' are the core of any effective RPS scheme. Such certificates issued to a generator of power (including distributors or consumers who generate power from RES) by a competent authority are tradable. For example, in the Netherlands where the green certificate system was introduced in 1998, a producer receives one Green Label (name for green certificate) for every 10,000 kWh of 'green electricity' delivered to the grid. Usually at the date of settlement (deadline for achieving obligation), utilities must show ownership of a specific number of green certificates in order to demonstrate compliance with the RPS obligation. Accordingly, a system for accreditation,

verification, auditing of 'green electricity' and issuing of green certificates is fundamental. Utilities may own green certificates by several means:

- through their own renewable energy projects;
- by purchasing physical renewable electricity and consequently the associated certificates from another generator; or
- through a stock market-like arrangement where certificates are purchased from a generator or broker without any actual purchase of physical electricity (this mechanism is suited for a highly liberalized electricity market).

Essentials of Tradable Green Certificates

The key characteristics of TGC are two-fold: (i) to serve as an accounting mechanism to establish whether the 'obligated party' has achieved the target set for electricity generated from RES; and (ii) to create a green certificate market (similar to carbon credit markets) which is separate from electricity as a commodity (or service). *The price for the certificates is determined by the market, based on demand and supply principles.* Both *spot market* and *forward market* can be developed for the certificates. In the spot market, certificates already in hand may be traded while in the forward market, the obligated party may negotiate with producers of electricity from RES to purchase certificates that may be issued in the future. Green certificates are earned the moment the green electricity is registered at the kWh-meter. The certificate is usually issued in paper form and may contain the following details: unique number, code to identify the type of RES, owner, date of production, expiry date and the amount of green electricity produced. Green certificates are withdrawn from circulation once the RE obligation is certified by the competent authority or on expiry, whichever is earlier.

Conclusion

Quota obligation could be an effective mechanism for increasing electricity generation from RES and promoting RE technological development where the

enabling environment exists. However, due to the non-existence, infeasibility of competition at the retail level of the electricity supply chain level and limited players in the market, *it would be difficult to develop a complementary and effective green certificate trading market in any CARICOM Member State.* Nonetheless, RPS could be introduced within Member States at a rudimentary level with the establishment of targets on utilities for the deployment of electricity generated from RES.

In fact, Clause 38 the 2010 National Energy Policy (NEP) of Saint Lucia provides for Cabinet to set a quota for electricity produced from RES to be supplied through the National Grid. The proposed quotas are 5% in 2013, and at least 15% in 2015, scaling up to 30% by 2020. The options outlined for LUCELEC to achieve any prescribed target are: (i) generating electricity from RES or (ii) purchasing green electricity (as a commodity) from any licensed producer. Not surprisingly, there is no reference to TGC or green certificate system in the Saint Lucia's NEP. Interestingly, Saint Lucia's NEP does not propose any monetary sanction for LUCELEC's failure to achieve RPS. Instead, the policy proposes that non-compliance will result in the regulator inviting IPPs to establish and operate RE generation facilities, and for LUCELEC to provide open access for power produced by such IPPs.

St. Vincent and the Grenadines 2010 National Energy Action Plan proposes relatively ambitious targets for electricity produced from RES of 30% by 2015 and 60% by 2020. These targets may be considered achievable given that VINLEC's current installed generation capacity from RES is in excess of 10%.

For any RPS scheme to be successful in CARICOM, it should be blended with other policy instruments such as fiscal incentives and subsidies for producers of electricity from RES (to be examined in a subsequent feature), and supported by an effective legislative and regulatory framework.

ENERGY NEWS

First Commercial Wind Farm in the OECS Commissioned on Nevis



Permanent Secretary,
Mr. Ernie Stapleton

Submitted by: Mr. Ernie Stapleton, Permanent Secretary, Ministry of Communications, Works, Public Utilities, Posts, Physical Planning, Natural Resources and Environment, Nevis Island Administration

One of the smallest islands in the Eastern Caribbean, Nevis, just 36 square miles, is making big strides in the development of renewable energy and has the evidence to prove it. Friday the 27th August 2010 was historic in that the Nevis Island Administration (NIA), the Nevis Electricity Company Limited (NEVLEC), and Windwatt (Nevis) Limited officially launched the first commercial Wind Farm in the Organisation of Eastern Caribbean States (OECS) on Nevis. The Wind Farm at Maddens with a total capacity of 2.2 Mega Watts is supplying about 20% of Nevis' required electrical energy to the proud people of Nevis.



