**SUSTAINABLE ENERGY FOR ALL IN THE PACIFIC ISLANDS**

By the Economic Development Division, Secretariat of the Pacific Community

**SUMMARY**

**Energy Access**

About seven million people, mostly from the Melanesian countries, out of the region’s ten million, still do not have access to electricity. While the average for the Small Island States (SIS) is 68%, access to electricity in the larger and more populated islands of Papua New Guinea, Solomon Islands and Vanuatu are only 12%, 14% and 28% respectively.

More than 95% of the commercial energy needs of the region are met from fossil fuels. This heavy dependency exposes the economic vulnerability of PICTs to the volatility of the prices of petroleum products. The increase in the price of petroleum impacts disproportionately on the low income countries. Tokelau has become the first country in the world to generate 100% of its electricity and there is renewed effort in the region to increase the share of renewable energy utilisation.

**Affordability of Energy**

On average, the SIS are most vulnerable to oil price fluctuations since its oil imports are equivalent to 19% of their Gross Domestic Product compared to an average of 9.1% for all the FICs. Average household energy expenditure is about 20% of total average household income for the FICs and slightly higher at 22% for the SIS. Generally, the costs of electricity and petroleum in the region are among the highest in the world.

**Energy Efficiency and Productivity**

Total energy losses in some power utilities are as high as 25%. Very little has been done about addressing the losses in the transportation sector, which account for about 75% of the region’s fuel imports.

The FICs, on average, use the equivalent of 1 litre of diesel to produce US$5 of GDP. In the total supply of electricity in the FICs, an average of 68% is being consumed in the commercial and industrial sectors.

**KEY ISSUES**

The key issue in the energy sector of the PICs is the heavy reliance on fossil fuel with its detrimental economic and environmental implications. Across the region, approximately 1.3 billion litres of fossil fuels are imported annually at a total cost of US$873 million. Of this volume, 16% is used in electricity generation; much more is used for transport.

While a lot of work has and is currently being carried out to reduce fossil fuel reliance, the heavy reliance on fossil fuel will continue for some years to come. It is therefore very important that ways and means of setting fair and reasonable fossil fuel prices are immediately and continuously looked at. At the same time, improved supply logistics through joint shipping and storage and through better negotiated supply contracts should be looked at as an immediate priority.

Despite the effort in the last three decades to reduce reliance on fossil fuel and make modern energy services accessible and affordable through the widespread utilisation of feasible renewable energy technologies and improved energy efficiency, the progress has been rather slow. Weak project management capacity, inappropriate project designs and technologies, absence of adopted products and installation standards, lack of funds to cover maintenance are some of the challenges encountered.

At present and apart from Tokelau, only Fiji, PNG, Samoa, and Vanuatu have significant shares of renewable energy in the total electricity supply (60%, 66%, 37%, and 15%, respectively). In line with the consistent call by Forum Leaders, a renewed effort is sweeping across the region to increase the share of renewable energy and to improve energy efficiency. Ambitious national renewable energy targets ranging from 30% to 100% have been adopted and are being pursued. These are being supported and guided by adopted regional and national energy frameworks, roadmaps, charts and plans which emphasise the need for more effective coordination through the many-partners-one-team and whole-of-sector approach to addressing the region’s energy security issues. There are increasing numbers of partnerships being executed jointly by PICs and development partners under the UN-adopted sustainable Energy for All initiative.

Most of the efforts on renewable energy and energy efficiency are to address the heavy reliance of the region’s power generation on fossil fuel. On fuel substitution, there is renewed effort to increase the share of renewable energy in power generation in order to reverse the slow progress of the last three decades. On the supply side management, aging generators and costly maintenance schedules are very common and directly contribute to the total losses of above 20% in some utilities. On the demand side management, improving efficiency of electricity consumption is challenging given the lack of awareness and consumer education programmes and the absence of adopted minimum energy performance standards and labeling.

Despite the effort to reduce reliance on fossil fuel in the power sector, the fact remains that most of the fuel imported into the region – about 80% – are consumed in the transport sector. This is obviously an area where very little attention and resources are diverted into and needs greater development focus if significant reduction in fossil fuel reliance are to be achieved.

Remoteness and the absence of economies of scale have largely contributed to the high fossil fuel costs and power tariffs. Furthermore, the total losses in some power utilities are quite high at above 20% and contribute directly to the high power tariff.

**BACKGROUND**

Energy security is fundamental to achieving the social and economic development aspirations stated in the Pacific Plan. Energy underpins all aspects of socio‐economic development, ranging from production, storage and transport to health, education and the sustenance of livelihoods. Without energy, there can be no sustainable Pacific communities.

The key challenge to the energy sector of PICTs is the heavy reliance on fossil fuel with its detrimental economic and environment impacts. Fossil fuel accounted for 95% of the total Pacific energy supply in 2006 — almost 99% if we exclude Fiji and Papua New Guinea (PNG).

