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GLOBAL SUSTAINABLE ENERGY ISLANDS INITIATIVE

LIGHTS ON FOR MARSHALL ISLANDERS

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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.

Villagers on the Pacific Ocean outer islands of Wotho and Wodmej celebrated a 'brighter' Christmas and New Year with the introduction of solar lighting. For these Marshallese, as for those living on Namdrik and Mejit, a new life has opened. No longer will kerosene and batteries be the sole source of power.

Under the ADMIRE program (Actions for the Development of the Marshall Islands Renewable Energy) the Marshalls Government plans to light up the entire country by 2010: "Renewable energy is the most appropriate long-term alternative source to replace imported petroleum".

ADMIRE's objectives are to:

- Improve quality of life for Marshallese;
- Face major environmental issues by thinking globally and acting locally;
- Improve access to government services, especially remote and isolated schools and medical dispensaries; and
- Create an environment conducive to supplement and increase incomes for all.

Already teachers report better school results, fishermen can repair their nets after dark and craft production has increased. All this at about $12 a month – less than the cost of kerosene and batteries.

Installation, operation and maintenance are the responsibility of the Marshalls Energy Company (MEC), which is training locals to carry out day-to-day maintenance and collect payments. The MEC head office in Majuro offers training, and a parts facility as well as a radio link to answer technician's queries.

All told more than 2000 solar PV installations will be required with the Government contributing its own funds and soliciting international assistance.

Ailinglaplap Atoll (pop:2000) with a combined land area of 5.67 sq. miles enclosing a lagoon of 290 sq. miles (750 km2) will need more than 400 installations including churches and community halls. The challenges include using GIS to identify the numbers and siting, and working on 16 separate islands.

EU funding was agreed at a March meeting in Palau and the solar units are expected to be delivered in November. The Marshalls are way ahead of 4 other Pacific countries also promised assistance.

At the same time the Ministry of Education is finalizing an $875,000 schools program. At Palau it was also agreed to introduce 'solar lanterns' for a 3 to 4 month trial to find a model for remote islands to be used by families with lesser incomes who would be unable to afford standard solar house systems.

The Cabinet has announced that an additional $3m donation from the Republic of China will be used for about 500 installations at Arno and Likiep atolls – at Arno 28 separate islands will be covered, 10 of single houses.

More progress could have been made if the Marshalls had had the local expertise to apply for funds from the EU 200 million EU Energy Initiative, which required a PhD in form filling. So complex was the process that almost no Small Island Developing States (SIDS) were able to apply – less than 10% of applications.

The EU provided no special assistance to encourage or assist SIDS applications and many of those actually submitted by African and SIDS countries will have been prepared by European consultancies. The same lack of a mechanism to facilitate applications has also resulted in virtually no SIDS benefiting from the EU 500 million water initiative.

While solar seems the best solution, attention is also being paid to the use of coconut oil based bio-fuel as a diesel substitute. Tobolar, the coconut industry company has sold over 100,000 gallons for transport. Late last year the UNDP and SOPAC did a bio-fuel study on the cost effectiveness of running a small generator on locally produced coconut oil. However most larger diesels for electricity generation in the Pacific can't adapt without risking manufacturers' warranties.

Namdrik Atoll, Marshall Islands

GSEII STUDIES BIOENERGY POTENTIAL IN ST. KITTS AND

Historically, sugar was the primary crop and export of the small island state of St. Kitts and Nevis. However, declining world prices led to significant economic hardship and instability in the country. By 2005, the national sugar manufacturing company was operating at such significant and consistent losses that sugar production shut down altogether.

In response, the government instituted a Sugar Transition Team to investigate the potential for retaining socioeconomic and environmental benefits associated with sugar production. In support of this project, the GSEII partners the Organization of American States and the Energy and Security Group recently studied the potential for bioenergy development in the country.

The Biomass Energy Systems Assessment Study (BESAS) investigated the realistic potential – both economic and technical – for conversion of biomass feedstocks to energy on a sustainable basis, given the current and likely future conditions in St. Kitts and Nevis. The study may be used as a benchmark study for identifying key criteria to aid the Government of St. Kitts and Nevis in the evaluation and selection of commercial biomass energy systems as the Federation Government has received a number of proposals from private developers proposing a biomass-to-energy path.

Sugarcane Fields

The study first examined the use of sugarcane as a feedstock for ethanol transportation fuel. It found that widespread adoption of ethanol would be a challenging proposition because the island would need to produce more than it could use in order to produce at an efficient scale, but costs would be too high to generate much export demand. The study also explored the possibility of using biomass for electricity generation. In this respect the study found that there is substantial opportunity for the production of electricity from biomass in a economically attractive and environmentally sound manner. It suggest that a biomass to electricity strategy be pursued.

The broad conclusions as a result of this study suggest that there is a reasonable expectation for a competitive bioenergy business based on sugarcane crops. The government of St. Kitts and Nevis is therefore encouraged to seek viable offers/private sector partners for the development and implementation of this opportunity. The results have been presented to the Government of St. Kitts and Nevis for their ultimate determination on whether or not to move forward with a sustainable biomass energy program for the nation.