Wind Turbines at Maddens, Nevis

The development of the wind farm resulted from successful negotiations and the signing of two important instruments, namely, the Wind Resource Contract between the NIA and Windwatt, and a Power Purchase Agreement (PPA) between NEVLEC and Windwatt on 14 July 2009. Approximately one year later, the product emerged into a modernized wind farm with state of the art equipment

and technology, such as collapsible wind turbines manufactured by Vergnet out of France. The goal of NEVLEC and the NIA is to have 100% renewable energy production to supply electricity to consumers on Nevis by 2011. This will be realized when phase 1 of the Nevis Geothermal Project is completed next year.

At the inauguration ceremony at Maddens Estate on Nevis, the Minister responsible for energy in the Nevis Island Administration, the Honorable Carlisle Powell stated, *"We are celebrating today because WindWatt has successfully installed and commissioned these eight turbines and have been producing electricity and sending it to the grid since July 21, 2010... While the world is focusing on ways to reduce the carbon footprint and increasing our energy production through the use of alternative energy, we in Nevis will not be left behind."* He further surmised that the Wind Farm would

provide jobs for Nevisians, a reliable supply of wind energy, cheaper electricity and a reduction in fuel surcharge and the use of imported oils.

The Nevis Island Administration expresses sincere thanks and gratitude to all the institutions and organizations that have supported this

venture in any way, both tangible and intangible, including the OAS, the CARICOM Secretariat, the OECS, and CREDP/GTZ. It is our hope that this wind farm will be a catalyst for wind farm development in the OECS and indeed for the development of renewable energy as a whole. Countries should embrace the "Nevis Model" and replicate same throughout the Region.



Honorable Carlisle Powell speaking at the Wind Farm Opening Ceremony, 27 August 2010

Funding to CREDP/GTZ Increased by €0.75 Million

The Government of the Federal Republic of Germany announced in August 2010, its decision to increase funding to the CREDP/GTZ by 0.75 Million Euros. This will bring the total GTZ funding under Phase II of the Project to 5.2M Euros and the overall funding under the CREDP from its inception to 6.7M Euros. To date, the CREDP/GTZ Project which ends in April 2012 is approximately mid-way through its Phase II. CREDP/GTZ continues to provide support for policy development, capacity strengthening, early state project development, as well as, awareness building for RE development in the Region.

The Programme is being executed under a framework arrangement with the CARICOM Secretariat with supervision from the Energy Programme.



Trinidad and Tobago Pushes for Sustainable Energy



Hon. Carolyn Seepersad-Bachan,
Minister of Energy and Energy Affairs, T&T

Over the years it has been well established that sustainable energy (RE & EE) development was not a priority for Trinidad and Tobago, given the focus on the development of its abundant petroleum and natural gas resources, and given the lower priced energy available to the domestic market. The last two years however, have seen a significant shift from this status quo towards placing greater

emphasis on sustainable energy, with the government establishing a Renewable Energy Committee to develop a Renewable Energy Policy and the move to establish a Regional Renewable Energy Centre.

The new Government of Trinidad and Tobago is also seeking to reduce fossil fuel dependence. The Minister of Energy and Energy Affairs, Hon. Carolyn Seepersad-Bachan has identified the promotion of renewable energy as one of her energy policy priorities. A number of near-term RE initiatives were given, which include solar water heaters for households and hotels, solar powered water desalination, pumping and purification, solar photovoltaic systems for households, and wind turbine systems for irrigation.

Energy efficiency has also been moved to a level of high priority. In this regard, the Minister of Energy and Energy Affairs recently noted that: *“Energy efficiency can be viewed as a new untapped energy source which represents an alternative to increasing production”*.



The CARICOM Secretariat has embarked on a strategy to 'green' its facilities. The main objectives are to lower the carbon footprint of the facilities and also to reduce expenditures for energy, water and materials. This will allow the Secretariat to lead by example as it seeks to increase sensitization towards more sustainable development in the Community. At present, a base-line study in the form of a comprehensive energy audit is being conducted as part of the Increasing Sustainable Energy Awareness in the Public Sector (I-SEAPS) Project which is funded by the UNDP Regional Centre in Trinidad and Tobago. This detailed energy audit will provide baseline information and identify bankable energy efficiency opportunities, as well as, cost effective renewable energy options.

