

GLOBAL SUSTAINABLE ENERGY ISLANDS INITIATIVE

ENERGY EFFICIENCY CHALLENGES - BY HON. TOM ROPER

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The Global Sustainable Energy Islands Initiative (GSEII) was launched in November 2000 by a consortium of international organization, to assist the small islands states in their efforts to transform their energy base from fossil fuels to a system based on renewables and energy efficiency technologies.

In these times of escalating oil prices and the resulting threat to energy security, Small Island Developing States (SIDS) need to become far more energy efficient. Every gallon or liter of diesel wasted in unnecessary generation only increases the burden on these struggling economies.

For small islands, the additional threats of global warming, sea level rise, and extreme weather events provide further reasons to act. While their CO₂ emissions are tiny every reduction is important. Today, SIDS can not only set an example of good sustainable energy practices but may also receive carbon credits for it. GSEII is working with a number of island states to identify and help implement these win-win opportunity. Some of these opportunities lie within the mostly diesel based electric utilities in the SIDS.

Some Pacific utilities lose 20% or even more of their production due to line losses in the power utility sector. Islands utilities are usually so small that the 24 PPA members between them have a maximum peak demand of 905.6MW and therefore often lack key skills. There are few energy efficiency programs run by SIDS governments or utilities, and the energy policy is non-existent or weak in encouraging efficiency. Utilities do not reward energy conservation by providing advice or offering concessional rates. There is little awareness by utilities or consumers of the benefits of energy efficiency or knowledge of possible opportunities.

Similarly, in the Public and Commercial buildings and housing sector there is lack of understanding and a great potential for improvement. Classic examples include government buildings, such as the new office in Tuvalu, which has been built without regard to solar orientation and have vastly increased the load on their small system. Government clients, architects and builders ignore the additional lifetime costs they are creating. One significant exception is the Marshall Islands where

new hospital and technical college in Majuro are being designed and built to be energy efficient.

More awareness on energy conservation and efficiency is needed, while energy education and information is not readily available. There are few or no energy audit services or energy service companies in some of the islands. SIDS lack qualified technicians, installers, trained professionals, and experience in design and building practices. Local distributors are not aware of new, more efficient products and processes. Countries do not have performance standards or energy labeling such as the US Energy Star Program. A visit to an appliance shop reveals that most available products are already banned in the developed world.



COCO PALM RESORT, THE MALDIVES

As part of the GSEII, a number of activities have been carried out to overcome these barriers, to disseminate information on various success stories among islands states, and to encourage wider use of energy efficiency practices.

A study to look at the line losses of over 17% in DOMLEC's transmission and distribution system was conducted in Dominica with the help of the United Nations Industrial Development Organization (UNIDO). Base on this study, with an annual cost of nearly US\$1.5m, three measures alone would cut losses by nearly 5m kWh with annual loss savings of US\$520,000. Annual diesel savings would be 344,400 gallons with 3,740 tons of CO₂ emissions avoided.

ENERGY EFFICIENCY CHALLENGES (CONT'D)



ENERGY SAVING LIGHT BULBS

GSEII is also looking at the efficiency potential in the housing sector in the Caribbean. A workshop was held to educate the engineers, contractors, and builders in Grenada where design and construction techniques were discussed. Since the island is going through a major reconstruction phase after hurricane Ivan (September 2004), there is a need to introduce modern safety and energy efficient design practices

in the housing sector, so that the new buildings are not only hurricane resilient but also energy efficient.

Several energy awareness activities and energy efficient lighting programs have been carried out in the Caribbean and the Pacific as part of the GSEII. This includes installation of energy efficient light bulbs donated by Oxford, UK based Climate Care in St. Lucia, Dominica and the Republic of Marshall Islands.

An energy awareness week is held in St. Lucia every year that the Government, the educational institutions and media, all take part in. With the support of the Canadian International Development Agency, two buildings in St. Lucia were analyzed for possible energy savings. An expenditure of \$143,000 at the Queen Victoria Hospital in St. Lucia would be paid back in 3 years and upgrading the Village Inn and Spa Hotel in just over 2 years.

