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Alaska State Legislature

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Introduction

I truly appreciate Senator Murkowski and her fellow Senators of the Senate Committee on Energy and Natural Resources for traveling to hold this hearing in a very rural western Alaska setting of Bethel. In recent years, Alaska has enjoyed some of the most ambitious and well-funded state renewable energy and energy efficiency programs in the U.S. Unfortunately, only a fraction of what needs to be done to make rural Alaskan communities sustainable has been accomplished, and Alaska's current revenue shortfalls will make funding these programs at a level commensurate to the needs difficult to say the least. Meanwhile, the high cost of fuel continues to be very onerous for rural Alaskan families and depresses opportunities for economic development.

The Alaska State Legislature has been active in striving to address the high cost of energy through capital investment and forward-thinking policies. Three of the more prominent policy initiatives are mentioned below, as well as some relevant work of the Alaska Arctic Policy Commission and a statement on Alaska's perspective on The Energy Policy Modernization Act:

Alaska Renewable Energy Fund (REF)

In 2008 the Legislature established the Renewable Energy Grant Program. The program was extended 10 years in 2012. The REF is managed by the Alaska Energy Authority (AEA) and provides public funding for the development of qualifying and competitively selected renewable energy projects in Alaska. Appropriations totaling $257 million have been issued since 2008. This funding has been matched with hundreds of millions in funding from local sources. Today a total of 52 REF-funded projects displace 20 million gallons of diesel a year.

Alaska's Statutory Energy Policy

Since June of 2010 the State has had a declared energy policy in statute. The policy promotes, *inter alia*:

- Development of renewable and non-renewable energy resources;

- Economic development through cost-effective, long-term sources of energy for communities statewide;
- Energy research, education, and workforce development;
- Coordination of governmental functions and streamlining of regulatory processes.

The policy also calls for a 15% increase in state energy efficiency per capita by 2020 and for 50% of electrical generation to be supplied from renewable and alternative sources by 2025.

Emerging Energy Technology Fund

In 2010 the Legislature created the Emerging Energy Technology Fund (EETF) to promote the expansion of energy sources available to Alaskans. EETF grants are for demonstration projects of technologies that have a reasonable expectation of becoming commercially viable within five years. Thus far, $11.6 Million has been committed to the Program with Alaska and the Denali Commission investing $6.8 and $4.8 Million of State and Federal funds respectively. Projects can:

- test emerging energy technologies or methods of conserving energy;
- improve an existing technology; or
- deploy an existing technology that has not previously been demonstrated in the state.

Alaska Arctic Policy Commission (AAPC)

The Alaska Arctic Policy Commission was legislatively created in April 2012, and held its first meeting March 23, 2013. The Commission was tasked with creating an actionable Arctic policy for Alaska. The AAPC was comprised of 26 commissioners, including 10 Legislators and 16 experts from throughout the state. It was co-chaired by Senator Lesil McGuire and Representative Bob Herron.

A common refrain at public hearings held throughout the state during the course of the AAPC's work was the extremely high cost of energy in rural Alaska.

Just before disbanding, the AAPC produced an Implementation Plan (available at akarctic.com) in January of 2015. Under strategic line of effort number 3 (The state of Alaska will support healthy communities) the AAPC included strategic recommendation 3B:

- Reduce power and heating costs in rural Alaskan Arctic communities.

Easier said than done, but through hearings of the Legislature's Arctic Committees and with further legislative direction, the Alaska Department of Commerce, Community and Economic Development continues to make incremental progress

toward achieving this goal. And it's an obvious goal shared by many other departments, agencies and non-profits.

A lower cost of energy, of course, would help facilitate a number of the AAPC's other strategic recommendations, such as those relating to economic development, sustainable communities, and food security.

Senate Bill 2012 – The Energy Policy Modernization Act (EPMA)
This federal Act builds on recent technological breakthroughs and promises substantial benefits. It would save energy, expand domestic supplies, facilitate infrastructure investment, protect the grid, boost energy trade, and improve performance of federal agencies, and renew programs that have proven effective. The goal is more affordable and abundant energy, and more functional energy systems throughout the U.S. The Energy Policy Modernization Act would also achieve these goals in a fiscally-responsible manner.