“Save Energy Costs” Energy Efficiency Guide Launched in Saint Lucia

In August 2010, the Ministry of Physical Development and the Environment (MPDE), Saint Lucia launched its “Save Energy Costs” energy efficiency manual. The manual which was developed with funding from the European Union under the Special Framework of Assistance (EU-SFA) Energy Program provides guidance and tips for households, public and private sector agencies towards more efficient use of electricity.

The EU-SFA Energy Program involves the provision of technical assistance to the Sustainable Development and Environment Unit, MPDE on the implementation of Saint Lucia's National Energy Policy (NEP), and had four main deliverables: i) Drafting instructions for the review of the Electricity Supply Act pursuant to the National Energy Policy; ii) A blueprint for an Electricity Regulatory

Winners of Saint Lucia's Public Energy Awareness Campaign Logo and Slogan Competition Announced

The Ministry of Physical Development and the Environment in collaboration with the Sir Arthur Lewis Community College, Saint Lucia in June 2010 launched a competition to produce an inspiring logo and slogan as part of a Public Energy Awareness Campaign. The competition which was open to all Sir Arthur Lewis Community College students was aimed at encouraging youth support for the environmental cause, as well as, to help propel Saint Lucia towards a green economy.

The competition was funded by the European Union as part of its Technical Assistance for implementing the Energy Component of its SFA 2006 programs. **Lena Taupier** submitted the best logo, while **Wendell Satnay's** slogan was adjudged the best.

Commission in Saint Lucia; iii) Development of a Sustainable Energy Strategy; and iv) Short and Long Term Communication Strategy and Plan.

This manual forms part of the fourth deliverable. According to Mr. Peter Beard, Project Manager, the Program is aimed at assisting Saint Lucia in becoming a Sustainable Energy Demonstration Country.

Regional and International Organisations Collaborate to Host Regional Energy Auditing Workshop

The Organization of American States through its EU funded Caribbean Sustainable Energy Program (CSEP) in partnership with U.S. Department of Energy's National Renewable Energy Laboratory (NREL) and the Caribbean Association of Electric Utilities (CARILEC) conducted a four-day Regional Energy Auditing Workshop at the Coco-Palm Resort in Rodney Bay, Saint Lucia from 24-27 August 2010. Participants included Government officials, members of CARILEC, as well as, education and tourism sector personnel from Antigua and Barbuda, the Bahamas, Barbados, Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines among

other Caribbean nations. The Workshop was held under the scope of the Low-Carbon Communities in the Caribbean (LCCC) initiative. The training of additional personnel and auditing of

selected buildings are planned at the national level by December 2010.

The LCCC is a collaborative initiative between the US Department of Energy and Organization of the American States under

the Energy and Climate Change Partnership of the Americas (ECPA) to enable participating countries to implement actions and strategies geared towards increasing the sustainability of their energy supplies while reducing carbon emissions from the energy sector, through the development and use of renewable energy and energy efficiency systems.



Participants of the Regional Energy Auditing Workshop

St. Vincent and the Grenadines rolls out National Energy Action Plan

In April 2010, the Government of St. Vincent and the Grenadines formally approved a National Energy Action Plan (NEAP) that provides a long range outlook on how the energy sector will be transitioned up to 2030. An Energy Unit established in 2008 within the Office of the Prime Minister is responsible for implementing the NEAP. The NEAP speaks to forty (40) specific actions categorized under six (6) overarching goals with implementation scale classified as short, medium and long term. The actions are designed to enhance achievement of the policies and goals outlined in the country's National Energy Policy that was approved in February 2009.

Some of the actions to be undertaken include:

- Capacity strengthening and awareness building for employees on energy related matters;
- Maintaining and publishing updated information on the country's annual energy balance;
- Increasing awareness and building capacity on energy in the education system;
- Establishing a fund to support small scale demonstration projects on EE;
- Ensuring that EE is considered in new buildings;
- Exploring inter-island electricity interconnection system;
- Building capacity and developing guidelines for preparation of EIAs for renewable energy projects;
- Providing fiscal and financial incentives for energy efficient commodities and disincentives for inefficient ones;
- Reviewing electricity tariff structures based on cost of service assessment;

- Conducting resource assessment for geothermal, hydro power, wind, biomass, etc. and develop guidelines for interconnection to the grid;
- Reforming the legislative framework to foster participation of Independent Power Producers (IPPs) operating RE facilities;
- Implementing net-metering policy to facilitate grid connection of small standalone PV and wind systems;
- Enacting legislation in domestic appliance labeling and certification; and
- Conducting energy audits of all Government buildings and implementing EE solutions.

