ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON ENERGY
April 5, 2011
3:06 p.m.

MEMBERS PRESENT

Representative Neal Foster, Co-Chair
Representative Lance Pruitt, Co-Chair
Representative Bob Lynn
Representative Kurt Olson
Representative Dan Saddler
Representative Pete Petersen
Representative Chris Tuck

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

HOUSE CONCURRENT RESOLUTION NO. 10
Encouraging the state, municipalities of the state, and private organizations in the state to weigh the benefits and costs of waste-to-energy technology and to consider waste-to-energy technology to help meet the energy and waste management needs of the state, municipalities of the state, and private organizations in the state.

- HEARD & HELD

OVERVIEW: COLD CLIMATE HOUSING RESEARCH CENTER

- HEARD

PREVIOUS COMMITTEE ACTION

BILL: HCR 10
SHORT TITLE: ENCOURAGING WASTE-TO-ENERGY TECHNOLOGY
SPONSOR(s): REPRESENTATIVE(s) PETERSEN

03/18/11	(H)	READ THE FIRST TIME - REFERRALS
03/18/11	(H)	ENE, CRA
04/05/11	(H)	ENE AT 3:00 PM BARNES 124

WITNESS REGISTER

DAVID DUNSMORE, Staff
Representative Pete Peterson
Alaska State Legislature
Juneau, Alaska
POSITION STATEMENT: Answered a question during the hearing on HCR 10.

TED MICHAELS, President
Energy Recovery Council
Washington, D.C.
POSITION STATEMENT: Testified during the hearing on HCR 10.

JOHN DAVIES, PhD, Senior Researcher
Cold Climate Housing Research Center (CCHRC)
Fairbanks, Alaska
POSITION STATEMENT: Provided a PowerPoint presentation titled, "Alaska Energy Efficiency Policy, Update of 2008 Report by CCHRC," and dated 4/5/11.

ACTION NARRATIVE

3:06:09 PM

CO-CHAIR NEAL FOSTER called the House Special Committee on Energy meeting to order at 3:06 p.m. Representatives Foster, Pruitt, Petersen, Saddler, Olson, Lynn, and Tuck were present at the call to order.

HCR 10-ENCOURAGING WASTE-TO-ENERGY TECHNOLOGY

3:07:00 PM

CO-CHAIR FOSTER announced that the first order of business would be HOUSE CONCURRENT RESOLUTION NO. 10, Encouraging the state, municipalities of the state, and private organizations in the state to weigh the benefits and costs of waste-to-energy technology and to consider waste-to- energy technology to help meet the energy and waste management needs of the state, municipalities of the state, and private organizations in the state.

3:07:15 PM

CO-CHAIR PRUITT moved to adopt the proposed committee substitute (CS) for HCR 10, Version 27-LS0685\B, Bullock\Kane, 3/21/11, as the working document.

[Although not formally announced, there was no objection stated and Version B was treated as adopted and before the committee.]

3:08:03 PM

REPRESENTATIVE PETERSEN informed the committee that HCR 10 encourages the state, municipalities, and private organizations to consider the benefits and costs of waste-to-energy technology. This technology allows garbage to be turned into electricity, while reducing the amount of landfill space needed. Waste-to-energy is a renewable energy source which generates between 500-600 kilowatt hours for every ton of garbage burned, and is being used throughout the world and in 24 states. There are at least 86 waste-to-energy plants in the U.S.; in fact, this technology is being utilized at Eielson Air Force Base and will soon be in use in Anchorage to harness methane gas generated by the Anchorage Regional Landfill. Energy can be generated from garbage by burning the waste directly or with other substances, and smaller facilities continue to be developed and tested under various conditions. Alaska's statewide energy policy established a goal of creating 50 percent of its electricity from renewable energy sources by 2025, incorporating a diversified approach to meeting the state's energy needs. Representative Petersen listed several benefits of waste-to-energy technology, such as reducing the amount of emissions created by dumping garbage in a landfill, less environmental impact than almost any other source of electricity, and - with the use of magnetic sorting - the recovery of over 770,000 tons of recyclable scrap metal annually in the U.S. He closed by noting that the change to HCR 10 in Version B was simply a correction.

