

# Alaska Center for Energy & Power *University of Alaska Fairbanks*

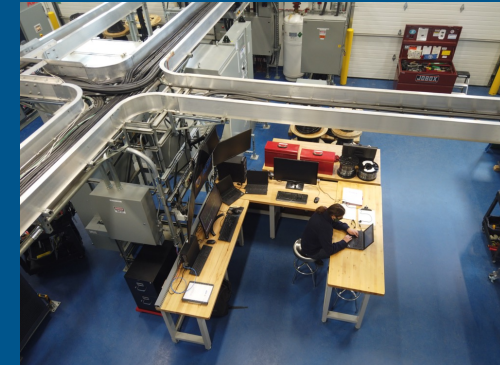
*Jeremy Kasper, ACEP Director*

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

- ❖ Applied energy research program
- ❖ Economic analysis
- ❖ Technology testing & optimization
- ❖ Energy systems modeling & analysis
- ❖ Knowledge network creation & sharing

*What does Sustainable Energy mean? Economic, reliable and resilient energy systems that work for Alaska*

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





# ACEP Research

Our research focuses on innovative, practical, and cost-saving solutions for community and industry-scale power generation, transmission, heating and transportation fuels. We strive to enable greater local energy security, sustainability, and reliability by moving energy solutions from the laboratory to the real world.



### Marine Energy

The Pacific Marine Energy Center at UAF (PMEC-UAF) provides practical and innovative solutions for hydrokinetic power generation to help meet Alaska' energy challenges through applied research.



### Power Systems Integration

The Power Systems Integration (PSI) program collaborates with local, regional and national stakeholders to increase the resilience of power systems and reduce energy costs and emissions across Alaska and beyond.



### Solar Technologies

The solar technologies program supports responsible and equitable development of solar photovoltaic technology in Alaska and beyond.

- Energy Transitions
- Beneficial Electrification
- Energy Policy and Economics
- Geothermal
- Advanced Nuclear
- Energy Storage

- Railbelt Decarbonization
- Energy Innovation
- Microgrids/ DERs
- DoD Energy Needs
- Hydrogen
- CCUS

# Alaska Railbelt Decarbonization Pathways Study



Exploring and quantifying system-wide pathways toward **100% Railbelt Decarbonization in 2050**.

## Study Components:

- Resource assessment and sizing
- Load forecasting
- Transmission modeling and analysis
- Economic dispatch of generation
- Rate analysis
- Technical Advisory Group: Railbelt utility engineers and the Alaska Energy Authority
- Stakeholder Engagement: presentations, workshops, and surveys

## Outcomes:

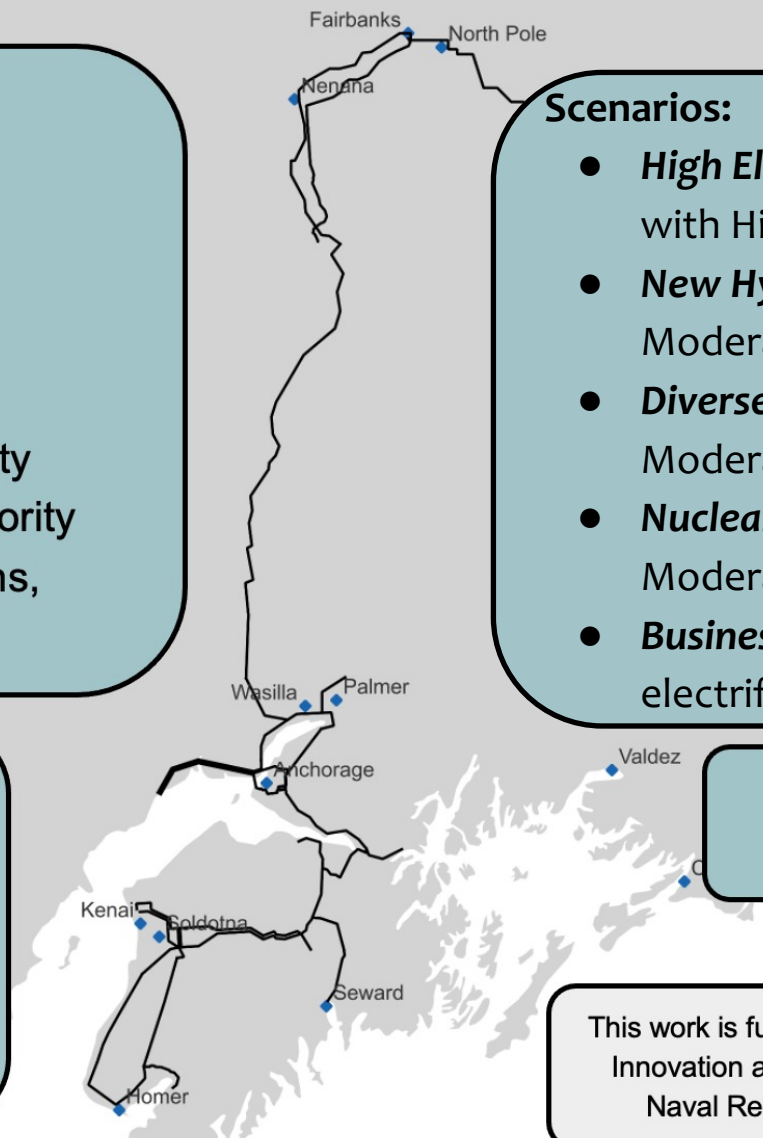
- Quantify the **economic and reliability implications of decarbonization scenarios**
- **Create information** for Railbelt planning discussions and studies.

