Preliminary Workshop Program

Innovative Energy Systems Workshop[1]

March 19 – 20, 2003

Pagoda Hotel
1525 Rycroft Street,
Honolulu, HI 96814

Day 1 – Wednesday, March 19, 2003 - Morning

District Cooling and Deep Water Air Conditioning

Registration	8:00 – 8:30 am
Welcome and Opening Comments	8:30 – 8:40 am
Dr. David Rezachek, P.E., Alternate Energy Specialist, State of Hawaii – DBEDT - ERTD	
District Cooling Systems – An Overview	8:40 – 9:15 am
Mr. Jack Kattner, Chief Executive Officer FVB Energy, Inc.	
Project Financing for District Energy Systems	9:15 – 9:50 am
Mr. Scott Blumeyer, President, Norventus Group LLC	
Morning Coffee Break	9:50 – 10:05 am
Seawater Air Conditioning (SWAC), Cold Water Pipe Design, and a Brief Overview of Toronto Lake Source Cooling Project	10:05 – 10:40 am
Dr. Joe Van Ryzin, P.E., President, Makai Ocean Engineering	

[1] Sponsored by the State of Hawaii – Department of Business, Economic Development, and Tourism under a State Energy Program (SEP) grant provided by the U.S. Department of Energy.

Cornell Lake Source Cooling Project 10:40 – 11:15 am

Mr. W. S. (Lanny) Joyce, P.E., Manager of Engineering,
Planning and Energy Management
and Project Manager, Lake Source Cooling Project,
Department of Utilities and Energy Management,
Cornell University

Panel 1 (Kattner, Blumeyer, Van Ryzin, Joyce) / Q&A
(Moderator – Andrepont) Focus on identifying and describing
barriers to implementation in Hawaii) 11:15 – 12:15 pm

Lunch – Videos of Construction of Cornell Project 12:15 – 1:30 pm

Day 1 – Wednesday, March 19, 2003 - Afternoon

District Cooling, SWAC, and SWAC/TES Hybrids for Hawaii

Downtown Honolulu Ice Storage/District Cooling Project 1:30 – 2:05 pm

Mr. Jack Kattner, Chief Executive Officer
FVB Energy, Inc.

Results of the Hawaii SWAC Feasibility Analysis 2:05 – 2:40 pm

Dr. David Rezachek, P.E., Alternate Energy Specialist,
State of Hawaii – DBEDT - ERTD

Afternoon Refreshments 2:40 – 2:55 pm

Preliminary Results of the SWAC/TES Project 2:55 – 3:30 pm

Mr. John Andrepont, President,
The Cool Solutions Company

Panel 2 (Rezachek, Kattner, Andrepont, et. al) / Q&A
(Moderator – Van Ryzin) Focus on barriers and how
best to overcome them) 3:30 – 4:30 pm

End of Day 1

Day 2 – Thursday, March 20, 2003 - Morning

Waste Heat, the Kalina Cycle, and Kalina Cycle Applications in Hawaii

Registration	8:00 – 8:30 am
Welcome and Opening Comments	8:30 – 8:40 am
Dr. David Rezachek, P.E., Alternate Energy Specialist, State of Hawaii – DBEDT - ERTD	
The Kalina Cycle – Description and Applications	8:40 – 9:25 am
Mr. Mark D. Mirolli, President, Exergy, Inc.	
Preliminary Results of Hawaii Kalina Cycle Feasibility Analysis	9:25 – 10:10 am
Dr. Stephen K. Oney, Vice President OCEES International, Inc.	
Morning Coffee Break	10:10 – 10:25 am
On-Going Kalina Cycle Developments	10:25 – 11:10 am
Dr. Hans Jurgen Krock, P.E., President OCEES International, Inc.	
Panel 3 (Mirolli, Ohne, Krock) / Q&A (Moderator – Rezachek)	11:10 – 12:00 noon
Lunch – Video "District Energy is the Link"	12:00 – 1:15 pm

Day 2 – Thursday, March 20, 2003 - Afternoon

Financing, Ownership, Marketing, and Development of Innovative Energy Systems in Hawaii

