

STATEMENT OF
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U.S. DEPARTMENT OF ENERGY
BEFORE THE
COMMITTEE ON INDIAN AFFAIRS
UNITED STATES SENATE

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Vice Chairman Murkowski, I am Steven J. Morello, Deputy Assistant Secretary for Intergovernmental and External Affairs, Director of the Department of Energy's Office of Indian Energy Policy and Programs, and a proud citizen of the Sault Ste Marie Tribe of Chippewa Indians. I would like to thank you for the opportunity to discuss energy solutions for Alaskan Natives.

Introduction

Since Secretary Bodman named me to be the first Director of the Office of Indian Energy Policy and Programs in September 2007, I have made it a personal priority to visit Indian Country and Alaska in order to assess the serious energy challenges facing Tribes and Alaskan Natives while also exploring the tremendous opportunities for the development of renewable energy resources there. This trip marks my 4th visit to Alaska in my capacity as Director. During each of these trips I have had the privilege of meeting Alaskan Native people and

understanding their issues. Clearly the most pressing issue facing the interior villages is the high cost of energy needed to heat and light their homes and workplaces. My real concern is that if we do not find a way to provide affordable energy in these villages we could face, as soon as this winter, an out migration of huge scale.

The best hope for a long-term relief is to implement a portfolio approach using various renewable technologies including biomass, geothermal, solar and wind. In tandem, a robust, regional transmission grid could allow Alaskans to be energy independent and lead to a net export of some excess electricity. Likely short term solutions are the combination of conservation and energy efficiency measures with small localized biomass generators located in the interior villages to replace the diesel power generators currently being used almost exclusively. Additionally, some villages may well generate electricity from hydro, solar or wind sources as well.

The role of private investment in the success of these energy solutions is important because if the power generating projects have customers much of the power generating capacity can be financed privately. Since my time as Director, I have worked closely to try to bridge the gap between native people seeking out sources of investment funding, and private sources who recognize that assisting Indian Country and Native Alaska is just good business.

The Department of Energy is committed to being a good partner in searching for a solution to the energy shortfalls in rural Alaskan Native villages. The Tribal Energy Program within the Office of Energy Efficiency and Renewable Energy is currently soliciting information to identify ways to accelerate renewable energy development in Alaskan Native villages. The deadline for this Request for Information is September 19, 2008.

I'd now like to provide more specific details regarding the types of renewable energy projects that could help solve the energy crisis in interior Alaska.

Biomass

Interior Alaska is well-situated for using indigenous biomass resources because of its tremendous supply of wood, wood waste, and fish oil processing at the villages. The development of a model project to demonstrate the success of biomass in Alaska is essential. Furthermore, Alaskan villages could employ local people to participate in the entire production chain from the cultivation and harvest of the biomass material to the building, operation, and maintenance of the generation facility.

I'm pleased to report that just this month, the Department of Energy announced plans to make available up to \$2.2 million for two renewable energy project awards selected for negotiation, pending further data collection and environmental review, based on a competitive solicitation, one of which is aimed at advancing biomass in an Alaskan village and serving as the model project demonstrating the viability of the technology in rural Alaska. The Council of Athabascan Tribal Governments (CATG), a consortium of ten remote villages along Alaska's Yukon River, under their Fort Yukon Wood Energy Project plans to use wood fuel from a region rich in forest resources to displace diesel fuel used for heating. The project plans to displace 30,000 gallons of fuel oil annually, typically flown or barged in to this community, by using biomass to heat the Fort Yukon School and gym. The award will be cost-shared, with the Council of Athabascan Tribal Governments providing a proposed \$1.1 million and DOE providing up to \$1.0 million.

The prospect of stand-alone biomass units are another area of potential for Alaska. I am aware of on-going efforts in the private sector to pilot the use of wood chips to produce biomass off the grid. Portable generating units that rely on biomass unit may be ideally situated for power production in the remote villages of Alaska. I'm hopeful that future progress will make this a viable option for Alaskan villages in the short term.