This bill provides a welcome opportunity for the Federal Government to partner with the State of Alaska on energy projects. Alaska has been a leader in energy policy and programs and this bill complements many of our existing programs, like:

- The Emerging Energy Technology Fund
- The Renewable Energy Grant Fund
- The Sustainable Energy Transmission and Supply Development Fund
- Several statewide energy efficiency programs

Alaska has been a leader in these innovative programs – we need a federal partner that will help us focus on local solutions, not top-down ideas that fit a one-size-fits all box.

Specific provisions in the EPMA that positively affect Alaska include:

- Reauthorization of the weatherization assistance program
- Reauthorization of the state energy program (SEP)
- State Loan eligibility
- Several programs promoting renewable energy technologies
- Grid storage research
- Promotion of hybrid micro-grid technologies
- E-prize competition for the development of new technologies

Several Non-Governmental Organizations also play important roles and spearhead important programs to address Alaska's energy issues:

Alaska Center for Energy and Power (ACEP)
ACEP is an applied energy research program based at the University of Alaska Fairbanks. ACEP provides leadership in developing energy systems for islanded, non-integrated electric grids and their associated oil-based heating systems. Integration is a central feature of our program. ACEP's mission is to "Develop and disseminate practical, cost-effective, and innovative energy solutions for Alaska and beyond."

The Arctic Remote Energy Networks Academy (ARENA) is an ACEP program that will be piloted at the University of Alaska, Fairbanks in the Spring and Summer of 2016. The Arctic Remote Energy Networks Academy seeks to increase human capacity and promote leadership through the creation of a knowledge exchange program emphasizing the development, operation, and management of remote energy networks (microgrids) incorporating renewable resources. ARENA is designed to promote exchange of information and ideas between arctic nations and the developing world. Its objectives and approach build on four years of multinational discussions by the Alaska Center for Energy and Power with communities, utilities, energy agencies and academic institutions to understand stakeholder needs, values and interests.

Cold Climate Housing Research Center (CCHRC)
CCHRC is an industry-based, nonprofit corporation created to facilitate the development, use, and testing of energy-efficient, durable, healthy, and cost-effective building technologies for polar residents around the globe. The Research Center was conceived and developed by members of the Alaska State Home Builders Association and represents more than 1,200 building industry firms and groups. Since 2006, the CCHRC Research and Testing Facility has been operating on land leased from UAF. The building contains research facilities and allows staff to work closely with students, faculty, and researchers at the university.

Renewable Energy Alaska Project (REAP)
Renewable Energy Alaska Project (REAP) is a coalition of large and small Alaska utilities, businesses, conservation and consumer groups, Alaska Native organizations, and municipal, state and federal entities that promote energy efficiency and the development of Alaska's vast renewable energy resources. REAP's goal is to increase clean energy and bring the benefits of local, stably priced energy to the citizens of Alaska through long-term policy and programs.

AK *EnergySmart* is an energy efficiency curriculum that REAP is promoting statewide with AHFC support. The goal is to improve energy literacy among K-12 students by teaching where energy comes from, why it's needed, and how to lower energy consumption.

For the last two years REAP has been working with **the Sustainable Southeast Partnership (SSP)**, a collaborative effort to develop prosperity, sustainability and resilience in Southeast communities. Through this collaboration, REAP is consulting on clean energy best practices in Kake, Hoonah, Hydaburg, Kasaan, Sitka, Yakutat and Klawock. REAP has also been able to leverage funding from the USDA (Rural Business Enterprise Grant) to bring additional energy efficiency focus to businesses in the target SSP communities.

Energy workforce development hinges on a connected strategy that unites K-12 education, University and vocational education opportunities. Many important, discrete energy education and training programs exist in Alaska, but virtually all operate independently. REAP is now working to launch **the Alaska Network of Energy Educators (ANEE)** in order to bring disparate energy education programs and opportunities together under one network to build a workforce development strategy. The ANEE network will connect vocational training with K-12 and University opportunities to allow Alaskans to chart careers in clean energy from an early age.