3:12:04 PM

REPRESENTATIVE LYNN asked for the effect of waste-to-energy technology on air pollution.

REPRESENTATIVE PETERSEN advised that there is less pollution than dumping garbage in a landfill because incinerators are used to clean the emissions.

3:13:09 PM

DAVID DUNSMORE, Staff, Representative Pete Petersen, Alaska State Legislature, called the committee's attention to information in the committee packet detailing the Environmental

Protection Agency's (EPA) comparison of air emissions for coal, oil, natural gas, and waste-to-energy facilities.

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TED MICHAELS, President, Energy Recovery Council, pointed out the value of every state looking at as many ways to generate electricity as possible. Municipal solid waste and household trash are an abundant source of energy from materials that communities across the U.S. have difficulty managing. In fact, after communities reduce, reuse, and recycle, there are two options: send the waste to a waste-to-energy facility, or to a landfill. The Energy Recovery Council agrees with EPA that waste energy is preferable to adding to landfills, and supports HCR 10. He affirmed that the waste-to-energy technology is compliant with the most stringent EPA regulations on air pollution, and is also compatible with recycling; as a matter of fact, communities with waste-to-energy facilities also have higher rates of recycling. Mr. Michaels stated that metals represent 2-3 percent of the volume of the waste stream and can be recycled with this system. He expressed his support of the resolution.

3:17:26 PM

REPRESENTATIVE SADDLER asked for the origins of the Energy Recovery Council.

MR. MICHAELS explained that the Energy Recovery Council is the national trade organization representing companies and communities that own and operate waste-to-energy facilities. It also provides educational, technical, research, and advocacy services for its members.

3:19:01 PM

CO-CHAIR PRUITT asked for an estimate of the typical cost and return on investment of an individual unit.

MR. MICHAELS observed that costs vary with location and size; for example, a large plant under development in Florida is expected to cost $650 million. Much smaller plants are available, and capital costs for construction are bid out in a competitive manner. He was unable to provide an estimate of cost except to say that these are sophisticated power plants - installed with the best in emission control equipment - and expensive when compared to a landfill which has much lower

capital costs. However, renewable energy policies that will allow waste-to-energy plants to recoup more from their electricity revenue stream enable them to be more competitive with landfills.

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MR. DUNSMORE provided statistics on the price of electricity produced by a waste-to-energy plant in Fairfax County, Virginia. Furthermore, the U.S. Department of Energy (DOE) estimates for the average, levelized costs of power for a power plant coming on-line in 2016 - in 2009 dollars - are: biomass, $112.50 per megawatt hour (mWh); hydroelectric, $86.40 per mWh; combustion turbine natural gas, $124.50 per mWh; conventional coal, $94.80 per mWh; carbon-capture coal, $136.20 per mWh; advanced combined cycle natural gas, $63.10.

3:25:41 PM

REPRESENTATIVE PETERSEN concluded that depending on size, waste-to-energy plants are competitive with other sources of electricity.

MR. DUNSMORE, in response to Representative Saddler, said mWhs are divided by 1,000 to determine kilowatt hours.

3:26:45 PM

CO-CHAIR PRUITT asked for the source of energy that incinerates the waste.

3:27:07 PM

MR. MICHAELS explained that at start-up, the plant uses diesel, fuel oil, or natural gas to burn the first ton of waste; after the first ton ignites, the waste continues to burn and is self-perpetuating. If the plant goes into a shut-down mode, fuel is added to ensure the complete combustion of the last ton of trash.

CO-CHAIR PRUITT asked whether special considerations are needed for colder climates.

3:29:11 PM

MR. MICHAELS acknowledged there is a potential issue if the waste has significantly higher moisture content; for example, wet grass clippings.

CO-CHAIR FOSTER asked whether the sponsor has support from the Alaska Energy Authority (AEA), municipalities, and private organizations.

