Greetings to All Readers

It is with pleasure that we present you the last PEN issue for 2002. This year, like the previous years, has been full of activities where the Pacific island countries were engaged in many national, regional and international meetings/conferences, workshops, declarations, etc.

The Regional Energy Meeting (REM 2002) in July in the Cook Islands has been one of the highlights of the calendar of events in the regional energy scene where national and regional energy personnel met to discuss and map-out activities that were of common interest to all Pacific islands.

In addition, there was the ESCAP workshops which were to help identify future ESCAP activities in the Pacific region, the starting of the Pacific Islands Renewable Energy Project (PIREP) in early 2003 and many other ongoing and new regional and national activities which have been scheduled to begin in 2003.

Following the CSD9 in April 2001 where the Pacific Islands collectively voiced their opinions through an energy paper, the region again had a chance to have a say in the international scene through the WSSD process in 2002.

The Pacific region over the last few years have managed to move forward despite its constraints. Thanks to the efforts of national energy officers and governments, regional and international organisations, doners and the CROP EWG.

It is yet again the time of the year where the demand for energy will be at its peak. A time where we should emphasise energy conservation and efficiency - an area that is often neglected in the Pacific islands.

The compilation of the PEN has continued to be a challenge due to the limited feedback from country energy offices and other readers. However, for those who have been sending articles we thank you for your efforts and support.

Lastly, the PEN team wishes everyone a Merry Christmas and a Prosperous New Year.
Six Pacific island countries will get about 16 million Euros to enable them to use the wind, sun, and coconut oil to generate power for their people. European Union (EU) representatives recently met in Suva with other organizations to plan renewable energy development cooperation intended to bring regular, affordable power to outer island communities; and enable the countries to reduce their dependence on imported diesel fuel to generate electricity.

The European Commission's Pacific delegation head, Frans Baan, led discussion on cooperation on new EU-funded projects in five countries: Federated States of Micronesia (4.08 million Euros), Marshall Islands (2.3 million Euros), Nauru (1.53 million Euros), Niue (1.8 million Euros), and Palau (1.7 million Euros).

An ongoing EU-supported solar power project in Kiribati (4 million Euros) was also discussed.

Baan said the EU plans to work in cooperation with others active in regional renewable energy development as well as in partnership with the governments of the countries involved.

Cooperation will include the French embassy in Suva, South Pacific Applied Geoscience Commission (SOPAC), Secretariat of the Pacific Community (SPC), and Pacific Power Association, he said.

Baan said of the new projects: “This re-emphasizes the importance the European Union attaches to concrete actions in renewable energy.”

He said they follow up the Kyoto Protocol on cutting greenhouse gas emissions and the recent Johannesburg World Summit on Sustainable Development.

All five countries involved in the new projects recently joined the ACP (Africa, Caribbean, Pacific) group-EU aid, trade and development partnership under the Cotonou Agreement.

They identified the use of renewable energy as a development priority.

Baan said all the projects will use “proven technology. Things that work and can be maintained. We are not going to experiment.”

The technology used would depend on the country involved.

“Where you have wind you should be using wind,” he said. But in low-lying islands near the equator solar power made more sense. In others, coconut oil could replace diesel.

Pre-feasibility studies were being conducted with assistance from the French embassy in Suva, SOPAC and the SPC.

Baan said: "We are now working together with all these institutions, together with the Pacific Power Association, to start implementation."

Pacific Islands News Association (PINA)
Website: http://www.pinanius.org/
Please note that this report is written more from an energy perspective.

The Pre-3rd World Water Forum was held in Koror, Palau from the 15–16 of October 2002. The meeting was organised jointly by Saga University, Japan, Kyushu Maintenance Office of the Ministry of Transportation and Construction, Japan and the Palau Government as a lead up to the 3rd World Water Forum to be held in Japan in March of 2003. The primary focus of the meeting was the promotion of water projects (potable and power generation) using deep ocean water and Ocean Thermal Energy Conversion Technology (OTEC). Saga University from Japan was the primary presenter at the conference promoting its work and research in OTEC technology. There were several booths and demonstrations of the technology.

