

Department of Ocean & Resources Engineering

Seminar

Latest Developments in OTEC Systems in Hawaii

by

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Abstract

The technical and design aspects of ocean thermal energy conversion (OTEC) systems have reached the point where moderate scale projects are feasible. These aspects include a more efficient power cycle (the Kalina cycle), a new way to optimize fresh water production, biofouling and corrosion control, a new open-cycle turbine design, and a multiproduct systems engineering approach.

Economic factors presently favor the development of OTEC systems in that interest rates are at a 40 year low and the costs of competing fossil fuel based systems are relatively high. There is also the opportunity to find the optimum mix of the possible products from an OTEC system. These possible products include: electrical power, fresh water, cold water air conditioning, ice, aquaculture, agriculture, hydrogen (gas or liquid), and ammonia.

OTEC systems also have the advantages of being reliably available 24 hours a day and of eliminating the detrimental environmental consequences associated with fossil fuel based systems.