Climate Change – A Challenge for Pacific Nations and their Utilities

by the Hon. Tom Roper, Climate Institute
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Mr Apii Timoti, distinguished guests and PPA members – Talofa

I'm delighted to participate in this conference which is so important for the ongoing development of the Pacific Nations and their citizens. Your Association is making a growing contribution as is demonstrated by your Conference title "Sharing knowledge and experience for practical, proven solutions".

We meet in an environment of many challenges including the threat of climate change, the global financial crisis, the crippling cost of diesel on which you all depend and the unacceptable fact that 70% of Pacific Islanders don't have access to electricity.

Climate Change

Almost every new piece of research published suggests that global warming and climate change are accelerating. The serious conclusions of the last International Panel on Climate Change Report are being overtaken by events. As Professor John Holdren, now President Obama's Science Advisor says the goal of avoiding dangerous interference in the climate system is already out of reach. The current level is "dangerous" and the "issue is whether catastrophic interference is avoidable".

With major efforts to cut emissions, which aren't occurring, there is an 80% chance of a temperature rise of 2 degrees Celsius or above. Without dramatic policy changes there is a 90% chance of a rise of 3 degrees or much more. While as we shiver in this over air conditioned hall 2 degrees might seem a good thing its effects will be disastrous.

Small Island States produce almost negligible greenhouse gas emissions but are especially vulnerable to climate change effects particularly sea level rise and extreme weather events. Whereas the average Australian produces 20 tonnes of CO2 a year Pacific Islanders produces a tonne or less. Impacts will include:

- Higher temperatures of more than 2 degrees Celsius – more heatwaves
- Deterioration in coastal conditions through erosion of beaches and coral bleaching.
- Sea level rise exacerbating inundation and storm surge – higher king tides
- Increased severity of extreme weather events
- Higher water temperatures and chemistry changes endangering reefs and fisheries
- Water resources reduced and food production threatened
- Social, economic and health changes

The CSIRO's John Church is now predicting a sea level rise of 1 metre plus, NASA's James Hansen 2 metres. Already many Pacific countries report regular flooding and Papua New Guinea's Carteret Islands are already being evacuated, the families having the unfortunate distinction of being the world's first climate refugees. Whole nations such as Tuvalu, The Marshalls and Kiribati are under threat.

Island Governments are more and more active in letting the world know of the dangers. Nauru's UN Ambassador, Marlene Moses, told the UN General Assembly that international peace and security were threatened and "small islands are already experiencing dire and immediate impacts".

Munich Re, one of the biggest insurers, reported 750 natural hazard losses in 2008, with 4 being "great natural catastrophes" and "50 significant loss events". In Oceania there were 50 natural catastrophes with a cost of US$2.4bn, of which half were in the Islands – storms, cyclones, flooding.

While so far there is no evidence that climate change results in more cyclones many scientists believe that increased water temperatures (a record in June and July) make them more powerful and therefore a greater threat to life and property. In April 2004 Cyclone Sudal destroyed or damaged 90% of homes in Yap. While the winds cause massive destruction so does the greater rainfall and storm surges – metres higher. As utility managers you've had the clean up the wreckage after the cyclone has passed.

Events such as El Nino with warmer water in the Eastern Pacific threaten hydro capacity in Fiji, Samoa and elsewhere.

Change is inevitable and your country, your utility and donors have to be far better prepared with adaption planning and developing defences. All too often donors are generous with emergency aid but miserly with funds to reduce impacts.

What can be done?

Although Pacific emissions are minute you can set an example to the rest of the world and at the same help your own consumers by developing renewable energy and promoting energy efficiency. The recent Pacific Islands Leaders Forum meeting in Cairns tackled climate change and resolved to "promote renewable energy:"

"Leaders observed that renewable energy offers the promise of cost effective, reliable energy services to rural households and will provide a contribution to global greenhouse gas mitigation efforts. Now is the time, with appropriate technology and expanding carbon markets, to drive the development of projects to bring to reality the promise of renewable solutions to the region's energy needs."

"Leaders commended the initiatives of Tonga and Tuvalu in incorporating renewable energy targets into national energy strategies." Tuvalu has set a

possibly over ambitious target of 100% renewable energy by 2020 at a cost of $20m plus. "We look forward the day when our nation offers an example to all – powered entirely by natural resources such as the sun and the wind" (Minister Natano). Tuvalu's first grid connected solar system commenced operating last year as a result of an E8/Kansai Power/ PPA initiative.

Regional Energy Officials meeting in April in Tonga urged the preparation of national energy policy and action plans; the setting of voluntary renewable and energy efficiency targets; strengthening human capacity and improving utility performance; introducing policies, incentives and programmes to improve energy efficiency; and sharing experience and expertise on opportunities and lessons learned.

You, as utility managers, are crucial as major players in island economies and must be a key element in the National Development Plan. A badly run utility damages the economy, destroys opportunities and penalizes the less well off.

Higher diesel prices have had a huge impact on both national balances of payment and national economies – some can barely afford for the tanker to call. Last year Kiribati fuel imports were 25% of GDP. Cooks and Solomon Islands customers are paying 50 cents US or more per kWh. Majuro residents were taking out light globes and turning off necessary appliances.

Renewable energy – wind, solar, hydro, biomass, coconut oil – is now cost competitive with diesel. More and more are being introduced – Samoa, Vanuatu, Solomon's – and individual systems are starting to light up the lives of the 70% of Pacific residents without any access to electricity – the Marshalls atolls 'Admire' programme.