In 2001 the Government of Palau, Saga University and Xenesys Inc. - a Japanese private company signed agreements that would permit Saga University and Xenesys Inc to undertake research and feasibility studies of OTEC technology and identify and assess potential sites for OTEC plants throughout Palau. As a result of this research Saga University came up with what it has called the Uehara Cycle OTEC technology. Basically there are four different types of OTEC technology:

(a) Rankine Cycle
(b) Kalina Cycle
(c) Open Cycle and
(d) Uehara Cycle.

Simply the OTEC technology consists of six major components (Ref: Fig.1) the evaporator, turbine, condenser, working fluid pump, warm seawater pump and cold seawater pump and are interconnected with pipes.

The evaporator comprises of several thin metal plates which are filled with the working fluid (a substance that evaporates at fairly low temperatures - 20-300°C). The surface seawater with temperatures between 20-300°C is pumped through the evaporator and heats up the working fluid. The working fluid is turned into steam which drives the turbine that in turn drives the generator.

Meantime the working fluid which has lost its heat is condensed by the cold seawater.

The Uehara cycle (Ref: Fig. 2) uses a mixture of ammonia and water as the working fluid. According to Saga University the heat efficiency attained by the working fluid is higher by 50%–70% than that of other types of OTEC technology. This means that with the same output capacity, the Uehara cycle uses less (about 70% less) volume of surface and cold seawater.

In the Uehara Cycle the working fluid (mixed ammonia and water) is sent first by two fluid pumps into the re-generator and then to the evaporator. The warm surface seawater is pumped into the evaporator and heats up the working fluid.

The working fluid turns into a mixed vapour of ammonia and water. The mixed vapour is separated into ammonia water and vapour of ammonia water. This mixed vapour of ammonia water drives Turbine No.1. Part of the mixed vapour is extracted by the heater and the rest is directed to Turbine No.2 which in turn drives the generator. In the meantime ammonia water separated in the separator passes through the re-
FEA to Increase Renewable Power Generation Capacity
Wednesday November 27, 2002
The Fiji Electricity Authority (FEA) will increase its renewable power generation capacity by 15 megawatts by the end of next year.
This will cost the authority around $35 million.
Chairman Joe Mar made the announcement on Monday night at a Customer Information Night held at the Suva Civic Auditorium.
Mr Mar said the increase in renewable power generation included wind power generation and two new hydro electricity schemes.
“We are far down the road on developing the new hydro schemes with tenders to be awarded for procuring the required turbines. This holds true for the wind power generation project.” Mr Mar said through reforms and restructuring, the authority had saved around $6 million which he hoped to increase to $8 million by the end of the year. However, he said, the $6 million saved had come to a naught because of the high price of diesel generation and the low water level in the Monasavu dam.

He said diesel fuel cost FEA $7 million more than budgeted, and more than $10 million spent in 2001.

“Combined with the $2 million increase in insurance premiums as a result of September 11 and related terrorism activities, the authority’s efforts in saving were negated through these uncontrollable costs.”

Mr Mar said this was only part of the costs the FEA must absorb.
He said FEA was the only company that he was aware of, that had not increased its prices in 11 years, and in fact reduced them twice over the period.

The Daily Post

FSM President Falcam, Nielson look to Renewable Energy
PALIKIR, Federated States of Micronesia (Oct. 21, 2002- FSMIS/PINA Nius Online)— Federated States of Micronesia President Leo Falcam has talked with European Commissioner for Development Poul Nielson about something close to the commissioner’s heart: renewable energy.

It came when Nielson wrapped up his tour of the Pacific region in the Federated States of Micronesia, meeting Falcam in Palikir.

Nielson, a former Danish energy minister and energy company chief executive, talked with the president and officials about European Union help focusing on renewable energy.

Various forms of renewable energy possible on the scattered outer atolls that make up most of the country were discussed. These included solar and wind power.

Discussions included wind power to help desalination, ensuring safe drinking water.

This was in line with the Federated States of Micronesia’s earlier identified areas of need.

The European Union will make available up to 6.2 million Euros to help Federated States of Micronesia over the next five years.

It comes through the Cotonou Agreement, the major aid, trade, and development partnership between the EU and ACP (African, Caribbean, Pacific) group.

The Federated States of Micronesia is one of six new Pacific Islands countries joining the ACP-EU partnership under the Cotonou Agreement.

