



# Energy Research in Alaska

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Alaska Center for Energy and Power

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# Alaska Energy 101

- ▶ High energy costs
- ▶ Fragmented electric grid
- ▶ Harsh & changing climate
- ▶ End of supply lines
- ▶ Stranded resources
- ▶ Dispersed population
- ▶ Limited road network
- ▶ Challenged economy

## In rural Alaska:

- Electric power: 0.50-1.50 \$/kWhr
- Heating fuel: 3.50-10.00 \$/gallon
- Grid Size Range from <100 kW to MWs



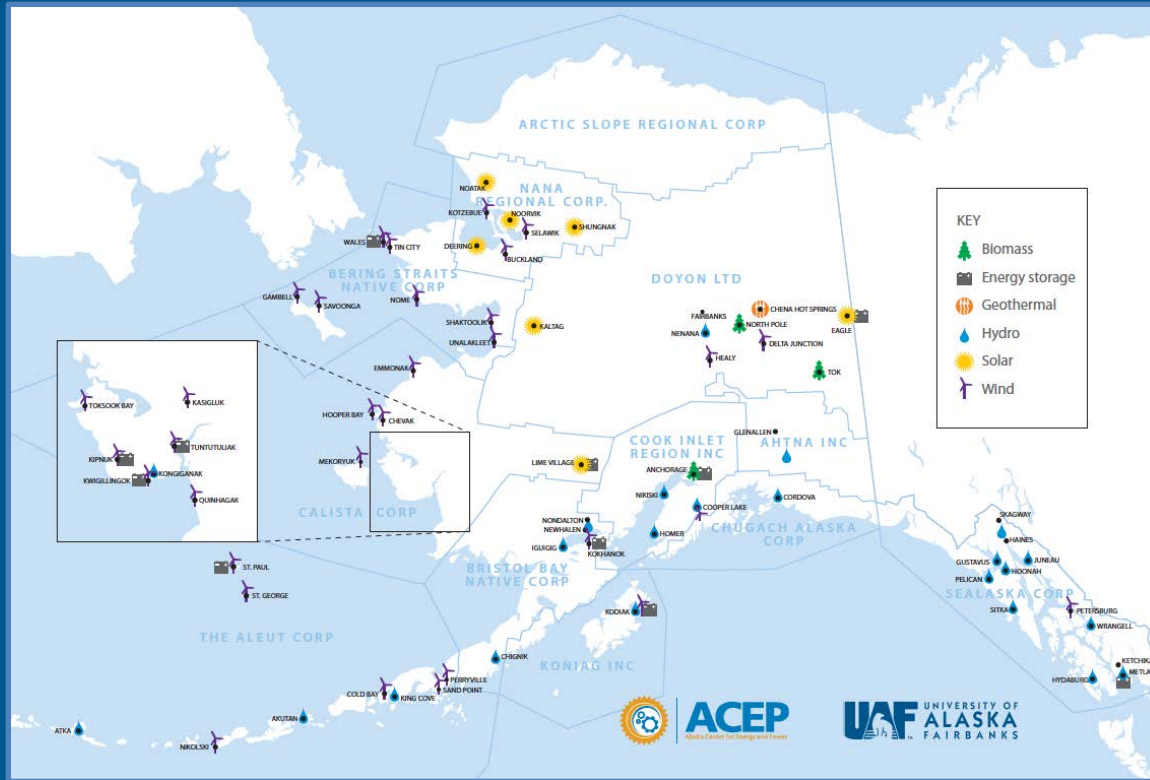
# Alaska Center for Energy & Power

***Mission: Fostering development of practical, innovative and cost effective energy solutions for Alaska and beyond***

- Applied energy research program, founded in 2008
- Technology testing and optimization (industry)
- Energy analysis (policy makers, communities)
- Training and knowledge network creation (practitioners, communities)
- Preparing students to work in energy-related discipline
- Commercializing energy innovation