ENERGY EFFICIENT LIGHT BULBS FOR SIDS

Energy Awareness Program-St. Lucia

The GSEII has partnered with Climate Care, a UK-based company specializing in the sale of carbon emissions offsets, to distribute Compact fluorescent Light bulbs (CFLs) in the small island states. Through this partnership, energy efficient lighting programs together with national energy awareness campaigns have been launched in St. Lucia, Dominica and the Marshall Islands. GSEII plans to expand this program and initiate similar programs in the Maldives, and several additional Pacific island nations.

Switching from Thomas Edison's incandescent technology to CFLs is a win-win opportunity as it reduces utility bills as well as greenhouse gas emissions by replacing diesel-based electricity produced in many small island states. However, in most SIDS good quality energy efficient globes are very expensive – in the Maldives US$12 and the Marshalls US$13.25 – compared with traditional globes of US0.60 to 75cents. These bulbs can now be made available or subsidized through carbon-offset projects initiated by Climate Care and GSEII.

ENERGY EFFICIENT LIGHT BULBS FOR SIDS (CONTINUED)

The Marshalls Electric Company (MEC) in conjunction with the Climate Institute and Climate Care is currently installing 10,000 energy efficient bulbs, mostly in domestic situations. Approximately a third of Majuro's households will have their globes changed by MEC staff, one substation at a time. Power usage will be monitored over six months to assess the benefits after the installation. Each bulb will save ½ to ¾ of a barrel of oil over its approximate 8000 hours of life. 225,000 litres of diesel will be saved annually with real balance of trade benefits, 600,000 kg of CO2 (6000 tonnes), and individual consumer bills will be halved. The RMI Government had already played its part by adopting an energy conservation policy and undertaking that import duties would not be charged.

GSEII already carried out energy efficient lighting projects in St. Lucia and Dominica. The St. Lucian examples demonstrated the quick pay back from lighting changes. Using the US 'Energy Star' calculator with island level prices of US$0.25 cents/kWh for the replacement of a 100 units, annual operating costs are calculated to be cut from $3900 to $730 and life cycle costs by $13,600 (efficient $3750, conventional $17392). The initial higher purchase costs were repaid within months.

Among the Pacific utilities, APSA (American Samoa) conducted a lighting programme for business which for a cost of $116,000 achieved $266,000 savings. Savings came from a reduction in air conditioner and lighting demand totaling 300,000kW (Rupeni Mario, SOPAC – PPA CEO's Conference, August, 2004).

CFLs Will Replace Diesel

In addition to GSEII work, two recent Caribbean initiatives show what can be achieved. As part of a total overhaul of the Cuban electricity system (including new and distributed plant) all traditional incandescent globes have been changed and their future import banned. Local workers have changed 8 million bulbs saving 200MW of maximum peak demand. Cuba has also recently undertaken an aggressive program to distribute the CFLs in many of the Caribbean island nations, and provided over 200,000 light bulbs each to Grenada, St. Lucia, St. Kitts & Nevis and St. Vincent & the Grenadines.

In French Guadeloupe the utility, EDF, has promoted subsidized reduced cost energy efficient lights, which can be paid off the normal bill. The first campaign involved 358,000 lamps in 44,000 households with a saving of 7MW off peak demand.

COCONUT BIODIESEL TRIALS IN FIJI

An ongoing project of one of the GSEII partners is a survey of the potential for coconut-based biodiesel (Coconut Methyl Ester or CME) as a transportation fuel in the Pacific island state of Fiji. The Energy and Security Group has been working to integrate these efforts into the Fijian government's biofuels program. As a result of this cooperation, the Fijian Land Transport Authority (LTA) recently has undertaken a study to test the efficacy of blending CME with standard diesel, modeled on a similar program in the Philippines.

The trials require volunteers driving a variety of vehicles, including buses, large trucks, taxis and private cars, to mix a two percent blend of CME in with each tank of gas. The government then will study vehicle emissions and fuel efficiency. The results of the study are expected to be available by mid-year.

Fuel Storage Area with Drums of CME

GSEII REPRESENTATIVES MEET WITH PRESIDENT OF ICELAND

President Ólafur Ragnar Grímsson of Iceland recently met with the representatives of the Climate Institute, Energy & Security Group and the Organization of American States to discuss a new initiative to encourage North-South sustainable energy partnerships between island states. Ambassador Denis Antoine of Grenada in Washington was also present.

Iceland, as a highly developed island nation and a world leader in sustainable energy, is uniquely suited to take the lead on this issue. The country presently obtains nearly all of its electricity from hydroelectric and geothermal power, and has recently begun trials that it hopes will eventually lead to a complete transition from fossil fuel to hydrogen power in the transportation sector.

At the meeting, President Grímsson discussed Iceland's current work on adapting its geothermal technologies to China, India and parts of Eastern Africa. He hopes to extend the country's efforts to the island states in the near future.

Geothermal Resource

Glitnir, a leading Nordic specialty bank with a dollar asset of over $28 Billion, is investing aggressively in the global geothermal energy market. The Icelandic investors, scientists and engineers are prepared to work on challenging projects to harness geothermal resources anywhere in the world. The GSEII members look forward to this collaboration with Icelandic Government, private sector and academic institutions.

Developed and developing island states each hold an equal stake in promoting renewable energy resources. North-South partnerships afford an opportunity for developing islands to benefit from the experiences and expertise of the developed states, and will simultaneously provide a market for the developed states' technologies.

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