Regarding implementation of the NEAP, **Mr. Leonard Deane, Director, Energy Unit within the Office of the Prime Minister** informed [E.nergy](#) that: “ While steps are being taken to further publicise the document among stakeholders and to formulate detailed implementation programmes, a number of activities in the areas of energy efficiency and public awareness are already on the way. The Government is at the final stage of completing energy audits of 75 Government-owned buildings and has developed a comprehensive Energy Conservation Education and Awareness Programme which initially targets public sector employees. At least five of the Government buildings audited are scheduled to be retrofitted with energy-efficient technologies and other conservation measures in 2011.”

This project is funded by the European Union Special Framework of Assistance.

Energy Efficiency and Access Forum Mexico

CARICOM Member States (viz Antigua and Barbuda, Belize, Dominica, Haiti, Jamaica, St. Kitts and Nevis, Suriname, and Trinidad and Tobago) and the CARICOM Secretariat were represented at the Energy Efficiency and Access Forum which was held in Mexico City, Mexico, 28-29 September 2010. The Forum which was organized by the World Bank, the Inter-American Development Bank and the Government of Mexico provided a platform for dialogue towards a sustainable energy future, the sharing of experiences and best practices related to the implementation of energy efficiency and access to energy services, public policies and technologies, focusing on three central themes: norms and standards, training and awareness, and successful programs.



Programme Manager -Energy, CARICOM Secretariat, Mr. Joseph Williams addressing Energy Efficiency and Energy Access Forum in Mexico City; To his immediate right is Mr. Leandro Alves, Head of the Energy Division, IDB

Grenada Targets Geothermal Power Production by 2015

The Government of Grenada has intensified efforts to provide geothermal energy to local consumers by 2015. To this end, the Hon. Nazim Burke, Minister responsible for energy said that the



Hon. Nazim Burke, Minister responsible for Energy, Grenada

Government has joined forces with the Grenada Electricity Company (GRENLEC) and that a joint Steering

Committee “made up of representatives from the public and private sector including GRENLEC and Government, has been established to spearhead the work that would be required to take that to its logical conclusion”.

Minister Burke indicated that he believes that Grenada can achieve the goal of switching to renewable energy within the next five years: “We are trying to see how we could stay the course on this. It would involve significant investments; it would involve the passage of a

Geothermal Resource Act to determine how it is going to be generated, who would own the rights and how those rights are

going to be distributed”.

GRENLEC's General Manager, Vernon Lawrence stated there is great potential in Grenada for the development and use of different forms of renewable energy. He pointed to the merits of geothermal being able to provide firm generating capacity unlike wind and solar which are intermittent.

Preliminary studies have shown that Grenada can get up to 20 megawatts of geothermal energy from its highest mountain– Mount St. Catherine – by 2013 and up to 50 megawatts by 2015.



CARICOM ENERGY MINISTERS & DELEGATES COMPLETED SUSTAINABLE ENERGY TOUR TO EUROPE IN SEPTEMBER 2010

During the period 13-17 September 2010, the Organization of American States conducted a Sustainable Energy Tour to Vienna, Austria and Brussels, Belgium. The objective was to provide Ministers responsible for energy and climate change policy matters in the seven Caribbean Sustainable Energy Programme (CSEP) participating countries and implementing partners, with an opportunity to establish contacts with European experts and decision makers. The Tour also facilitated the transfer of knowledge on effective energy policies and improved regulatory frameworks for the energy sector.

The five-day agenda included meetings with and presentations by the European Commission -Commissioners for Development, Energy and Climate Change; Alliance for Rural Electrification, an agency that promotes efficient renewable energy solutions in developing countries; European Renewable Energy Council; Energie-Control, the regulatory

agency for Austria's electricity and natural gas market; ISLENET, a network of European island authorities that encourage energy efficient strategies and renewable energy projects; Austrian Development Agency; S.O.L.I.D, an Austrian solar engineering company; and ENPROCON, a project consulting firm that designs and implements alternative energy projects.