Geothermal

Geothermal is another renewable energy option on many Native American lands. According to the geothermal resource map of Alaska, there is a geothermal resource belt located in the Northwest Alaska Native Association (NANA) region. The communities of Deering, Buckland, Kotzebue, Shungnak, Ambler and Kobuk may have access to this resource. Local knowledge of geothermal pools in the vicinity of Deering, Buckland and Shungnak, coupled with exploratory wells in Kotzebue documenting hydrothermal resources at 160 degrees Fahrenheit further indicate that there is geothermal power generation potential in the NANA region.

As a result of Department of Energy funding for a feasibility study that is currently underway, the NANA Regional Corporation (NRC) is attempting to ascertain the geothermal power generation potential for a remote, off-road, village-scale application.

Further, the Department of Energy's Geothermal Program has provided \$563,000 and \$1.2 million respectively (53% of the total cost) for a geothermal resource assessment and technology demonstration of a low-temperature geothermal power plant in Alaska at Chena Hot Springs Resort outside of Fairbanks. The 400kW geothermal power plant, designed and built by United Technologies Corporation, was brought online in July 2006 and is pushing the envelope

for low-temperature power generation. Again, this and other projects like it will act as models for the deployment of renewable energy heat and/or power systems throughout the State.

Solar

The promise of solar power is another important consideration for Native Alaskans. The National Renewable Energy Laboratory estimates that there is potential from ten to fourteen kWh/m²/day of solar use during the summer months in portions of northwestern and southern Alaska.

DOE has funded several feasibility studies on the potential of solar power for off-grid power use in remote villages. One such study addresses the villages of Venetie and Arctic, located above the Arctic Circle in northeast Alaska. These villages studied the feasibility of powering the villages using solar energy during the season of the midnight sun. The solar electric photovoltaic systems currently installed are replacing diesel generator power during the summertime, and proving solar can be a viable option in rural Alaska.

Wind

The State of Alaska has wind resources that could allow cost competitive wind energy production, especially along its coasts and western regions, many of which exist in rural Alaskan tribal communities. The National Renewable Energy Lab estimates that at least 30 communities have wind energy production potential. The Department has supported five wind feasibility-related projects including the Sealaska Native Corporation, the Yukon-Kuskokwim Health Corporation, the Bristol Bay Native Corporation, the Kenaitze Indian Tribe, and the Aleutian Pribilof Islands Association.

I recently met with representatives of the American Wind Power Association who expressed that many of their commercial members are seriously interested in pursuing wind

projects in Indian country. My role will be to continue to forge partnerships between commercial entities and tribal constituencies.

These projects are just a few examples of renewable energy options. Please see the attachment, Table 1, which lists all Alaskan Native renewable energy projects funded through DOE's Tribal Energy Program.

Transmission Issues

An essential part of a long term solution to the power problem in Alaska's interior villages, and elsewhere for that matter, is a regional power grid.

I have become aware of an important study by the Southeast Conference to address the concept of building a network of power transmission lines connecting most of the communities in the region. This Southeast Alaska Intertie Study includes the delivery of hydro-generated electricity to several of the Alaskan Native Villages in the region. DOE officials from the Office of Electricity Delivery and Energy Reliability provided technical assistance to the researchers. We believe this report could provide important data regarding transmission requirements in Alaska, and look forward to reviewing the findings.

California's Renewable Energy Transmission Initiative (RETI) is a statewide program to help identify the transmission projects needed to accommodate renewable energy goals, support future energy policy, and facilitate transmission corridor designation, siting, and permitting. RETI will assess all competitive renewable energy zones that can provide significant electricity to California consumers by the year 2020, and will identify those zones that can be developed in the most cost effective and environmentally benign manner.

In Texas, Competitive Renewable Energy Zones (CREZ) are being designated in the most viable areas in the state. An electric transmission infrastructure will be constructed to move

renewable energy from those zones to markets where people use the most energy. The state's transmission operator is charged with collecting wind data and nominating a number of CREZs based on transmission cost calculations for each CREZ.

