SB 150

FISCAL NOTE

STATE OF ALASKA
2009 LEGISLATIVE SESSION

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Identifier (file name): SB150-UA-03-25-09
Dept. Affected: University of Alaska
Title: An act establishing an emerging energy technology fund
RDU: University of Alaska Fairbanks
Component: Fairbanks Campus
Sponsor: Senator McGuire
Requester: Energy Committee
Component Number: 741

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information					
OPERATING EXPENDITURES	**FY 2010**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**
Personal Services							
Travel							
Contractual							
Supplies							
Equipment							
Land & Structures							
Grants & Claims							
Miscellaneous							
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL EXPENDITURES							
CHANGE IN REVENUES ( )							

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts							
1003 GF Match							
1004 GF							
1005 GF/Program Receipts							
1037 GF/Mental Health							
Other Interagency Receipts	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimate of any current year (FY2009) cost: 0.0

POSITIONS

Full-time	**0.0**						
Part-time							
Temporary							

ANALYSIS: *(Attach a separate page if necessary)*

The UA Alaska Center for Energy and Power (ACEP) will administer grant funds appropriated in to the "emerging energy technology fund." ACEP would provide services for an administrative fee similar to that used by the Denali Commission, 5%. Thus there would be no additional fiscal impact beyond what is appropriate into the fund. This would be a service fee charged on the amount of funding used on a project by project basis. At this time there is not an established amount to be appropriated for the fund. If there were $5 million in projects funded in a given year the service fee would total $250,000.

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(Revised 9/10/2008 OMB)

ANALYSIS CONTINUATION

The UA Alaska Center for Energy and Power will administer grant funds appropriated in to the "emerging energy technology fund." This will entail:

Selecting and calling an advisory group to;
- establish priorities and criteria which are consistent with the statute.
- evaluating and prioritizing grant proposals
- awarding grants
- evaluating results of projects completed.

Fiscal administration, accounting, and reporting on project status and overall accomplishment of the funds invested;
- distribute funds to successful grant proposals
- provide regular report to various constituents on project status
- account for and report on funds balance
- provide annual report on results achieved.

ACEP would provide these services for an administrative fee similar to that used by the Denali Commission, 5%. Thus there would be no additional fiscal impact beyond what is appropriate into the fund. This would be a service fee charged on the amount of funding used on project by project basis. At this time there is not an established amount to be appropriated for the fund. If there were $5 million in projects funded in a given year the service fee would total $250,000.

ACEP

The Case for Funding Applied Energy Research

There is no doubt that energy is (and should be) foremost in the minds of Alaskans. Most of the money flowing through the Alaska economy is from the oil resources on the North Slope, and our lives are connected in both positive and negative ways with the price of energy.

Alaska's rural communities have reached a crisis level in the escalating cost of energy. Along the Railbelt, traditional fossil fuel based resources used for power generation, such as Cook Inlet natural gas, are in decline. Production of oil from the North Slope is also in decline. This has led state policymakers at both the legislative and executive level to begin the process of developing a comprehensive energy plan for the state. Alaska has the financial means, available resources, and political willpower to become a leader in developing renewables, stranded energy resources, and difficult to extract fossil fuel resources, including the vast proven heavy oil resources on the North Slope. Alaska has already made significant strides in this direction. The Alaska renewable energy fund created under HB152 and administered by AEA is by far the largest and most aggressive fund of its type in the country. In addition, Governor Palin's stated target to achieve 50% renewable power generation by 2025 is also the most ambitious goal among the 50 states.

In order to fulfill the vision of Governor Palin and many others of truly becoming a leader in the energy field, Alaska must invest in three areas: energy projects, energy policy, and energy research. It is essential to develop a plan which incorporates a balanced approach between these key elements, and elements of which are being worked on at the legislative and executive levels of state government. In addition, the Alaska Energy Authority has already been tasked with managing the project component; however projects funded under the Alaska Renewable Energy Fund are explicitly limited to proven, existing technologies. AEA currently has no mandate or capability to engage in energy research, and the current legislation does not allow for funding of any emerging technologies. While this is appropriate under the goals for this funding, the lack of identified funding for applied energy R&D greatly limits Alaska's ability to successfully achieve a leadership role in the energy field. This is particularly crippling in a state with very different conditions than are found elsewhere in the U.S. in terms of environment, population density, and the isolated nature of the electrical generation and transmission system.

While basic research addresses mostly scientific questions (what are the basic rules of the universe), applied research is aimed at developing technologies for immediate use. This requires understanding of the basic underlying science, but centers on producing cost effective, reliable, and locally appropriate technologies. An important part of this research is independent third party testing and verification of technologies before these are deployed in remote sites. A funded applied energy research program through the

State of Alaska could ensure a much greater success rate for projects in the field, including the 77 projects recently funded under the Alaska Renewable Energy Fund.