In addition, the delegation toured the Simmering Power Plant that supplies electricity and heat for the city of Vienna from independent units powered by natural gas, fuel oil and biomass; the Himberg Biogas Plant; the Renewable Energy House; and the district of Güssing which supplies all the energy

demand of its 27,000 inhabitants from renewable sources.



In photo from left: Executive from Simmering; Leonard Deane - Director, Energy Unit, St. Vincent & the Grenadines; Minister Richard Frederick - Saint Lucia; Minister Carlisle Powell - Nevis; Minister Dr. Earl Martin - St. Kitts; Maxine Nestor - CARICOM Secretariat; Ambassador Joan Underwood - Antigua & Barbuda; Mark Lambrides - Programme Manager OAS (partly hidden); Duane Rowe - CARILEC; Johnson Drigo - Dominica and Juan Cruz Monticelli - OAS

Solar Air-conditioning in the Caribbean

In the last Issue of  it was pointed out that there was no Solar Cooling installation in the Caribbean. I wish to thank Mr. James Husbands, Managing Director of Solar Dynamics, Barbados who correctly pointed out that there were in fact two pilot solar cooling installations in Barbados in the 1970's as part of the then Government's policy position to drive renewable energy. We will therefore share with you a brief overview of this past effort, as communicated by Mr. Husbands.

According to Mr. Husbands, pilot solar cooling installations were introduced at two sites, as part of a package of measures to advance renewable energy developments in Barbados by the then Government led by former Prime Minister the late JMGM "Tom" Adams, the others being a tax incentive on solar water heaters and a wind turbine at Lamberts, St. Lucy. The two sites at which solar cooling was introduced are the headquarters of the Ministry of Agriculture, Graeme Hall, Christ Church




Ministry of Agriculture Building, Graeme Hall, Barbados where the first Solar AC installation in the Region was located

and the Government Analyst Laboratory, Culloden Road, St. Michael. The configurations were central chiller systems using lithium bromide water systems with equipment provided by Tadiran Israel Electronics. The architects

were Gillespie and Steel and the late Kenneth Gardner respectively with mechanical Engineers A DE B Consultants.

Mr. Husbands further pointed out that the units suffered from a lack of dedicated maintenance, as well as, there was failure to educate the users of the building about

the technology, and safety associated with the use of solar air conditioning systems. Given the success of the solar water heating industry in Barbados today, which arose from the same policy interventions, it is conceivable that solar cooling could be flourishing in Barbados today bringing with it millions of dollars in energy cost savings over the years, if the issues of integrating this new technology (at the time) were properly addressed.

As noted in the last issue of , it is considered timely that solar air-conditioning which is now a mature technology be again pursued in the Caribbean region, especially given the large share of commercial electricity that is used for air conditioning, the coincidence of peak solar insolation with air-conditioning demand and the high level of solar insolation in the Region. However, it is critical that the lessons from this experience in Barbados be learned as any installation must be supported by adequate education of users, as well as, adequate capacity to maintain and operate.

Focus on Energy Conservation & Efficiency

Energy Efficiency may be defined as the output per unit of energy input. Improving energy efficiency requires reducing energy input without sacrificing output, function or comfort (i.e. achieving greater output from the same energy input or at least the same output at a reduced energy input).

Improving energy efficiency has been identified as the 'low hanging fruit' in the transition to a low carbon pathway, that is, for energy cost reductions and for improved energy security from reduced dependence on imported petroleum (as in the case of many CARICOM countries). Significant advances in energy efficiency improvement will require implementing policies and regulatory changes. Some policy measures available generally fall into four categories, viz, **regulatory instruments** (such as efficiency codes and standards for buildings), **economic instruments** (such as efficient procurement), **fiscal measures** (such as energy taxes and subsidies), and **voluntary/informative instruments** (such as voluntary labeling of appliances).

In many cases actions can be taken on the part of individuals, firms and at the national level which are not necessarily dependent on these framework conditions. However, in general, it is observed that these actions towards more efficient practices are not taking place and very few success stories exist in Caribbean after 37 years of talking about the importance of energy conservation and efficiency. Lack of awareness about some of the opportunities has been identified as a key reason. Then, there is also the fact that energy efficiency improvement is a moving target. For example, a facility which was upgraded to be energy efficient in 1990 is likely to be deemed inefficient by today's standards based on advances in technology. It has also been identified that there are few, if any, well documented case studies for energy efficiency improvement in the commercial and residential building sectors available Regionally which can serve as demonstration.