An excellent example of efficiency in the hotel sector is the Coco Palm Resort in the

Maldives, where electricity is 35 cents per kWh. Some of the program features include guest rooms with a key card system for lighting, buildings designed for passive solar cooling with natural airflow, use of natural light, lighting sensors in all areas, installation of energy saving light bulbs, rainwater harvesting and water reuse for landscaping, water saving devices on all taps, - resulting in an overall diesel use reduction of 16,280 litres. ☀



POWER LINES IN DOMINICA

RENEWABLE ENERGY UPDATES FROM ST. KITTS & NEVIS

The prospects for the development of multiple renewable energy systems in St. Kitts & Nevis continue to improve. In addition to the emerging opportunity for the development of bio-energy systems, it is likely that the development of geothermal and wind power for interconnection to the grid will also occur within the next few years.

An energy stakeholder consultation was held on August 28-30, 2007 in St. Kitts and Nevis with the objective of presenting the findings of the bio-energy assessment recently carried out by the Organization of American States (OAS) and the Energy and Security Group (ESG). The international donor/governmental community led by the GSEII-UNIDO team discussed and reviewed several suggested viable biomass-to-energy alternatives with Senior Officials of the St. Kitts and Nevis Federation Government and other local private sector

and NGO representatives. In the week of November 12, 2007, the OAS-GSEII team, working with representatives of the USA and Brazilian Governments, will present to the Cabinet, a review of the various viable alternatives bio-energy options. The team will highlight key issues and seek to develop consensus toward catalyzing the com-



NEVIS PEAK

mercial development of bio-energy in St. Kitts and Nevis.

In the area of geothermal development, St. Kitts & Nevis has been a member of the Global Environmental Facility (GEF)-sponsored Geo-Caraïbes Project, together with the countries of St. Lucia and Dominica.

Nevis has been the focus of investigation for geothermal development in the Federation, as it presents the best near-term exploitable resource. The pre-feasibility studies ended in 2006 and the proposal for the full implementation project from the GEF was not accepted due to changes in the GEF funding and evaluation system. However, the local efforts to develop geothermal energy continue. In 2007 the Nevis Island Administration (NIA) entered into a Memorandum of Understanding (MOU) with a private

RENEWABLE ENERGY UPDATES FROM ST. KITTS & NEVIS (CONT'D)

developer. This company has incorporated the surface based analysis that was conducted by the Geo-Caraïbes project into its understanding of the resource and, as of October 2007, is currently making arrangements to conduct exploratory well drilling in Nevis.

With regards to wind power development, the Federation Government of St. Kitts & Nevis is committed to the development of one or more wind farms. There have been recent discus-

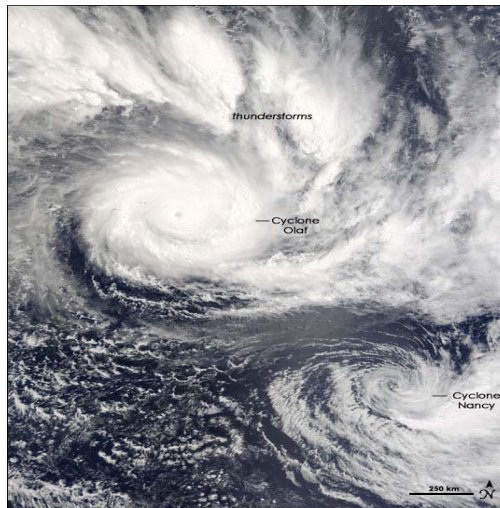
sions regarding the potential for the development of 10 MW of installed wind capacity. While there is observational (tree flagging, etc.) and historical wind monitoring (from airports and other non-wind power sites) evidence regarding the potential wind resources, there has been no dedicated efforts to assess the wind for power generation. This is changing as there are plans by the German aid agency, GTZ, to install wind monitoring equipment throughout the country and develop a wind resource

map. Also recently, the OAS has received several inquiries by private companies that have expressed an interest in exploring and developing wind projects in St. Kitts & Nevis, and there is at least one formal proposal/letter request to this affect before the Federation government. GSEII is also discussing the possibility of the Government of Iceland to send their experts and investors to evaluate the geothermal potential in St. Kitts & Nevis. ☀

