

ISER Energy and Environment Group Projects

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Recently Completed

State energy plan. Assist ACEP with drafting a state energy plan for AEA.

State energy policy development. At the request of ACEP and the Alaska State Legislature House and Senate Energy Committees, draft potential state energy policies. Provide review and analysis at the request of legislators or their staff on energy issues and pending legislation.

Fuel price estimates and projections. Develop fuel price estimates for the Alaska Energy Authority to be used for evaluation of Renewable Energy Fund projects.

Community fuel use estimates. For AEA's use in the state energy plan, collect survey data and build model of community fuel use (quantities) for rural places.

Renewable Energy Fund project evaluations. Conduct final reviews of economists' project evaluations, build models for economic reviews, and coordinate project reviews for the Alaska Energy Authority Renewable Energy project applications.

Components of delivered fuel prices. Analyzed the components of delivered fuel costs in Alaska to determine if there are state programs, policies or actions that could address high fuel prices. [completed October 2008, updated Jan 2009].

Chena hydrogen assessment. Performed an economic assessment of the Hydrogen Project at Chena Hot Springs to determine the economic feasibility of the current project at Chena as well as the feasibility of implementing similar systems in other Alaska communities. [completed Summer 2008]

UAA GHG emissions baseline. Produced a baseline estimate of greenhouse gas emissions attributable to UAA funded air transportation and student and employee commuting. The estimate was produced using a model built specifically for the project which may be used to estimate transportation GHG emissions and fuel use for other institutions. [completed spring 2008]

In-Progress

Fuel price data working group. Work with the Denali Commission, Alaska Housing Finance Authority, Alaska Department of Commerce, Community and Economic Development, the Alaska Energy Authority, the UAF Extension Agency, RuralCap and other state and federal agencies to develop a consistent survey instrument for collecting statistically accurate fuel price and quantity information for communities across Alaska. Develop data storage and access protocols to make the data readily available for researchers, the legislature and the public.

Engineering and Economic Analysis of Installed Wind Systems in Rural Alaska. Publicly available Power Cost Equalization information shows that many of the installed wind systems in rural Alaska are not providing the expected level of fuel savings. The discussion surrounding this observation sometimes becomes heated--why is this happening? This study will include both technical analysis (how small wind turbines interact with diesel generators in real isolated systems) and economics.

Assessing Environmental Impacts Related To The Proposed Coal-to-Liquids Plant At Eielson Air Force Base. A coal-to-liquids (CTL) plant has been proposed for Eielson Air Force Base. The CTL process releases a significant quantity of CO₂ as a waste product as well as other potential pollutants. Thus part of the design and construction of a CTL plant at Eielson must take into consideration the options for CO₂ capture, transport, and sequestration as well as identify other pollutants and/or environmental concerns.

Propane Demand Analysis. Conduct for the Alaska Natural Gas Development Association (ANGDA) an economic sensitivity analysis of constructing a North Slope propane plant and supplying the energy to Alaska markets. Make a presentation at ANGDA's "Alaska Propane Opportunities Conference" and write a report summarizing the findings of the conference.

TransCanada In-state Natural Gas Demand. Produce the population and economic forecast to estimate an in-state gas demand to be used by TransCanada to dictate the natural gas off take points along a natural gas pipeline from the North Slope.

St. Paul Island Transportation Fuel Assessment. Work with the City of St. Paul and Tanadgusix (TDX) Corporation to determine if excess wind energy can be used to reduce the cost of island transportation through the reduction in the reliance on liquid fuels. Potentially, four 15-20 passenger vans used for transporting elders and tourists could be switched to hydrogen, electricity or compressed air.

Proposals Pending Award

Proposal to AUTC: Transportation sector fuel use. U.S. Department of Transportation and the Alaska University Transportation Center proposal for \$200k project studying the Alaska transportation sector to identify how energy prices feed through to transportation costs. Transportation modes include air, road, railroad, and marine/river. Data will be collected to allow modeling of the effects of energy price hikes and/or carbon emissions policies on the cost of transportation and the mode splits chosen by shippers. A final proposal was submitted by AUTC to USDOT for funding.

Alaska Energy Statistics. Develop an Alaska Energy Statistics system and to publish an initial volume. The statistics will cover electricity, space heating, and transportation. The goal of the system is to track both prices and quantities of current energy sources. The initial published volume will create a structure for future annual or biennial reports. This project will both resurrect the electric power statistics report and expand the coverage to include space heating and transportation energy.

Projects in Need of Funding

Alaska Energy Data Network. One major problem with addressing Alaska's energy challenges is the lack of consistent and comprehensive data on actual energy use in Alaska communities. While excellent data are available on electricity use in PCE communities, almost nothing similar exists for direct fuel use for heating and transportation. This lack was very apparent during the recent AEA attempt to estimate the cost of energy in these communities.

Energy data Web portal. Develop an energy information webpage on the ISER website to provide access to current and historical energy analyses as well as a portal to energy information from a number of sources. This would compliment the energy data network.

Effective Small-scale Distributed Energy Systems for Alaska and the Off-Grid World: Technology, People and Institutions. Small, remote, and isolated communities in Alaska and around the world rely on a proven but increasingly costly collection of fossil-fueled technologies. Alaska has the resources and the capacity to become a world leader in the development and export of small-scale distributed energy systems while addressing its own rural energy challenges. The University of Alaska can play a critical role by leveraging existing strengths across numerous institutes and programs throughout the UA system and by engaging the talents of private industry, tribal and community governments, and local people.

Energy Use of Alaska Commercial Fisheries. Energy is an important input of the Alaska seafood industry, not only for fishing but also for processing and transportation of products to end markets. This study would examine how the increase in energy prices affected Alaska fish harvesting, processing and transportation; the implications of sustained high energy prices for different sectors of the industry; and the effects of different policy options for responding to high energy prices.