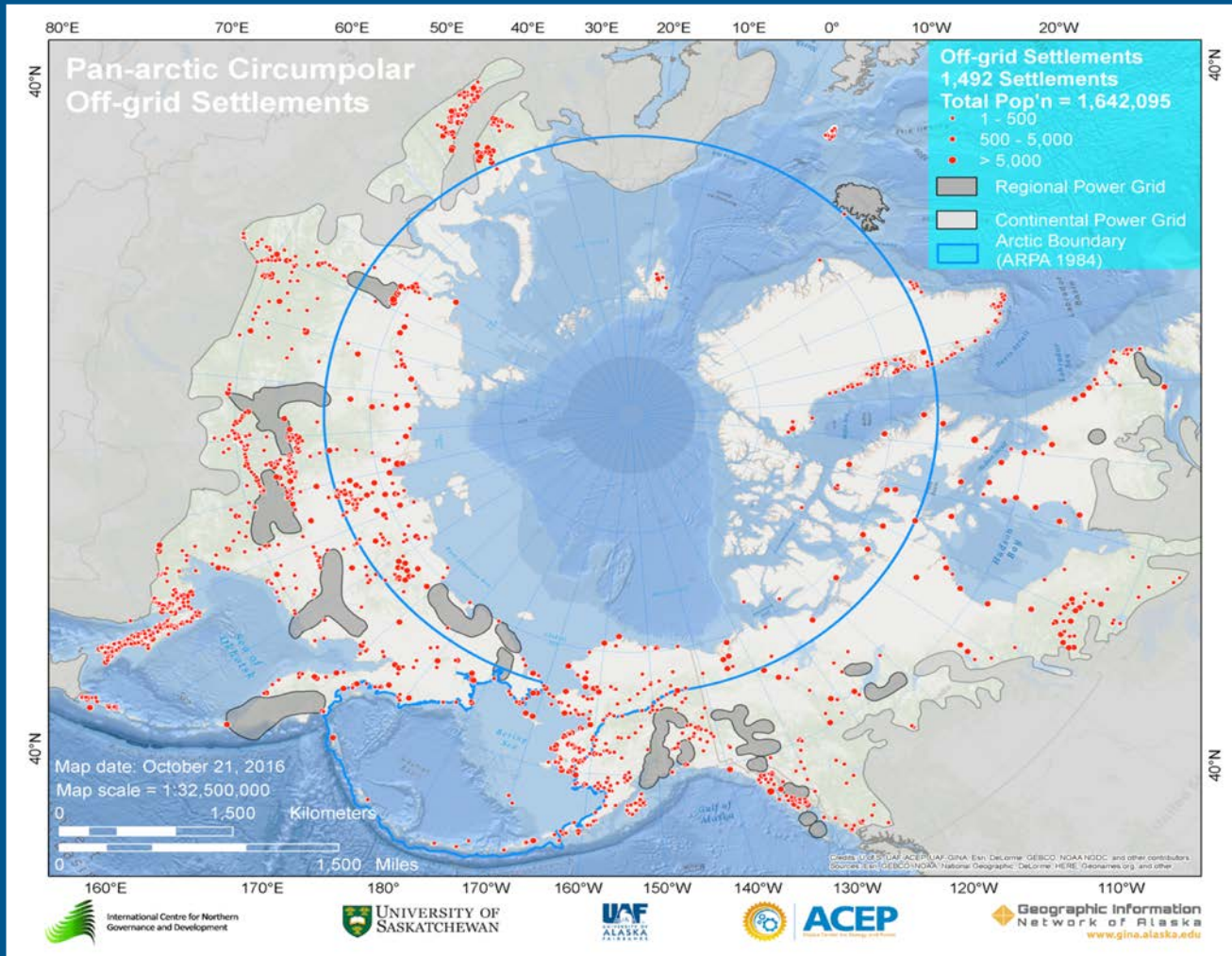


# Diesel-Renewable Hybrid Microgrid Projects in Alaska



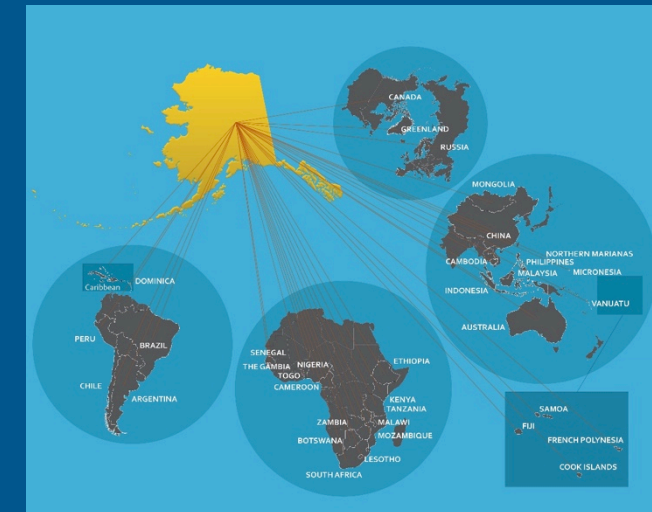
- Rural & urban
- Energy surety / security
- Energy-water-food nexus
- Climate change resilience
- Community-industry-military

# Off-grid settlements in the North



Nearly 2 million people living in the Arctic.

About 80% without connection to the energy, gas, and often even the roads of their neighbors to the south.



# Dr. Mariko Shirazi, UA President's Professor in Energy