At the level of the national economy, energy efficiency is measured in terms of energy intensity or units of gross domestic output per unit of energy input. This index has to be used with care when comparing across countries, as it depends on the structure of the economy. For example, a country characteristic of heavy industries such as bauxite, cement, smelters, etc. would have higher energy intensity than that of one which is heavily based on the service sectors. Nonetheless, the energy intensity index can be useful for comparison when used with care, especially when used to track trends within a particular country. The energy intensity of CARICOM Member States makes an interesting read and provides an indication of countries' opportunity to improve. It is interesting to note that the energy intensity of many developed countries is trending downward.

The Government sector is considered a prime sector to begin energy efficiency improvement as part of a national thrust, given the potential for demonstrating leadership on the part of the Government, and also represents quite a captive audience as the implementation of measures require only edict.

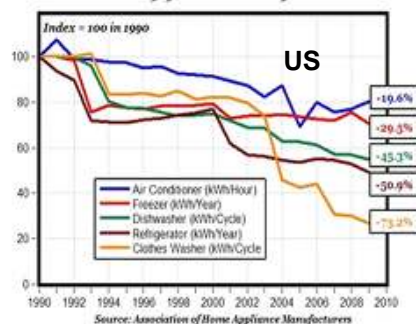
All CARICOM Member States have significant opportunities for energy efficiency improvement if not for the energy cost saving potential but as a means of reducing their carbon footprint. Some countries, viz, The Bahamas, Barbados, Jamaica (supported by the IDB), and St. Vincent and Grenadines and Saint Lucia (supported by EU) have begun to take concrete actions to radically change the landscape towards improved energy efficiency, beginning with the public sector. The Prime Minister of Antigua and Barbuda, the Honourable Baldwin Spencer recently reaffirmed his Government's commitment to

improving national energy efficiency starting with the public sector. The Government of the Republic of Trinidad and Tobago has also moved energy efficiency to a level of high priority. The new Minister of Energy and Energy Affairs recently noted that if Trinidad and Tobago could use less energy in the form of oil, gas and electricity, the effect will be the same as an increase in production. The Guyana Energy Agency has been spearheading a number of conservation and efficiency initiatives aimed at all categories of energy users, including the dissemination of brochures containing tips on how to reduce consumption and save money.

At the Regional level, EE improvement is identified as a key component of the Draft Regional Policy and as a plank in a proposed Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) to be developed.

The recently launched **UNDP-funded Project** titled, **"Increasing Sustainable Energy in Public Sector"** (I-SEAPS) seeks to conduct a baseline study for the implementation of EE measures in selected public sector buildings in Antigua and Barbuda, Grenada and at the CARICOM Secretariat's facilities. This will form the basis for case studies to be used as EE demonstration in the Region and therefore aims to bridge the information and awareness gap which now exists.

Household Appliances Energy Consumption Trends 1990 to 2009



Energy Consumption per Real Dollar of GDP 1973 to 2009



Petroleum and Gas Briefs

REGIONAL: Fortunes of Oil Production in the Caribbean- Trinidad and Tobago the oil giant of the Region with over 100 years of commercial oil production has been experiencing declining oil production. Over the last eight years production has declined from 130,906 barrels per day (b/d) in 2002 to 102,718 b/d (in April) 2010. This trend could change however with the reinvigorated exploration programme being pursued by the new Government.

Crude output in Barbados reached 1,939 b/d in 1999 but today is at 850 b/d. Cuba produced 62,018 b/d in 2003 but produced 52,246 b/d in 2008. On the other hand, Suriname and Belize have been seeing increasing production. Suriname has recorded a steady increase from 12,318 b/d in 2002 to 16,000 b/d today and Belize which started production in 2005 now produces 4,300 b/d, showing an increasing trend.

JAMAICA: Renewed optimism- There is renewed and heightened optimism among Jamaican energy officials of oil and natural gas being found either on land or off the island's coast, or both. In March, the Government formally opened bidding for 19 offshore and four onshore exploration blocks, the second series of bids this decade. According to Dr Wright, Special Projects Manager at the Petroleum Corporation of Jamaica, the roadshows held in the USA in April 2010 were a great success with one hosting as many as 35 representatives from 20 companies, and have been

followed-up with requests for bid documents.

