

ANDREW K. SCHWARTZ

Ocean and Resources Engineering

M.S. PLAN B

PRESENTATION & DEFENSE

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HOLMES HALL 400

10:30 am

**Coupled Dynamics of a 5 MW OTEC Platform and
Cold Water Pipe**

Ocean Thermal Energy Conversion is a promising energy source for locations where there is a temperature gradient of over 18 degrees Celsius in the ocean's water column. Hawaii is poised to benefit from this base-load renewable power source once OTEC technology reaches a commercial scale; on the order of 100 MW.

While software packages exist to model offshore gas and riser platform coupled dynamics, most require an external program to supply wave forces for a hydrodynamic panel model. The newly developed GUI, WinOTEC, combines the tools necessary to perform coupled analysis of OTEC systems in an efficient manner.

For this study, a 5 MW OTEC design created by the Pacific International Center for High Technology Research was analyzed. Wave height and period representative of a 100-year event for potential sites located off the southwest coast of Oahu, Hawaii were used to investigate the dynamics of this OTEC system. These results are compared to those from a validated software package, show good agreement, and progress OTEC analysis software into a convenient and more user friendly environment.