

The Alaska Center for Energy and Power

Energy Research at the University of Alaska

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The Alaska Center for Energy and Power (ACEP) seeks to meet state, industry, and federal demand for applied energy research. New energy research and testing is needed for the short and long term to lower the cost of energy in rural Alaska and develop economic opportunities for the State, its residents, and its industries. The three legs of ACEP include:

- **Rural Energy Solutions:** Provide applied research and testing that will lead to lower power cost in rural Alaska. ACEP will be where the rubber meets the road for rural energy technologies. We seek to be a proving ground so that efficient and effective technologies are implemented in rural Alaska where diesel fuel and power failure come at a high cost.
- **Powering the Economy:** We will provide the research needed to develop big power in Alaska to service resource development needs in both the state and the Arctic. A gold rush has begun for resources in a new Arctic that has diminished sea ice. Growth in Alaska and the Arctic will require power and the state should position itself to be the new power broker. Iceland, which currently can sell green power at \$0.02/kWh is attracting today's industry. With research, initiative, and implementation, Alaska can harvest the benefits of the untapped resources in this new Arctic.
- **The Oilfield of the Future:** ACEP will provide the research needed to develop the "Oilfield of the Future". We will extend our ongoing research in gas hydrates, heavy oil, carbon sequestration and renewables so that the oil industry and the state are prepared for the future.

Alaska's world class energy resources, including oil, gas, and coal are the source of much of the state's wealth. In Alaska, we have unique challenges and opportunities associated with large undeveloped areas, particularly related to economically competitive power for rural villages and remote industrial sites. At the same time that we are meeting energy needs of Alaska's citizens and businesses, Alaska has major emerging opportunities, such as geothermal development in the Aleutian Islands. Alaska has resources, the potential for cheap power, and resides at a global crossroads. A large power plant in the Aleutians does not need to be connected to a grid. The Aleutians could serve as a power center for a new generation of power-placed industry in Alaska, just as has been experienced in Iceland.

ACEP will be interdisciplinary, needs driven, and agile. We are developing a wide range of partnerships. For example, we have local partnerships built around sustainability that include the Fairbanks Economic Development Corporation, the Cold Climate Housing Research Center, the Fairbanks North Star Borough, and Chena Hot Springs Resort. We are also building partnerships statewide (e.g., Alaska Energy Authority) and nationwide (e.g., DOE National Laboratories). ACEP will include all three MAUs of the University, taking advantage of existing strengths at UAS, UAA (e.g., the Institute for Social and Economic Research etc.), and UAF (e.g., the Geophysical Institute, International Arctic Research Center, Agriculture and Forestry Experiment Station etc.).

ACEP will also seek to increase educational opportunities in energy for students throughout Alaska by offering seminars and courses on a range of energy related topics, facilitating rural training opportunities, and offering graduate and undergraduate research fellowships.

We seek programmatic funding that will be directed to research and testing by an industry and agency panel. At present, we are seeking investment from state, federal, and industry sources. We believe that this investment will give our rural communities access to less expensive power and more thoroughly tested technologies, our industry access to research on future development opportunities, such as methane hydrates, and the state the opportunity to diversify through development of power as a resource, drawing industry to Alaska.



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