3:30:57 PM

REPRESENTATIVE PETERSEN said these facilities are considered a form of renewable or alternative energy and would help reach the state's goal of generating 50 percent of the state's electrical power by a renewable energy source by 2025. Also, waste-to-energy plants keep landfills smaller and in more convenient locations.

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MR. DUNSMORE recalled the sponsor's effort during the drafting of the legislation to avoid unintended consequences. He opined the state's energy policy allows for a variety of new ideas, rather than a "one size fit[s] all" approach. House Concurrent Resolution 10 raises awareness of the potential of waste-to-energy technology, but allows each community to decide on its uses.

3:34:20 PM

REPRESENTATIVE SADDLER asked for the minimum and maximum sizes of the units that would be effective in Alaska.

MR. MICHAELS said the smallest units are scaled to process about 75 tons per day. There are companies that can create modular units to meet the particular needs of a community; however, at some point the economy of scale is lost. There is precedent for the successful operation of 75-80 tons per day.

3:35:42 PM

REPRESENTATIVE SADDLER asked for the downside of this technology, other than cost.

3:36:03 PM

MR. MICHAELS acknowledged this technology is more expensive than a landfill at this time, although on the East Coast waste is

being shipped by rail for processing. Additionally, the waste-to-energy plant does produce ash that has little beneficial reuse and must be disposed of in a landfill.

REPRESENTATIVE SADDLER observed that Eagle River has plenty of land.

3:38:15 PM

CO-CHAIR PRUITT asked whether all waste can be incinerated.

MR. MICHAELS explained that certain items are restricted, such as medical, radioactive, mercury, or electronic waste. Consumers are encouraged to sort these items out for proper disposal, but some of these items can be incinerated and processed by the emission control system.

3:41:18 PM

REPRESENTATIVE PETERSEN noted that emissions from waste-to-energy facilities meet EPA standards.

CO-CHAIR FOSTER agreed with Representative Saddler that the committee should heard testimony from the Department of Environmental Conservation (DEC) on the permitting of a plant and whether the state has the capability to screen out hazardous waste.

REPRESENTATIVE PETERSEN surmised that a full, curbside recycling service serves to prevent problems caused by putting hazardous materials in an incinerator.

3:43:03 PM

REPRESENTATIVE SADDLER asked when the practice of incinerating municipal waste was stopped.

MR. DUNSMORE assumed that the EPA national regulation of air quality stopped the burning of municipal waste. Regarding water quality, he said the ash created in the waste-to-energy process must be disposed of in a permitted landfill to prevent the ash from seeping into the water table.

MR. MICHAELS observed the oldest operating waste-to-energy facility was opened in 1975, and at that time emission controls and air quality standards were in effect. In 1990, Congress amended the Clean Air Act to make municipal waste combustors

subject to Maximum Achievable Control Technology (MACT) standards, which enhanced the level of control applicable to waste-to-energy facilities. Thus most waste-to-energy facilities were built from 1975 to 1995; however, in the mid '90s waste-to-energy plants were not built because landfills became more economical and the price of energy was low. Currently, landfills are becoming more expensive and the sales of electricity and recovered metals have increased the revenues of waste-to-energy facilities. As a result, there is a resurgence of interest, especially with the national desire to reduce dependence on fossil fuels.

3:47:37 PM

REPRESENTATIVE SADDLER asked whether this technology will be useful in villages.

MR. MICHAELS advised that the smallest commercially operating waste-to-energy facility in the U.S. processes 70 tons per day; however, new technology has scaled to smaller operations in rural communities in Oklahoma. In further response to Representative Saddler, he explained that the primary purpose of waste-to-energy technology is waste disposal, and the generation of energy is "a big bonus." He estimated that a decision by local government to change to a waste-to-energy plant accounts for about one-half of the facilities operating in the U.S.; otherwise, a private company builds the plant and bids to process waste for the community.

3:51:23 PM

REPRESENTATIVE PETERSEN pointed out the first facility was in Ames, Iowa, and he was living there at the time it opened.

CO-CHAIR FOSTER stated his inclination to hear opinions on the resolution from DEC, the Denali Commission, AEA, and the Alaska Municipal League.