Significant barriers need to be overcome:

- Weak national and utility plans
- Dependence on traditional diesel systems
- Inadequate awareness and experience of various technologies
- The capital cost differential between diesel and renewables
- Lack of development capital and donor consistency
- Fly by night operators and consultants – poor quality products systems

The Path forward

The first step is to develop an agreed government and utility plan with a practical renewable energy target including the phase out of older diesels. Changing your generating mix may result in lower costs for your consumers. Second is to improve technical capacity and experience, working with donors and other utilities. Third is carrying out proper resource assessments (to avoid building a wind turbine where there is little wind) and identifying practical renewable and energy efficiency projects. Fourth will be to commence a comprehensive efficiency programme to stop expensive wastefulness and to benchmark comparative performance with similar utilities to assess and improve efficiency.

As part of our Global Sustainable Energy Islands Initiative (GSEII) in the Caribbean a UNIDO sponsored Loss Reduction Strategy for DOMLEC (Dominica, 2005) found net losses of 17.1% and identified 3 interventions – reconductoring 400V lines, Capacitors addition, and reconductoring 230V lines – that would reduce losses by 6.2% of net generation with annual savings of US$525,000. Annual diesel savings would total 344,400 gallons and 3,470 tonnes of avoided CO2 emissions.

The PPA has received US/EU assistance to promote demand side management (DSM) and will conduct with the E8 and Herb Wade two engineers' workshops in the next 6 months – modelled on last year's successful solar workshops.

Donors must do better

The SIDS are littered with too many failed energy projects with often inappropriate technology and lack of local training and ownership. On one Marshalls atoll solar home units were installed but the donor didn't even translate 'the how to use guide' into English. Not surprisingly the batteries failed and the Marshalls Electric Company had to come in and renew almost the whole system.

At the Cairns' Forum meeting it was agreed that Australia would convene an officials meeting to identify options for scaled up, better coordinated financing for clean and affordable energy – A$25m over 4 years.

The EU has expanded its assistance to individual countries and will launch a 2nd Euro 200m energy initiative in 2010. In the first scheme the islands received virtually nothing – the application forms were so complicated and demanding that a PhD in form filling was essential. It was a consultants' banquet.

The US Department of Interior is assisting, with PPA involvement, its former territories and has announced massive Stimulus Package assistance of more than US$56m for Guam, the Northern Marianas and American Samoa (DOE). For example our hosts, American Samoa, have just had $7,420,000 awarded for renewable energy expansion and 'weatherization' funds to improve energy efficiency for low income residents.

Amongst the projects is a 1000 kW PV array adjacent to the Tafuna Power Station; 19 smaller 28kW arrays on the roofs of government and other buildings; a solar hot water system (SWH) for the hospital; 8 anemometers to measure wind potential; and funds to weatherize 30 low income homes including efficient AC and SHW systems. The Governor has also agreed to introduce improved residential and commercial building energy codes. After successful implementation a further US$9m will be provided. Funds have also been awarded to the 3 Territories for energy efficiency – US$366,000. The Department of Interior is also helping with wind assessment.

In addition further funds, $287,800, has been announced by DOE Secretary Chu to 'weatherize' 225 houses (elderly, disabled, families with young children). Cost effective CFL's, solar hot water, refrigerators, window AC, low flow faucets and shower heads were mentioned. Subject to successful implementation an additional $360,000 would be provided.

This ambitious programme provides a huge opportunity for exemplar projects to be assessed, lessons learnt and training provided. There should be a special project, involving the PPA, to enable energy officials and utility CEO's and engineers to study on a hands on basis how the projects are carried out and how they can be adapted to other islands' needs.

The World and Asian Development Banks are developing enhanced programmes. The ADB has granted $3m for small pilot projects in Papua New Guinea, Solomon Islands and Vanuatu – mini hydro, alternative fuels such as coconut oil, grid based solar. Rural electrification in PNG is less than 10%, Vanuatu 7% and

Solomon's 5%. Barefoot Power has been installing basic solar lamp kits for less than $25 – cheaper and safer than kerosene.

The Energy for All Partnership proposes to scale up access to energy for 100 million people in the Asia/Pacific Region by 2015. Both REEEP and the E8 are partners.

So far SIDS have missed out on expanding carbon finance opportunities and the Clean Development Mechanism – only 2 hydro projects in Fiji and a mining project in PNG. Of the 5000 plus CDM projects only 28 (0.006%) were in AOSIS member countries – Cape Verde 1; Cuba 3; Cyprus 8; Dominican Republic 5; Fiji 1; Jamaica2, Mauritius 1; PNG 1; Singapore 7.

In order to harness finance new expertise in writing proposals and planning and administering projects will be necessary as will the knowledge of where donor, bank and carbon finance can be accessed. Donors must better coordinate their programmes and provide training and help set up financing mechanisms at the national, village, enterprise and family levels.

At last year's conference I laid out a set of practical and achievable targets.

A Vital Role for the PPA

Last year the PPA, a member of the Council of Regional Organisations in the Pacific (CROP), was tasked by the Pacific Energy Ministers with implementing energy efficiency and human capacity improvements in power utilities. The 2008 PPA Conference at Rarotonga "agreed that the PPA would coordinate action to improve utilities efficiency, promote the use of renewable energy and develop demand side management to help individual and business consumers reduce their energy costs".

Five tasks starting with "sharing knowledge and experience for practical proven solutions" include being an important voice in the region and with donors, conducting joint training programmes with E8, REEEP etc, PPA professional staff assisting utilities with operations and tendering, and ensuring the involvement of the private sector, particularly the Allied Members whose presence and Trade Exhibition adds so much to your Annual Conference.

With the PPA's assistance you can develop practical and achievable plans and share your experiences and lessons learned.
Pacific Governments and you as their utility managers must act quickly to take up the new opportunities for renewable and energy efficiency projects.

This time Pacific islanders must not miss out.

The climate change threat is here now and you and your utility can help meet it and strengthen your community at the same time.

Fa'afetai lava.