

## **ABSTRACT**

The purpose of this study is to analyze the possibility of using Ocean Thermal Energy Conversion as an option for the energy crisis and alternative to fossil fuel like coal, oil in Sri Lanka.

Demand for electricity has grown at an average rate of 8%. Owing to the high share of oil-fired electricity generation, the cost of electricity production has risen with the rising oil prices. Upper Kotmale (hydro) and Norochcholai (coal) power plants are under construction, and the second coal-fired power plant planned in Trincomalee to meet the future demand. Electricity generation has been in transition from a predominantly hydro based electricity system to a mixed hydro thermal system, presently dominated by oil. Nevertheless, over 40% of electricity demand continues to be met with conventional and non-conventional renewable energy sources and 59.8% of energy in the national grid was sourced from oil fired thermal power plants.

The information and data collected by interviewing and discussion with the responsible personnel in National Aquatic Resource Agency, Ceylon Electricity Board and Sri Lanka Sustainable Energy Authority and analyzing the thesis documents and Central Bank report for the year 2009. A questionnaire was used to obtain an insight into the opinions and awareness of the general population on Ocean Thermal Energy in Sri Lanka.

Sri Lanka as an island in the Indian Ocean has the right to a vast exclusive economic zone in the Indian Ocean. Ocean Thermal Energy Conversion (OTEC) potential is very high. OTEC can be effectively used for power generation in Sri Lanka.

The maximum capacity of a OTEC power plant in Sri Lanka would limit to a value around 10 MW due to technical perspective and it can be land based or floating OTEC plants with the total capacity of 200MW to 300MW to meet future energy demand of the country.