Panel 4 (To Be Determined) / Financing, Ownership, and Marketing	1:15 – 2:30 pm
Afternoon Refreshments	2:30 – 2:45 pm
Panel 5 (Day 1 + Day 2 Speakers) / Wrap-up and Next Steps	2:45 – 4:00 pm

End of Workshop

Day 3 – Friday, March 21, 2003

Optional Visit to the Natural Energy Laboratory of Hawaii, Keahole, Hawaii

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Workshop Overview

This two-day workshop will present the final results of the recently completed "Sea Water Air Conditioning Feasibility Analysis" project. Preliminary results from two other projects will also be presented and discussed ("Integration of Energy Storage with Seawater Air Conditioning [SWAC] Systems" and "Application of the Kalina Cycle to Waste Heat Recovery in Hawaii.")

The workshop will cover district cooling systems, SWAC, thermal energy storage systems, applications of the Kalina cycle, and waste heat recovery. Selected invited speakers will present information on each of these topics. This workshop will attempt to bring together mainland and international experts in energy storage systems, district cooling systems, and waste heat recovery with local experts in sea water air conditioning (SWAC) systems, in order to help commercialize such systems in Hawaii.

District Cooling provides chilled water from a cooling plant through a network of pipes to multiple residential, industrial and commercial buildings for air conditioning use. SWAC uses an abundant renewable energy resource, cold, deep seawater from depths of more than 1,600 feet, and a heat exchanger, to cool the chilled water used in a district cooling system. Thermal Energy Storage technology can be used to significantly reduce energy costs by allowing energy-intensive, electrically-driven cooling equipment to be predominantly operated during off-peak hours when electricity rates are lower.

The best system for Hawaii (and possible other areas where the technology might be marketed) might be a hybrid SWAC/Thermal Energy Storage system. This would allow the SWAC system to supply a much larger base load cooling demand (for a given pipe size and cost), and for the energy storage system to supply the peak demand. A smaller energy storage system would also be able to provide peaking capabilities for a much larger district cooling system. Utility demand during peak demand periods would be reduced significantly. Energy savings in excess of 80% are possible. Cost savings of 18 to 58% are also possible.

The Kalina cycle is a thermal-to-mechanical energy conversion process that is able to convert relatively low temperature waste heat into useful mechanical energy at better efficiencies than other types of heat engines. The Kalina cycle engine is at least 10 percent more efficient than the other heat engines, is simple in design, and can use readily available, off-the-shelf components. Applications of the Kalina cycle include ocean thermal energy conversion (OTEC) and as a bottoming cycle for fossil fueled and geothermal power plans and combined heat and power (CHP) generation systems.

Applications of these innovative energy systems have the potential to supply more than half of the State of Hawaii’s renewable energy goals and to allow a much more efficient use of current energy supplies.

Innovative Energy Systems Workshop Registration Form

March 19 – 20, 2003

Pagoda Hotel
1525 Rycroft Street,
Honolulu, HI 96814

Name:		
Title:		
Organization:		
Address:		
City:		**State:**
Zip:	**Email:**	
Telephone:		**Fax:**

Registration Fees

Wednesday, March 19, 2003, Only	☐ **$30**
Thursday, March 20, 2003, Only	☐ **$30**
Both Days	☐ **$50**

Total Registration Fees Enclosed $ _____

Are you interested in an optional tour of NELHA on Friday, March 21, 2003? Yes ☐ No ☐

Complete and mail with payment to:[2]

Innovative Energy Systems Workshop
c/o DBEDT – ERTD – Energy Branch
P.O. Box 2359
Honolulu, HI 96804

[2] Please mail this form with your payment to the above address before March 14, 2003. If registering after March 14, 2003, please fax this form to (808) 587-3820 (no cover necessary) and expect to pay your registration fee upon arrival at the workshop. Please do not fax this form unless you are registering after March 14th. Please make checks payable to "State of Hawaii." We cannot accept credit cards. For additional information about this workshop, please call Dr. David Rezachek at (808) 587-3814, or email him at: drezache@dbedt.hawaii.gov