There are nineteen offshore blocks and four onshore blocks on offer. The onshore blocks are Windsor, Santa Cruz, Portland and Negril. The prospects of shale gas in the onshore blocks (which has become commercially recoverable owing to development in new technology) has rejuvenated the promotion of onshore blocks.

SURINAME: Staatsolie moves into off-shore exploration- At present, Suriname's oil production averages 16,000 b/d from onshore drilling alone. According to the Caribbean Energy Magazine (energy@meppublishers.com), Staatsolie, the State Oil Company will now move to carry out risk and seismic programmes in four offshore blocks by end of 2010. The company will finance the exploration activities on its own.

TRINIDAD and TOBAGO: Trinidad and Tobago & Venezuela sign Natural Gas Unitization Agreement- In August, Petróleos de Venezuela SA (PDVSA) and the Government of Trinidad and Tobago signed the first agreement unifying the gas reserves located in the Lorán-Manatee field alongside their maritime border, whose certified gas reserves amount to 10 trillion cubic feet.

The agreement was signed by the Hon. Carolyn Seepersad-Bachan, Minister of Energy and Energy Affairs, Trinidad and Tobago and the Hon. Rafael Ramírez, Venezuela's Energy and Oil Minister and

President of PDVSA at PDVSA's headquarters. Seepersad-Bachan said that as part of the Unitisation Agreement the countries have agreed that 74 per cent of the unitised field would go to Venezuela and 26 per cent to Trinidad and Tobago because of the structure of the border. This means that Venezuela's reserves amount to 7.3 trillion cubic feet (TCF) and T&T 2.7 TCF. Unitisation allows for the allocation of oil or gas reserves located in an area separated by borders.

Gulf of Mexico Oil Spill heightens vigilance for regulations and oversight in the Industry- All across the globe, Governments and oil and gas sector regulators have announced numerous measures aimed at increasing regulations and vigilance for safety and environmental performance.


In CARICOM, the Government of Trinidad and Tobago has announced a 21-member coordinating committee to prepare a report and make recommendations on a national hydrocarbon and chemical spill contingency plan. According to Minister of Energy and Energy Affairs, Hon. Carolyn Seepersad-Bachan, the plan is "*an important component of our energy policy in keeping with our desire to develop our own hydrocarbon resources, while at the same time protecting our natural environment*".

UPCOMING ENERGY EVENTS

October 2010 – January 2011

- Caribbean Renewable Energy Forum 2010, Nassau, Bahamas, 14-15 October 2010 – This Forum will address the financial regulatory, policy and technological obstacles to RE/EE implementation across the region.
- 10 Annual Energy Caribbean Conference 2010 – Caribbean Energy: Opportunities in the upturn, Port of Spain, Trinidad and Tobago, 25-27 October 2010 – This Conference has been specifically designed to address the pressing issues facing the Caribbean's energy sector through a series of discussions, debates, case studies, market analyses and regional reviews.
- V Regional Energy Integration Forum (FIER 2010), Managua, Nicaragua, 26-27 October 2010 – This Forum aims to promote the exchange of experiences, careful considerations and technical discussion on energy integration in Latin America and the Caribbean.
- An Evening with Al Gore, Thinking Green: Economic Strategy for the 21st Century, Port of Spain, Trinidad and Tobago, 4 November 2010 – This event is being hosted by the Trinidad and Tobago Manufacturers' Association and is intended to offer a number of opportunities specifically in the area of building business partnerships.
- Scientific Research Council's 23rd Annual Conference and Exposition: 'Green Technologies for Survival', Kingston, Jamaica, 9-11 November 2010 - National Conference for disseminating Science and Technology (S&T) information. An objective of the Conference is to have recommendations emanating from the presentations/discussions implemented with a view to impacting positively on national growth and development.
- Platts 11th Annual Caribbean Energy Conference: Strategies for Lowering Costs, Using Energy More Efficiently, and Reducing Your Carbon Footprint, Florida, USA, 27-28 January 2011 - This Conference is designed to provide utilities, independent power producers, fuel suppliers, and others with insights into the climate for development, and current projects.

INVITATION TO READERS

 wishes to extend an invitation to readers to submit news or relevant articles of interest in relation energy sector developments and in particular, sustainable energy developments in their territories.



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