EPAct 2005 and The Energy Security and Independence Act (EISA) of 2007 contain initiatives, to be implemented by DOE's Office of Electricity Delivery and Energy Reliability, to bolster transmission development and modernization. EPAct 2005 contains several transmission-related initiatives, one of which required the Department to designate National Interest Electric Transmission Corridors, which will help to put transmission development on an equal footing with other alternatives to relieving electric transmission congestion by giving the Federal Energy Regulatory Commission (FERC) back-stop siting authority. Title 13 of EISA has provisions furthering the development of a Smart Grid as well as Energy Storage technologies, helping to foster the type of modernization our existing transmission will need to keep pace with rapidly growing energy demand and a changing fuel supply mix.

EPAct 2005 also required the Department to work with other federal Agencies to designate energy transport corridors. The Office of Electricity Delivery and Energy Reliability recently begun scoping for the designation of energy transport corridors in the Eastern States, Alaska, and Hawaii. A Notice of Intent to conduct a Programmatic Environmental Impact Statement regarding corridor designations in these remaining 39 States will soon be published by the Agencies.

Also, as the challenges to continued electric reliability are not only technical, but also structural, DOE is also working to harmonize the multitude of State and Federal regulatory rules such that they complement, rather than conflict with each other. Today, a key challenge to timely development of the appropriate network of wires and other facilities required to reliably

deliver new electricity to American consumers is the rigorous and lengthy State and Federal authorization requirements. Hopefully, addressing these regulatory rules will provide us with solutions to apply in Alaska.

Conclusion

The Department of Energy has long recognized the renewable energy production potential on American Indian and Alaskan Natives land. We look forward to continued successful relationships with tribal governments as we work together to meet the growing demand for affordable, clean and reliable energy, especially in the midst of the particular crisis of energy costs in Alaska. This concludes my prepared statement and I would be pleased to answer any questions the Committee may have.

Attachment 1: DOE Funded Alaskan Projects

#	Applicant Name	Technology	Fiscal Year	DOE Funding	Cost Share	Competitive or earmark*
1	NANA Regional Corporation (Geothermal)	Geothermal Feasibility Study	2007	\$149,988	\$46,840	Competitive
2	NANA Regional Corporation (Wind)	Wind Energy Feasibility Study	2007	\$149,990	\$44,323	Competitive
3	Council of Athabascan Tribal Governments	Biomass Heat and Power & Biomass Delivery Feasibility Study	2007	\$149,997	\$0	Competitive
4	Hughes Village Council (Consortium of AK Villages)	"First Steps" Capacity Building for Efficiency	2007	\$100,000	\$8,061	Competitive
5	NANA Regional Corporation	Strategic Energy Plan & Energy Options	2007	\$100,000	\$95,922	Competitive
6	Port Graham Village Council	Biomass (Woody biomass for heat and power for cannery)	2006	\$141,368	\$7,584	Competitive
7	Aleutian Pribilof Islands Association	Wind (Village)	2005	\$186,887	\$0	Competitive
8	Kenaitze Indian Tribe, IRA	Solar/Wind	2004	\$45,769	\$3,679	Competitive
9	Native Village of Venetie Tribal Government	Solar	2003	\$222,234	\$41,480	Competitive
10	Bristol Bay Native Corporation (BBNC)	Primarily Wind and/or Hydroelectric	2003	\$121,582	\$0	Competitive
11	Sealaska Native Corporation	Wind, Micro-Hydroelectric, and Solar	2002	\$198,280	\$0	Competitive
12	Yukon-Kuskokwim Health Corporation	Wind Power	2002	\$116,310	\$0	Competitive
13	Metlakatla VRLA Battery Monitoring	1.4 MWh battery system	1996-2002	\$185,000	\$170,000	Competitive
14	Alaska Battery/Diesel/PV-Hybrid, modeling (HYBSIM), Test Bed System at Lime Village	Battery/Diesel/PV	1999-2002	\$853,000	\$130,000	Competitive

Total DOE Funding				\$2,720,405	\$547,889	

* The Administration supports funding through a competitive, merit-based selection process.