



ACEP

Alaska Center for Energy and Power



BRINGING ALASKANS AND TECHNOLOGY TOGETHER



RESEARCHER SHOWCASE

George Roe

BACKGROUND

George Roe is a Research Professor with ACEP and the Institute of Northern Engineering at the University of Alaska Fairbanks. George has 35 years of experience at Boeing, in research and development for a range of technologies (e.g., thermal management, vehicle subsystems, crew protection, energy harvesting, energy storage, alternative energy) and their integration with products sold by Boeing and its teammates. George’s responsibilities included service in engineering and management roles in both company and contract funded efforts company-internal, industry, and government customers.

George and his family live in Seattle, WA. His interest in the environment and energy got its start in the many hikes he made as a Boy Scout in the Cascades and Olympics. George has a deep commitment to community and individual health and long-term sustainability.

RESEARCH

George’s research focus areas include energy and energy management, with emphasis on their relation to sustainable community development and capacity building.

Projects include energy efficiency improvement, direct use of hot springs energy, transportable waste-to-energy systems, thermal energy storage, district heating, non-traditional energy transport, biofuel from beetle-kill / fire-kill forest resources, energy for unmanned systems, scenarios analysis, and analysis of possible global applications for Alaska-rooted energy capabilities.

George hopes to identify situations where a technology/ capability need is shared by Alaskans and others, and then work collaboratively with other groups to evolve broadly applicable solutions.

RECENT ENERGY PROJECTS

- Global Applications Program
- Community Energy Scenarios Analysis
- Applications of DOE’s Industrial Assessment Center Tools for Alaska’s Manufacturing Sector
- Direct Use Applications for Hot Springs Energy
- Flywheel Energy Storage
- Tracking of Global Energy Markets

ARTICLES AND PATENTS

- D. Yogi Goswami, Sudhakar Neti, Arun Muley, George Roe. 2013. “Canned Heat” Mechanical Engineering, June 2013, p. 37.
- US Patent 8,568,938. 2013. “Thermoelectric Generator and Fuel Cell for Electric Power Co-Generation”.
- US Patent 7,795,757. 2010. “Power Electronic Architecture for Managing Fuel Cell Modules and Method Therefore”.
- US Patent Application 20140077765. 2014. “Virtual Cell Method for Battery Management”.
- US Patent Application 20130030593. 2013. “System for Monitoring a Battery Charger”.

EDUCATION

- M.S. Mechanical Engineering. University of Washington 1985
- B.S. in Mechanical Engineering. University of Washington 1977



Fostering development of innovative solutions to Alaska's energy challenges through applied energy research at the University of Alaska.

The Alaska Center for Energy and Power (ACEP) is an applied energy research program based at the University of Alaska Fairbanks. ACEP provides leadership in developing energy systems for islanded, non-integrated electric grids and their associated oil-based heating systems. Integration is a central feature of our program. Because many of the issues related to implementing innovative energy solutions are complex, our program must not only address the technical integration of renewables with these small isolated diesel-based energy systems, but must also look at integration from a broader perspective: integration of solutions into the social realities of a community, integration of the cultural fabric into sustainable energy solutions, integration of university researchers across disciplines and with community partners; and integration of our facilities and resources with those of our national partners.

Our Mission: Develop and disseminate practical, cost-effective, and innovative energy solutions for Alaska and beyond.

Our Vision: Alaska leading the way in innovative production, distribution, and management of energy.

ACEP is a gateway for energy related activity at the University of Alaska. Working across campuses and pulling from the University's extensive resources and expertise, ACEP is interdisciplinary, needs-driven, and agile.

ACEP has also developed a wide range of partnerships outside the University at the local, state, national and international level to ensure research conducted through ACEP will be relevant, current and world class.

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