3:53:13 PM

CO-CHAIR PRUITT noted his desire to hear from Waste Management and Solid Waste Services in Anchorage.

3:53:58 PM

CO-CHAIR FOSTER said he supports the concept.

3:54:09 PM

REPRESENTATIVE TUCK reminded the committee the resolution is not a mandate, and any new plant will have to meet DEC standards and emission controls. He pointed out that many units were built in the '80s, and are still in use. He called attention to the supporting documents found in the committee packet.

REPRESENTATIVE PETERSEN pointed out that the cost of the facility is reduced and the original debt is retired by the sale of electricity.

3:57:22 PM

CO-CHAIR SADDLER saw the merits, and restated the need for more information.

REPRESENTATIVE TUCK asked whether this technology qualifies for federal tax credits for construction.

3:58:22 PM

MR. MICHAELS advised if the owner is a taxpayer, the facility is eligible for a Section 45 Renewable Energy Production Tax Credit.

[HCR 10 was held over.]

Cold Climate Housing Research Center**Presentation: Cold Climate Housing Research Center**

3:59:15 PM

CO-CHAIR FOSTER announced that the final order of business would be a presentation by Dr. John Davies of the Cold Climate Housing Research Center.

4:00:20 PM

JOHN DAVIES, PhD, Senior Researcher, Cold Climate Housing Research Center (CCHRC), informed the committee his presentation is a progress report on work that was funded through the Alaska Energy Authority (AEA), by a grant from the U.S. Department of Energy (DOE). Cold Climate Housing Research Center's task is to review, update, and expand its 2008 report into the areas of electrical, transportation, and industrial use. The scope of the task also includes looking ahead to the significance of

energy efficiency as a resource. Dr. Davies advised that energy efficiency can be done now and provides the same output for less. To do this, energy efficiency relies on advancing technologies, rather than fossil fuels; in fact, saving energy costs less than buying it and also reduces pollution.

4:04:03 PM

DR. DAVIES reviewed the first of CCHRC's 2008 recommendations: state leadership. In 2008, SB 287 and SB 330 expanded the weatherization program and created the energy efficiency rebate program. In 2010, HB 306 achieved the following: established legislative intent; established a state energy policy with concerns about the effect of climate change on the supply and demand of fossil fuels; supported energy efficiency and conservation; encouraged economic development; supported energy research, education, and workforce development; supported the coordination of governmental functions. Also in 2010, SB 220 created the Alaska Energy Efficiency Revolving Loan fund; the Southeast Energy Fund; the Emerging Energy Technology Fund; the Alternative Energy Conservation Revolving Loan Fund; the Alaska Affordable Heating Program; the public facilities and building energy use database; awareness of public vehicles' efficiency; the consideration of nuclear power; public education; tools for municipalities and agencies. The CCHRC's final report will be released in December 2011, and will be a comprehensive review of energy efficiency throughout the state.

4:07:32 PM

DR. DAVIES displayed slide 8, which was a score sheet for the 2008 report. The first category was state leadership and he indicated that the governor's vision - through HB 306 - was 90 percent done and the governor's subcabinet - or focus - was 10 percent done with an overall rating for state leadership of 60 percent done. In the category of funding energy efficiency, the overall rating was 60 percent done. In the category of public education and outreach, the overall rating was 30 percent done. In the category of baseline data the overall rating was 80 percent done, through the efforts of AEA. In the category of existing residential buildings, the weatherization and rebate program garnered 100 percent done, and the overall rating was 80 percent done. In the category of new residential buildings, the need for a statewide energy efficiency code remains, and the overall rating was 30 percent done.

