



# Samoa Electric Power Corporation's Renewable Energy Developments



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# EPC : Samoa

- State owned Corporation
- Electrification rate is ~ 95%
- 2 diesel power plants; 5 hydropower plants
- 60% diesel: 40% hydro supply breakdown
- Peak capacity 18MW (Upolu), 2.8MW (Savaii)
- Apolima Island is solar powered.



# Renewable Energy Developments

- Solar Power
  - Apolima Island
    - Island located between Upolu and Savaii
    - 10 households and 1 church
    - Solar PV system commissioned in Jan 2007
    - Central system for island mini grid = 13.7kWp
    - Church stand alone system = 1.3kWp can act as backup for household lighting in case of main system failure
    - Both systems combined save 6,000 – 7,000 L of fuel per annum











# Solar

## – Rural Electrification

- Survey was conducted in 2007/2008 to look at electrifying the remaining 5% of the population using Solar PV technology
- Feasibility study and financial investment plan has been formulated
- Awaiting donor assistance to finance project

## – Grid Connected Solar

- Several overseas companies have expressed interest in setting up a solar grid connected system 2MW – 5MW





# Biofuels

## – Coconut Oil

- Currently using 5% CNO blend across all generators in Upolu;
- Future blend percentage to be determined by outcome of current trials;
- EPC Board has approved the use of CNO for its transport fleet but has not been implemented yet;

## – Recent study was undertaken by FAO and EPC to look at other biofuels



# Wind

- **Upolu Wind Resource Assessment**

- Wind Resource modeling was recently completed and potential wind farm areas identified;
- On site monitoring will need to be conducted before any development can take place thus monitoring equipment will be installed at identified site;
- EPC is also looking at a pilot wind project using a single turbine;
- Data will be collected from strategic locations to further strengthen the accuracy of the wind models;

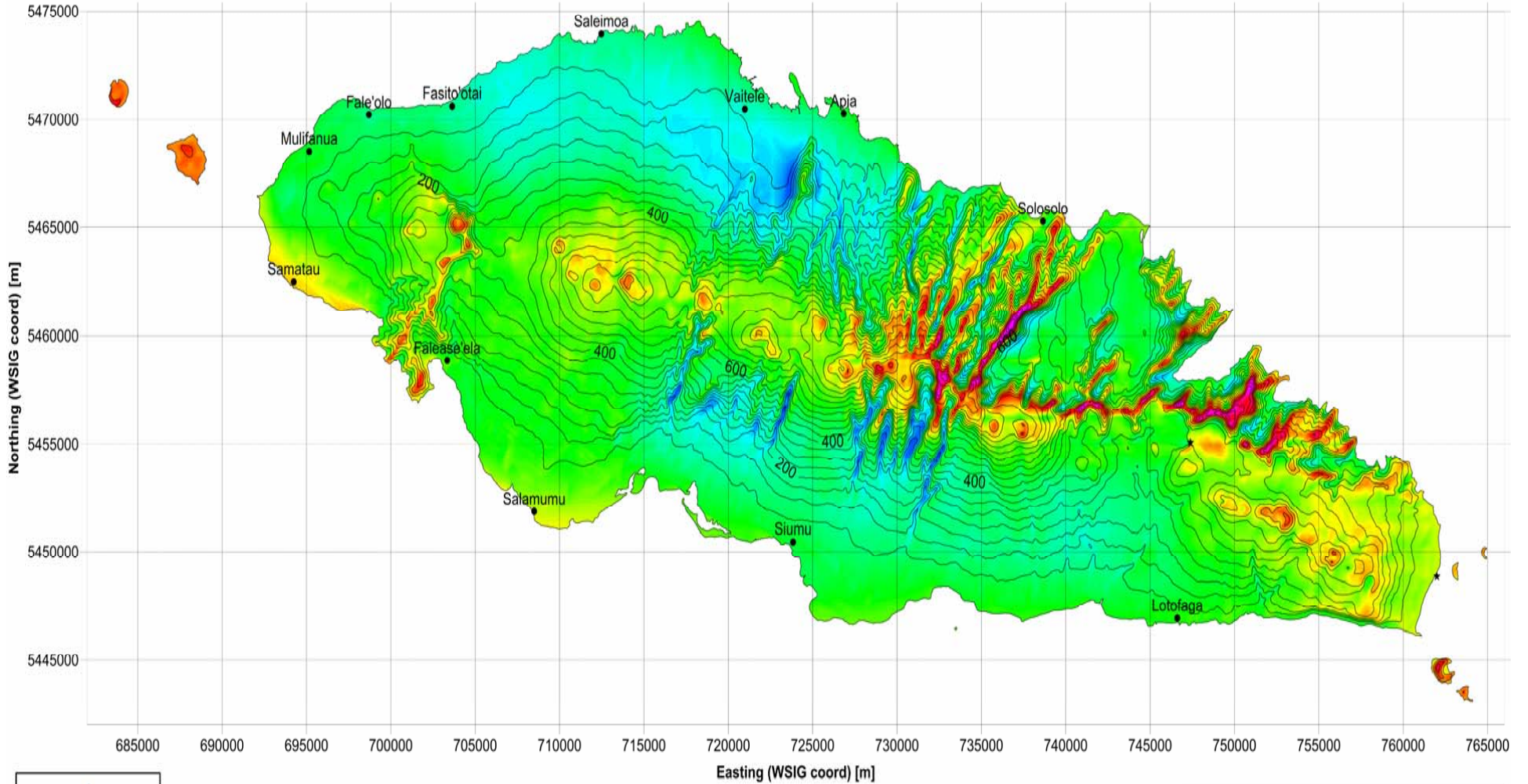


# Wind

- Savaii Wind Monitoring
  - Several Areas have been identified in Savaii for wind resource monitoring
  - PIGGAREP has assisted in procuring two wind monitoring masts;
  - Consultations will need to be carried out with identified villages before masts can be installed;



# Wind Speed Map of Upolu Island at 55 m



- Topography (50 m contours)
- Towns
- ★ Reference measurements

Note: The wind speed values presented in this map have been calibrated based on measurements at an elevation of 30 m recorded at 2 locations in the eastern part of Upolu Island.



# Hydro

- Hydro Data Collection Program
  - 7 sites in 6 different villages have been identified as potential hydropower sites (in both Upolu and Savaii);
  - Water level monitoring equipment will be installed at these sites;
  - At least two years worth of data will be collected before preliminary assessments are carried out to see if these sites are suitable for hydropower development.(small run-of-river schemes)



# Other R.E technologies

- Biomass Gasification
  - A JV between an Australian company and a local CNO producer have expressed interest in setting up a pilot biomass gasification project (100kW);
  - this JV will operate as an IPP selling power to EPC;
  - Waste coconut husks and shells from the oil mill will be used as feedstock;



# Other R.E technologies

- EPC is also looking at other technologies such as Geothermal, Biogas etc...
- Experiences from other island countries is vital in learning more about these alternative sources of energy.





# Faafetai Lava

