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## An Island Nation in Pursuit of Energy Alternatives

HANNOVER FAIR 2006, April 24-28

- \* First-ever participation of a south pacific company from Samoa
- \* Welcoming future technologies powered by hydrogen and fuel cells

"We have devoted ourselves to the application of renewable energies, whether from biological resources, from wind and hydraulic power, from hydrogen and fuel cells—every reasonable concept is interesting for us." Muaaosa Joseph S. Walter is the General Manager of Electric Power Corporation (EPC) of Samoa, the first south pacific company to ever exhibit at the HANNOVER FAIR in Germany. Representing this 4-island nation—Upolu, Savaii, Manono and Apolima islands—EPC will participate at the Group Exhibit Hydrogen + Fuel Cells (Hall 13) alongside over 124 exhibitors from more than 32 countries, April 24-28 at the HANNOVER FAIR 2006.

EPC is the only energy supply company in Samoa and is therefore responsible for all generation, transmission and distribution of electricity. They have 3 diesel power plants with around 22 MW of capacity and five hydraulic plants with around 12 MW at their disposal. The maximum demand sums up to ~19 MW and the infrastructure reaches 95% of the Samoan people. EPC currently has 32,289 customers, the majority of which reside on Upolu (78%) and Savaii (21%).

Up until the end of the 1980's, a diesel power generator was still the only electrical source for many in and around the capital city Apia. Due to the founding of EPC by the Samoan government in 1972, such diesel generators are only used as back up now. EPC presently supplies energy to consumers from the city to even the remote inland regions.

At the beginning of this decade an initial reform of the entire public sector of Samoa led to a strong commercial orientation of EPC, a change in supply and tariff structure as well as a new organization of management. For the first time in EPC's 30-year history, they were finally able to claim their own company profits. At the same time Samoa received the international prize for "Social Responsibility" –in recognition of a special discount tariff strategy for low-income customers.

Electricity in Samoa is not exactly inexpensive: for the first 50 KWh of the month the cost is around 0.19 Euro/KWh. From 51 to 200 KWh the cost increases to 0.23 Euro, and everything over 200 is billed at 0.27 Euro/hour. Commercial customers pay a set rate of 0.23 Euro/KWh. An average European household, with refrigerator, home electronics, washing machine and electric stovetop, including continuous ventilation yet without any air conditioning, can readily expect a 300 Euro power bill each month.

A typical Samoan household with a minimum wage of only 0.65 Euro/hour cannot afford such costs. Thus most homes have only a refrigerator, radio, TV and a few lights—energy-saving lamps, of course. Cooking as well is done over an open fire or with gas or kerosene. A conservative use of 50 KWh or less per month adds up to an affordable 10 Euro power bill.

Conserving energy is therefore understood for Samoans and likewise is the search for alternative energy sources. Already in the 1970's, they implemented hydraulic power for energy production that intermittently provided up to 50% of the demand (today only 25%). At present, with the support of the United Nations Development Program (UNDP), a pilot project is underway for the assessment of a potential wind power plant. Additionally the small island of Apolima (80 inhabitants) will shortly be converted entirely to solar energy.

Of particular interest is the substitution of imported fossil fuels with locally produced energy. Since there is neither coal nor crude oil nor gas resources, renewable primary products should be relied upon, ideally. Coconuts, for example, have been a central focus of the current dilemma. Coconut oil is easily produced in Samoa, however despite the quite large refinery at their disposal, high transportation costs make a world market impossible for them. Their local coconut oil production is choked through the high transportation costs of imported fossil fuels.

In a statement about his participation at HANNOVER FAIR 2006 Walter demonstrates his openness for all ideas, how we can take this abundantly available yet untapped biomass energy and convert it into usable electric energy. He especially sees the challenge in his homeland of diminishing anxiety and the dependence on imported fuels, and even to the point of obsolete. Currently Samoa imports 15 million liters exclusively for the production of energy. For Walter, it is a social responsibility to redirect these effluent efforts of importing energy to the economically weak regions of the country, where agriculture is the only source of income. Replacing importation with new energy sources opens up the doors for providing consistent energy supply as well as assisting low-income communities to reach a solid income standard.

With his participation at Hannover and more so the future potential of hydrogen and fuel cell technologies, Walter expects to see more groundbreaking momentum for clever and well-engineered energy concepts. The pilot projects in Samoa offer help and hope to island nations worldwide who desire to have independence from the crude oil industry.