## Scenarios:

- **High Electrification Focus:** New Wind, Solar, & Tidal with High Electrification
- **New Hydro Focus:** New Hydro, Wind, & Solar with Moderate Electrification
- **Diverse Mix Focus:** New Wind, Solar, & Tidal with Moderate Electrification
- **Nuclear Focus:** New Nuclear, Wind, & Solar with Moderate Electrification
- **Business as Usual:** No new generation, no electrification, planned transmission upgrades

Questions and more information:  
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This work is funded through the Alaska Regional Collaboration for Technology Innovation and Commercialization (ARCTIC) program which is an Office of Naval Research (ONR) funded collaboration and the State of Alaska.



# Online and In-Person Workshops



## Examples:

Micronuclear  
Tidal Energy  
Ben. Electrification  
Hydrogen economy

Carbon Capture Utilization and Storage  
Low-carbon energy transitions  
Long duration energy storage



### WORKSHOP 2: Carbon Capture and Sequestration: The Myth and the Reality

**Name:** Carbon Capture and Sequestration: The Myth and the Reality

**Dates:** Tuesday, April 11th and Wednesday, April 12th, 2023

**Location:** Virtual via Zoom

**Cost:** Free to attend, must register in advance

**Description:** Carbon capture utilization and storage (CCUS) covers the suite of technologies used to capture carbon dioxide from stationary point sources, industrial processes, or the atmosphere, and then transport it to either 1) utilize for other beneficial use, or 2) inject deep underground into subsurface formations for permanent storage. Although based on decades-old technology in the oil and gas sector, emissions reduction goals and changes to the federal tax code have ignited a growing wave of implementation on the international scale. Join us for this conversation to learn from project developers, subject matter experts, and regulators to address the myths and realities of this industry and discuss the potential role it may play in Alaska in the coming years.

[REGISTER NOW](#)

# The University of Alaska is a key resource for the state

- **Alaska's Skunk Works** – Industry partnerships, innovation, research, designing the future
- **Alaska's Think Tank** – Strategic planning, convening, public education
- **Investing in Alaska's Human Capital** – building the workforce of tomorrow, today



**ACEP**  
Alaska Center for Energy and Power

**UAF** UNIVERSITY OF ALASKA FAIRBANKS



## Energy Symposium

Series of 8  
Zoom Webinars

Join us for presentations on energy issues in Alaska. Learn about the challenges, opportunities, and other factors that Alaska Energy Security Task Force members need to consider as part of the development of a statewide energy plan.

Weekly on  
Thursdays  
Starting  
July 13th  
11:00 am

### Topics Include:

- ✓ Future Natural Gas Supply for the Railbelt
- ✓ Reducing the Cost of Rural Alaska Energy
- ✓ Energy Statistics & Economics
- ✓ Grid of the Future
- ✓ Railbelt Hydropower Development & Financing
- ✓ Overview of Energy Policy & Planning Foundations
- ✓ Transmission & Storage
- ✓ Emerging Technologies and Opportunities



More info: [www.uaf.edu/acep](http://www.uaf.edu/acep)

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# Thank you

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