PRESENTATION AT THE PACIFIC POWER ASSOCIATION CONFERENCE

The Pacific Power Association (PPA), that facilitates cooperation and expertise sharing between Pacific Island power utilities, held its sixteenth annual meeting in Majuro, Marshall Islands in August 2007. Over 100 representatives of Pacific Island utility companies attended the event, which covered issues concerning petroleum, energy efficiency, and renewable energy.

The overarching theme of the conference was "Using Commercial Improvements to Reduce Costs," and focused on how utilities can advance through commercial improvements. At the conference, the Honorable Tom Roper, Project Leader of the GSEII and Board Member of the Climate Institute, presented on the Intergovernmental Panel on Climate Change (IPCC) report and its implications for the Pacific, as well as recommenda-



CYCLONES IN THE PACIFIC

tions for making utilities more energy efficient.

During his presentation on the IPCC's report and its implications for the Pacific, Mr. Roper spoke about observations of recent climate change and potential climate change impacts on people and natural resources. His presentation emphasized the effects of climate change on small island states. Though small island states only produce a tiny percentage of global greenhouse emissions, they are among the most vulnerable regions to climate change, because of sea-level rise, coastal deterioration, and water resources decline.

Mr. Roper reported that, due to the adverse impacts of climate change on small

island nations, the residents of these countries are in danger of becoming environmental refugees. He suggested steps that Pacific Islanders can take to help prevent and adapt to climate change, including reduction of emissions and conserving natural sea defenses. He further prompted utility companies to play a role in climate change mitigation through energy efficiency and utilization of renewable energy technologies.

During his presentation on making utilities and consumers of electricity more efficient, Mr. Roper noted that power companies have the potential to influence consumers to be more energy efficient, which when combined with increased efficiency at the plant level would have the additional benefits of lowering costs, meeting increased consumer demand, reducing greenhouse gas emissions, and decreasing reliance on imported energy products.

Another step power utilities in the Pacific Islands could take is switching to "green" power, such as geothermal, hydropower, wind power, solar energy, and biofuels. Roper concluded his presentations by reiterating the need to use sustainable energy sources and encouraging that small island states to take the lead in making sustainable energy choices. ☀



WOMAN GATHERS SHELLFISH ON AN ERODED BEACH ON MAJURO ATOLL, MARSHALL ISLANDS, 2007

UTILITY ENGINEERS SOLAR POWER TRAINING PROGRAM



SOLAR PANELS, SOLOMON ISLANDS

The Pacific Power Association's experience in working with more than twenty Pacific utility members has demonstrated a necessity

for better training of utility engineering staffs. The PPA has discovered a major lack of technical knowledge in fields such as renewable energy, including solar power and energy efficiency. Unless utilities understand the benefits of renewable energy and can develop and maintain new projects, the current expensive dependence on diesel will continue. Without technical skills, renewable energy projects in the region will continue to be ineffectually located and frequently fail.

The Climate Institute regularly arranges educational sessions at the annual PPA CEO's meeting and Engineers bi-annual workshops in the Pacific. The Institute and E8 are working with the PPA to expand technical knowledge and capacity by organizing intensive workshops for engi-

neers and planners. The E8 is a cooperative organization of ten of the world's major power companies particularly promoting sustainable development and is able to provide information and expertise on the efficient generation and use of electricity to assist developing (www.e8.org).

A thorough 10-day workshop is proposed for 2008 and would consist of at least one week dedicated to stand alone systems and the balance to grid connections. The workshops will be held in two locations. One will be in the Marshalls and one in Fiji. These sites are central to the North and South respectively, making them the most accessible choices for all of the Pacific islands. ☀

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- *ORGANIZATION OF AMERICAN STATES*
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- *INTERNATIONAL NETWORK FOR SUSTAINABLE ENERGY*
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