Conclusion

The federal government's involvement in energy technology innovation and deployment in Alaska is as urgent as it has ever been. Sophistication in these arenas has increased immensely in Alaska during the past decade. Dozens of projects developed in communities across the state demonstrate an impressive degree of ingenuity and innovation – Alaska's Renewable Energy Fund has made many of these projects possible. Alaska's programs have spurred the growth of considerable expertise here and have helped set the stage for ever more effective renewable energy deployments.

The U.S. government should continue to regard Alaska as a promising proving ground for opportunities to transform energy sustainability in remote communities. Where feasible, local resources should be developed for electrical generation and/or heat generation, thereby reducing logistical costs, and creating local markets and energy independence.

We can divide efforts to reach the goal of achieving sustainable and affordable energy for all Alaskans into four categories:

1. **Technology**: Alaska is world leader in wind-diesel hybrid systems. We could also be a leader in other renewable microgrid systems. There are a few groups working toward this goal. DoE sees the need for a resource center for small microgrids and so is helping fund the Islanded Grid Resource Center. The Center was started in 2014 by the Renewable Energy Alaska Project (REAP) and the Island Institute in Maine as a way to connect island and islanded communities across the United States to share information and expertise on energy challenges and opportunities.

Alaska Center for Energy and Power (ACEP) is working to optimize technology with a Power Systems Integration Laboratory at UAF. ACEP's Arctic Remote Energy Networks Arena (ARENA) will allow energy leaders from other arctic countries to learn about successes in Alaska. And the Alaska Network of Energy Education could facilitate Alaska's opportunity to build a knowledge-based economy partly based on microgrid development thru increased vocational training. Alaska has a huge opportunity here, not only to use innovative technology to lower the cost of energy for Alaskans but also to sustain and grow Alaska-based businesses that could provide technical assistance to microgrids worldwide. Now more than ever, Alaska, with federal assistance, should seize this opening.

2. **Finance**: Alaska is at a turning point on how it finances projects, and in the near term must move toward equity and debt financing. Soon Renewable Energy Grant funding will decrease and will likely not include money for construction projects. One provision in the Energy Policy Modernization Act (EPMA) would give the state access as a borrower to DOE loan programs, so that the state could pass on those loans to small communities that often find it difficult to get loans.

3. **Human Capacity Building**: Without local operators who understand the systems they are operating, even the best technology can fail. Alaska must continue to promote energy literacy and build the human capacity to operate energy systems in small communities around the state. These efforts must include K-12 curricula, vocational and technical training and university programs that focus on science, technology, engineering and math (STEM). Currently REAP is promoting the AK *EnergySmart* K-12 energy efficiency curriculum that it developed with ACEP with the support of the Alaska Housing Finance Corporation (AHCF) to teach about the importance of energy efficiency. REAP is also working to launch a network of energy educators (ANEE) that will bring together interested and enthusiastic educators in the K-12, voc-tech and university realms to create a career path for individuals interested in learning about the latest cutting-edge energy developments and education curricula. And this spring ACEP is set to pilot its ARENA program to share Alaska's

operational and technical expertise in microgrids with aspiring energy leaders from across the Arctic.

It's also important to take a very holistic approach to technical assistance and community development. The Office of Indian Energy at Dept. of Energy is doing some fine work along these lines with their capacity building program: Strategic Technical Assistance Response Team (START). START, the Sustainable Southeast Partnership (SSP), and the work being done to make Oscarville a model for sustainable northern communities are all examples of an approach to technical assistance that looks at the community as a whole.

4. **Policy**: Of course, all this falls under the umbrella of Policy. State, federal and local policies must synergize and work in concert harmoniously. Without long-term, predictable energy policy, the kind of private sector investment that is necessary in all successful economies will not be made. Federal energy programs should support human capacity building, technology innovation and new financing approaches. Alaska encourages any federal policies that support these programs, especially in rural Alaska where the need is most acute.

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