It became a signatory to the Cotonou Agreement in November 2000, when Vice President Redley Killion signed in Brussels.

The meeting in Palikir provided a chance for the Federated States of Micronesia to detail its areas of need and Nielson to elaborate on the European Union’s forms of assistance.

Commissioner Nielson emphasized the regional aspect of the Cotonou Agreement and its focus on sectoral development.

Pacific ACP countries are: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Palau, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

Pacific Islands News Association (PINA)
Website: http://www.pinanius.org
Coconut Oil Considered as Potential Replacement for Diesel in the Solomon Islands

HONIARA, Solomon Islands (September 17, 2002 – Radio New Zealand International)— The Solomon Islands Electricity Authority is experimenting with using coconut oil to power its generators, which now use diesel oil.

Radio New Zealand correspondent George Atkin in Honiara has more.

“The Authority’s General Manager, Michael Nation, says the experiment is being carried out at the Lata Power Station in Te Motu Province.

“He says if the Lata experiment is successful, the authority will use coconut oil at all its provincial power stations.

“Mr. Nation adds it may also be possible that the power stations in Honiara will turn to coconut fuel as well.

“He says the authority decided to venture into using coconut fuel after the Te Motu Development Authority in Lata had suggested trying it, because the power station there has been experiencing continuous fueling problems.

“Mr. Nation says major reasons for the experiment are: diesel fuel is becoming more expensive, and inconsistent shipping schedules often delay fuel distribution to the provincial power stations.”

European Union agrees to provide Niue with Funding for Renewable Energy

ALOFI, Niue (September 20, 2002 – Radio Australia)— Niue Premier Young Vivian says the European Union has agreed to provide substantial funding for the Pacific island’s renewable energy project.

Premier Vivian says he hopes that the EU aid means that eventually it will be possible for the whole island to be provided with electricity without the use of fossil fuels.

Officials from the EU have been on the island for the past two weeks assessing projects following Niue’s acceptance into the African, Caribbean Pacific (ACP) group of nations last year.

SOLOMON ISLANDS

2002 Regional Earth Day Prize Giving Ceremonies in the Fiji Islands and Kiribati

The Fiji Islands and Kiribati schools that participated in the 2002 Regional Earth Day competition, known as the “Energy Wizards of the 21st Century”, hosted prize giving ceremonies at their respective premises to honour the efforts of the students and teachers involved in the project.

Mahatma Gandhi Memorial High School, Suva, Fiji Islands, won the National Prize for the Earth Day 2002 Competition. The chief guest, the New Zealand High Commissioner presented the cheque of F$500, Energy Auditing Made Easy booklets and Saving Hieronymus education kit to the school Principal Bhagwanji Bhindi. The students who were part of the energy wizards team received Certificate of Participation, Energy Auditing Made Easy booklet, stationary and a wind turbine model.

The New Zealand High Commissioner in his speech said that the Energy Wizards of the 21st Century project competition this year, organised to mark the World Earth Day showed a practical way to conserve energy in our day-to-day lives. He said the project undertaken by the school had demonstrated how careless we all tend to be in our use of energy, and how easy it actually is to exercise good conservation practice.

The school Principal, Mr Bhindi said, “the achievement of this project also symbolises the school slogan “Lets Strive Together” therefore through team work, a lot can be achieved.”

During the prize giving ceremony in Suva

The Mahatma Gandhi Memorial High School Energy Wizards Team
generator and then into the absorber via pressure reducing valves. The mixed vapour from Turbine No.2 is absorbed with the ammonia water in the absorber. Some of the mixed vapour which cannot be absorbed with ammonia water is cooled and condensed by the cold seawater and turns into liquid. The working fluid pump takes this fluid into the heater and then to the evaporator, thus the cycle is repeated.

Saga University has identified seven potential sites for OTEC plants in Palau. These sites are located around the big island of Babeldaob. The study further concluded that the two sites with a total capacity of 30MW should be sufficient to provide both the current electrical and fresh water needs for Palau. A 2MW OTEC plant is estimated to cost about US$4 - US$5m and produces about 2.2 million litres per day of fresh water.