4:11:30 PM

DR. DAVIES continued to review the score sheet and in the category of existing commercial buildings, the overall rating was 20 percent done. In the category of new commercial buildings, because of the efforts by Alaska Housing Finance Corporation (AHFC), the overall rating was 80 percent done. In the category of public buildings, the low-interest loan programs for public buildings garnered 100 percent, and the overall rating was 90 percent done. Altogether, the average rating of the nine categories was about 60 percent done, and Dr. Davies pointed out that the state has put in place programs that deal with about 60 percent of the policy recommendations. The top five recommendations of remaining work to be done are: 1. Statewide Energy Efficiency Code; 2. Sustainably fund Weatherization and Rebate Programs; 3. Education - outreach, training, Kindergarten-University courses; 4. Utilities-based End-Use Electrical Efficiency Programs and consider decoupling mechanisms; 5. Legislate efficiency as a priority by requiring a process of integrated design.

4:19:19 PM

DR. DAVIES continued to Policy Recommendations. In the category of state leadership recommendations are: implement a statewide energy code; empower the Regulatory Commission of Alaska (RCA) to develop end-use energy efficiency; require an integrated approach to the development of energy systems. Slide 11 was titled, "Policy Recommendations - Education, Training & Outreach," and suggested the legislature establish a Green Schools Caucus. In the category of residential buildings, one of the recommendations was to continue to fund the home energy rebate and weatherization programs in order to affect a higher percentage of homes in the state. Slides 12 and 13 listed policy recommendations in the categories of commercial buildings, public buildings, and community and regional planning. Slide 14, titled, "Energy Efficiency as a Resource," was a chart which indicated that if $125 million per year continued to be invested in the home energy rebate program, after seven years the energy saved would be about 12 trillion British thermal units (Btus), which equals Anchorage's peak electrical load. After twelve years, the savings would equal Alaska's residential consumption of natural gas. He suggested that one way to sustain the funding of the home energy rebate program would be to establish an endowment, and he stressed that energy efficiency should be thought of as a very significant resource worthy of an investment, as in any other major project.

4:24:59 PM

DR. DAVIES concluded that it is imperative to use Alaska's present wealth to develop an economy that is much less reliant on fossil fuels to assure a healthy and sustainable future. In fact, this is one way to preserve the smaller communities that are not sustainable at the present high cost of energy, because the most cost-effective resource is energy efficiency and conservation. The sustained energy and cost savings to businesses and homeowners will result in reinvestment in Alaska's economy and the stimulation of substantial economic growth. Finally, the sustained investment in energy efficiency will foster a more sustainable and vibrant economy in the future.

4:26:29 PM

CO-CHAIR FOSTER relayed his experience at a Green Schools training program and asked Dr. Davies to elaborate on his suggestion of a Green Schools Caucus.

DR. DAVIES explained a Green Schools Caucus is to learn to design schools that are more sustainable, use less energy, have less ecological impact, and use cleaner energy such as wind and solar-thermal. Moreover, a Green Schools design considers construction techniques and materials to avoid the use of formaldehyde and volatile organic compounds (VOCs), and with good ventilation systems that filter the air. Other issues such as the location of the school, and saving water, are factors that make a school a healthier and more economically sustainable place.

4:30:05 PM

CO-CHAIR PRUITT asked whether CCHRC uses AHFC's AkWarm system for home energy rating.

DR. DAVIES said yes. In further response to Co-Chair Pruitt, he explained that AkWarm software is easy to use. The analysis is straightforward and accurate; in fact, when compared to the "gold standard" software developed by the U.S. Department of Energy (DOE), AkWarm rated within five percent. Unfortunately, AkWarm is limited to residential use; however, CCHRC is in the process of upgrading AkWarm to handle medium-complex commercial buildings. More sophisticated systems use hourly simulations, but AkWarm uses an algorithm. In further response to Co-Chair

Pruitt, Dr. Davies clarified that CCHRC is working as a contractor for AHFC in developing and advancing AkWarm.

4:33:19 PM

CO-CHAIR PRUITT asked whether AkWarm could be part of a universal efficiency code for the state.

DR. DAVIES acknowledged AkWarm is a tool - but not the whole picture - for an energy efficiency standard. An energy efficiency standard can be provided prescriptively, for example, by requiring certain resistance (R) values for walls and windows, or by a performance basis, using a model such as AkWarm.

4:34:30 PM

ADJOURNMENT

There being no further business before the committee, the House Special Committee on Energy meeting was adjourned at 4:33 p.m.