This heavy dependency exposes the economic vulnerability of PICTs to the volatility of the prices of petroleum products. The increase in the price of petroleum from 2002 to early 2008 cost most PICTs about 10% of their gross national incomes, with impacts falling disproportionately on those with low incomes. In 2008, when the cost of a barrel of oil rose to more than USD 100, Fiji’s imports increased by almost 25%, inflation rates in Kiribati and the Republic of the Marshall Islands (RMI) soared by 18.6% and 17.5% respectively, Fiji’s inflation rose to a record high of 7.7%, and the value of the RMI Compact Trust Fund and the Kiribati Revenue Equaliser Trust Fund declined by an estimated 20%. Fiji’s economy contracted by 2.5%, Palau’s by 3%, while the Solomon Islands and Tonga declined by 0.4%. The rising oil prices in 2008 forced the RMI government to declare a state of emergency when its power utility was unable to cope with the heavy fuel bills.

About seven million people out of the region’s ten million still do not have access to electricity and the electricity that is supplied to the three million is mostly fossil fuel based electricity. Given the physical distance, the lack of economies of scale and weak PICT economies, affordability of energy is a major burden at both the macro and micro levels. About 84% of petroleum products in PICTs is used in transportation while 16% goes to power generation; the energy efficiency of these two areas needs major improvement.

PICTs are among the most vulnerable nations of the world to the impacts of climate change, and greenhouse gas (GHG) inventories of PICTs show that the energy sector is the major emitter of GHG. Given this vulnerability, Forum Leaders have consistently called for the widespread utilisation of feasible renewable energy and energy efficiency technologies. In 2009, Leaders observed that renewable energy offers the promise of cost-effective, reliable energy services to rural households and will contribute to global greenhouse gas mitigation efforts. They acknowledged the role that renewable energy targets can play in driving the transition of national energy sectors to a low carbon future and commended the initiatives of Tonga and Tuvalu in incorporating renewable energy targets into national energy strategies. Leaders also welcomed an offer from the Government of Australia to convene an early meeting of officials to identify options for scaled-up, better-coordinated financing for clean and affordable energy in the region. They further agreed that action to scale up financing for clean and affordable energy should be discussed during a special meeting of Forum Energy Ministers and that progress with resource mobilisation and activity identification should be reported back to the 2010 Leaders’ Forum.

In 2010, a Special Forum Energy Ministers Meeting was held in Brisbane where the Framework for Action on Energy Security in the Pacific (FAESP) was endorsed and subsequently by the 41st Pacific Islands Forum in Vanuatu, August 2010.

The FAESP has a vision of An Energy Secure Pacific and is based on the premise of ‘many-partners-one-team’ in recognition of the need for more effective coordination in the promotion of energy security. It is also based on the ‘whole-of-sector approach’ which recognises that the promotion of renewable energy and energy efficiency in the region has been heavily weighted towards the electricity sector while very little effort has been on reducing fossil fuel in the transport sector, where most of the fossil fuel is consumed. In noting the efforts to reduce the dependence on petroleum imports through renewable energy and energy efficiency, the FAESP recognised the importance of:

1. Making electricity accessible to the 70% of the FICs’ population that still do not have access to it
2. Reducing the high costs of the region’s electricity supply which is more than US 50 cents per unit in some countries
3. Reducing total losses and wastage in the region’s power utilities which are as high as 30% in some countries
4. Improving the cleanliness of the energy sector with some countries still using low quality diesel oil

Following the FAESP and the acknowledgement by Leaders of Tonga’s and Tuvalu’s efforts, several PICs have set ambitious goals with plans to have renewable energy generating a much larger share of the electricity supply (in some cases countries have 100% targets – see Table 1 below). It is important to note that PICs are pursuing such strategies for a variety of reasons:

* Although the PICs are a small emitter of green house gases this policy can provide a means to meet the challenges of lower emissions, increase energy security and promote and enhance the Pacific as a clean and unspoiled environment for tourism.
* Renewable energy sources are a viable alternative in many islands that are isolated, smaller in size, population and demand and where access to fuel supply is unreliable and more expensive. However, in larger communities serviced by grid electricity options, dealing with energy conservation and efficiency are highly cost effective. In addition, the use of bio-fuel and a focus on better consumer education and development of cost-effective renewable energy will help reduce fuel imports and move PICs towards cleaner sources of energy and more efficient energy use.

*Table 1. National Renewable Energy Targets by PICs*

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| **Country** | **Energy Target** | **Timeframe** |
| Cook Islands | 50% of energy demand provided by renewable energy and 100% by 2020 | 2015/2020 |
| Fiji | 90% renewable | 2015 |
| Nauru | 50% renewable | 2015 |
| Palau | 20% renewable and a 30% reduction in energy consumption | 2020 |
| Samoa | 10% renewable | 2016 |
| Tonga | 50% renewable and the overall energy cost reduced by 50% | 2015 |
| Vanuatu | 33% renewable (set by the private company UNELCO) | 2013 |

**KEY DOCUMENTS & HYPELINKS**

Framework for Action on Energy Security in the Pacific (FAESP) <http://www.spc.int/edd/en/document-download/viewdownload/11-reports/360-energy-framework-final>

Country Energy Security Indicators Profile 2009

<http://www.spc.int/edd/en/section-01/energy-overview>