For example, the Alaska Center for Energy and Power is currently involved in programs to test and evaluate new battery systems, waste heat recovery devices and hydrokinetic turbines. The goal is to ensure manufacturer performance claims are accurate and that the devices perform as expected under harsh Alaskan conditions. In one case, a waste heat recovery device had received numerous international rewards and looked like a very viable candidate for improving efficiency from diesel engines. However, when researchers from ACEP travelled to a location where the unit was purportedly in operation, it was quickly apparent that the manufacturer performance claims were not being realized in the field and that this was not a technology that should be invested in at this time. ACEP was able to alert the Alaska Energy Authority to this fact and prevented unnecessary expenditure of state funds on what undoubtedly would have been a failed and frustrating project. A relatively small investment (a few days of research and phone calls, a few thousand dollars spent on travel) allowed a good decision about the investment of hundreds of thousands of dollars that would have been spent purchasing equipment from out of state suppliers.

Dollars spent on energy research can also be leveraged to bring additional federal dollars to Alaska. The Alaska Center for Energy and Power frequently submits proposals for federal funds under the U.S. Department of Energy, which generally required 20% cost share for projects. The lack of state funding to date for ACEP has greatly hampered the ability to bring in this federal funding. At this time, given the $13 Billion the Obama administration intends to commit to renewable energy research, tremendous opportunities exist for tapping federal funding, but much of this funding will still require some demonstration of program support at the state level. Every $1 of state funding can generate an additional $4 of investment from federal sources.

According to the National Science Foundation, Alaska currently ranks 46th among states in terms of funding spent on R&D, and has no significant mechanism for funding energy research at the state, regional, or local level. Despite tremendous expenditures proposed for developing natural gas resources, renewable energy, and immediate short-term relief for the high cost of energy, the state has been slow to see the need for investment in research. If Alaska is truly to become a leader in energy, it will be necessary to invest in energy research in addition to project development.

By funding research as a part of the state's overall investment in energy projects, Alaska has the opportunity to truly become a leader on the world stage in energy development in a manner which can provide stable, affordable energy throughout the state while simultaneously developing economic opportunities for its residents and its industries. It is only by taking a balanced approach between forward-thinking policy, investment in cost-effective projects, and investment in research to 'peer over the horizon' at emerging technologies which will provide future energy solutions that this goal can be realized.

Alaska Emerging Energy Technology Development Fund

Background Narrative

The United States is entering a new era. The Obama administration is now promising an economic stimulus package that will likely top $700 billion. Many of those dollars will replace and repair crumbling infrastructure. A significant portion of the money will fund energy infrastructure, including renewable energy projects, new transmission lines, and research and development of emerging energy technologies.

Renewable energy has become mainstream, and is no longer considered "alternative." Large-scale wind, geothermal and hydroelectric technologies are mature and cost competitive. Other technologies such as biomass, solar, and ocean power (tidal and wave) are in various states of commercialization. One of the goals of the upcoming federal spending will be to bring those technologies to maturity to help lessen our dependence on foreign oil. But since very little oil is used to generate electricity in the United States, America will need to find new ways to apply renewable-sourced electricity to both heating and transportation.

Today there are several companies around the world working to capture "first mover" advantage in the electric car industry. The Israeli company *Better Place* has recently been grabbing headlines with its plan to create a charging station infrastructure where a customer simply pulls into the station and swaps a depleted battery for a freshly charged one. Others see renewable-sourced hydrogen and fuel cells as part of our transportation future.

Alaska is already seeing consumers in communities like Sitka and Juneau switch from oil based heating to relatively inexpensive hydro-based electric heat. Residents of those communities are also exploring ways to use electricity for transportation. If a new large hydro facility is built to serve the Railbelt, Southcentral Alaskans will do the same. Wave and tidal based electricity presents enormous potential for Alaskan communities to generate excess electricity to be used for heating and transportation. Alaska is also seeing a growing use of wood biomass for central heating facilities that are decreasing the use of heating oil. Some of those same communities are also interested in the technology that gasifies wood to generate electricity.

Necessary innovations in battery storage, tidal and wave power technology, biomass gasification, and hydrogen generation, transportation and storage all require continued research and development. Breakthroughs in ways to capture and store carbon also need more R & D. Private industry is already engaged in such R & D, and is being supported by a number of state-based funds and small federal programs. However, with the federal government now on the verge of much larger investment in such technologies, it's a good bet that the states with existing emerging energy technology development programs will be first in line for federal grant money.

Alaska's creation of the Renewable Energy Grant Fund in 2008 was a fundamental first step in the long process of decreasing Alaskans' dependence on volatile priced fossil fuels. Getting viable renewable energy projects in the ground is an essential long-term investment for many communities. But the Renewable Energy Grant Fund is only one component of an overall state renewable energy program.