A scaled model of the Uehara Cycle was donated to the Government of Palau and was on display during the meeting. Although Palau has shown interest in OTEC technology, it does not have the financial resources to support the building of an OTEC plant in Palau. Instead it would look toward organisations such as JICA for funding the first OTEC plant in Palau.

The highlight of the meeting was the signing of the “Palau Declaration”. A copy the declaration is attached as Appendix II. Seven out of the nine countries represented at the meeting signed the declaration.

Hospital Incinerator Demonstration

There was a slot set aside on Day 2 to visit the National Hospital in Koror to look at two incinerators recently installed for burning hospital wastes. The electric incinerators burn the waste without any ash, odour or smoke (very impressive) at a temperature of 1400C. The incinerators use a blower with air curtains to contain odour and smoke. The amount of hospital waste burned in a week averages about 200 kg. The incinerators cost about US$220,000 each.

1 The current peak power demand for Palau is about 13 MW.

Regional Earth Day 2002

The overall regional winner of the “Energy Wizards of the 21st Century”, King George Fifth and Elaine Bernacchi School, Tarawa, Kiribati, also hosted a similar occasion where students and teachers were acknowledged for their efforts in promoting energy efficiency and conservation in their school.

The New Zealand High Commission – Fiji, Foundation of the Peoples of the South Pacific (FSP) - Fiji, Mobil Oil Regional Office - Fiji, World Wide Fund for Nature (WWF) - Fiji and United Nations Theme Group – Samoa are gratefully acknowledged for the funding assistance provided to the successful implementation of the project.
Regional Fuel Price Comparisons
One of the key goals that we set for the Petroleum Advisory Service this year was to collect and regularly report regional wholesale and retail fuel prices for the information of the governments and people of the Pacific.

With the cooperation of officials in both Forum Island Countries and our near island neighbours, we have started this process in July 2002. We have made a good start with twelve sets of data to date and hope to continue to report these figures on a regular basis. Eventually, our target is to publish fuel prices for all Pacific Island Countries every two months.

We have chosen to report prices in US dollars per litre, being respectively the traditional oil currency and the dominant liquid measure in our region.

Wholesale and Retail Mogas and Diesel
Our reporting will show both the wholesale and retail prices for Motor Gasoline (Mogas) and Automotive Diesel Fuel (Diesel). We find that there is a general community interest concerning what is paid for fuel in each of our countries as compared with our near island neighbours as compared with some of the more developed markets in our region. Graphs 1 & 2 report the actual prices charged in each of the markets.

This information begs an answer to the obvious question, which is ‘Why are fuel prices so high (or low) in the different countries?’. There are many factors that influence fuel prices in countries of course, including FOB fuel costs, freight, costs and profit levels and even the different periods which countries use to set prices where fuel prices are regulated.

Mogas & Diesel without Duty and Tax
Duty and direct taxes (like sales tax) charged by various governments is one obvious difference. Since these values are readily available and a matter of public record, we have been able to extract them and have provided a second set of graphs which show the price of fuel but this time, excluding duty and taxes.

From these new (non-tax) Graphs 3 & 4, we start to recognize some basic fundamentals of Pacific Island fuel pricing. For example, Australian Mogas price is the lowest in the Pacific, which is appropriate since they have refineries which is the source for much of our fuel. Likewise, low prices in Fiji and PNG are no surprise, since they are relatively large markets with direct MR shipping from Australia.

Highs and Lows of Pacific Islands Fuel Prices
What is interesting though, are the relatively low fuel prices of Samoa and Solomon Islands. Low fuel prices in Samoa are a direct result of the competitive bidding process between oil companies that was adopted by the Government of Samoa in the late 1990’s, involving the periodic tender of fuel supply for the entire nation. The Samoan initiative was considered a bold move at the time but it is certainly paying dividends now. By contrast, low fuel prices in Solomon Islands is due to timing delays in implementing new fuel price increases.

These graphs raise as many questions as they answer, however.

We notice with interest, for example that the Mogas price for Vanuatu is the highest of all the Forum Island Countries taking part in this survey, even higher than the much smaller markets of Niue, Cook Islands and Tuvalu.

It is particularly satisfying to see that retail the fuel prices in Tonga, the government of which has closely scrutinized fuel costs over recent years, is considerably more favourable than most of the other LCT ports in the region.