Because of Alaska's unique remote communities and abundant renewable energy resources, our state has an excellent opportunity to become a world leader in renewable energy development. Unlike any other place in the nation, Alaska can demonstrate new technology *and save consumers money at the same time* because energy prices in rural communities are already so high. Demonstrating emerging technologies in rural Alaska could also lead to the state becoming a leading marketer of that expertise to the two billion people on the planet who do not yet have any electricity at all. However, the Renewable Energy Grant Fund was not designed or written to fund demonstration projects. In order for Alaska to be part of what many are calling the next industrial revolution in energy innovation, Alaska needs to create its own "Emerging Energy Technology Development Fund."

Such a Fund should encourage collaboration between Alaska institutions of higher learning and private industry, with a modest contribution of state money to capitalize and catalyze its creation. Because no state agency currently exists with the expertise to do so, the Fund should be administered by a newly created Alaska Energy Trust. The Trust should be a non-profit, non-governmental entity overseen by the Regulatory Commission of Alaska. This arrangement is similar to the one that established the very successful Energy Trust of Oregon. The Fund should provide both grants and loans to university researchers, non-profits, private industry and local governments to fund research and development, demonstration projects and market transformation of renewable and alternative energy technologies that have a high likelihood of becoming economically and technologically viable in the short term in a carbon constrained world. Equally important, the Fund should provide coordination and funding for targeted work force development and education programs that will train Alaska's next generation of construction workers, technicians, engineers and scientists that will guide us through the next century of energy innovation.

The Trust should be administered by a professional staff with oversight from an Advisory Committee that consists of nine representatives from state and federal agencies and private institutions that have expertise in emerging technologies. The methodology for funding projects should give the most weight to projects that create partnerships with Alaska entities, have matching funds and will lead to real benefits for the people of Alaska.

With the Governor's recent announcement that the goal of the State of Alaska shall be to obtain 50% of its electricity from renewable energy sources by the year 2025, the state has set an important target. Establishing an emerging energy technology development fund is a necessary and timely component of reaching that goal, stabilizing energy costs and diversifying Alaska's economy.

Establish an Emerging Energy Technology Fund

One of Three Priorities for Enhancing Alaska's Quality of Life and Protecting a Healthy Environment

The Need

The creation of the Renewable Energy Grant Fund in 2008 was a critical first step in the process of promoting a secure, clean energy future for Alaska. However, the Renewable Energy Fund is only one component of a renewable energy program and was not designed to fund developing technologies that are not yet fully commercialized like tidal, geothermal or battery storage. Because of Alaska's unique remote communities and abundant renewable energy resources, our state has an excellent opportunity to become a world leader in emerging renewable energy development. Unlike any other place in the nation, Alaska can demonstrate new technology *and save consumers money at the same time* because energy prices in rural communities are already so high. In order for Alaska to be part of what many are calling the next industrial revolution in energy innovation, Alaska needs to create its own "Emerging Energy Technology Development Fund." Establishing an Emerging Technology Fund is also necessary to help grow our cutting edge University programs and create a highly valued workforce.

With the Governor's recent announcement that the goal of the State of Alaska shall be to obtain 50% of its electricity from renewable energy sources by the year 2025, the state has set an important target. Establishing an emerging energy technology development fund is a necessary and timely component of reaching that goal, stabilizing energy costs and diversifying Alaska's economy. It could also favorably position Alaska to receive a larger portion of the upcoming $700 billion economic stimulus package. A significant portion of the federal money will fund energy infrastructure, including renewable energy projects, new transmission lines, and research and development of emerging energy technologies and those states with existing emerging technology development programs will be first in line for federal grant money.

The Proposal

The Alaska Conservation Alliance supports the creation of the Emerging Energy Technology Development Fund proposed by the Renewable Energy Alaska Project (REAP), a coalition of urban and rural Alaska utilities, businesses, conservation and consumer groups, and Alaska Natives. The Emerging Energy Technology Development Fund should help Alaska become a leader in research and implementation of technologies for battery storage, tidal and wave power, biomass gasification, and hydrogen generation, as well as transportation and storage of energy. The Fund should provide both grants and loans to university researchers, non-profits, private industry and local governments to fund research and development, demonstration projects and market transformation of renewable and alternative energy technologies that have a high likelihood of becoming economically and technologically viable in the short term. Equally important, the Fund should provide coordination and funding for targeted work force development and education programs that will train Alaska's next generation of construction workers, technicians, engineers and scientists that will guide us through the next century of energy innovation. After all, the $55 billion/year "clean energy" business is expected to at least quadruple worldwide by 2015.

The Benefits

- Develop commercially promising emerging energy technologies for use both in Alaska and in the world-wide market.
- Puts Alaska in prime position to tap into $700 billion Federal stimulus program.
- Alaska can demonstrate new technology and save rural energy consumers money.

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2009 ACA Priority

Establish an Emerging Energy Technology Fund