

ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON ECONOMIC DEVELOPMENT, INTERNATIONAL
TRADE AND TOURISM
February 21, 2012
10:25 a.m.

MEMBERS PRESENT

Representative Bob Herron, Chair
Representative Neal Foster
Representative Reggie Joule
Representative Wes Keller
Representative Steve Thompson
Representative Berta Gardner
Representative Chris Tuck

MEMBERS ABSENT

Representative Kurt Olson, Vice Chair
Representative Cathy Engstrom Munoz

OTHER LEGISLATORS PRESENT

Representative Bob Miller

Senator Linda Menard

COMMITTEE CALENDAR

PRESENTATION: SOUTHEAST INTEGRATED RESOURCE PLAN: AVAILABLE
RESOURCES AND BENEFITS OF WOOD-FIRED BOILERS

- HEARD

PRESENTATION: INTERNATIONAL TRADE UPDATE~ WORLD TRADE CENTER
ALASKA

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

JIM STRANDBERG, Project Manager
Southeast Integrated Resource Plan

Alaska Energy Authority (AEA)
Department of Commerce, Community & Economic Development (DCCED)
Anchorage, Alaska

POSITION STATEMENT: Gave introductory remarks preceding the presentation on the economics of biomass fuel within the context of the Southeast Integrated Resource Plan.

DEVANY PLENTOVICH, Program Manager
Biomass in Combined Heat and Power
Alaska Energy Authority (AEA)
Department of Commerce, Community & Economic Development (DCCED)
Anchorage, Alaska

POSITION STATEMENT: Provided a PowerPoint presentation entitled, "Southeast Integrated Resource Plan - SEIRP Economic Drivers for Biomass in SE Alaska."

TONY SLATONBARKER, PE
Program Manager
Alternative Energy and Sustainability
Coffman Engineers
Anchorage, Alaska

POSITION STATEMENT: Provided a PowerPoint presentation entitled, "Biomass Boiler Heating Systems," dated 2/21/12.

THOMAS DEERFIELD, Independent Biomass Energy Specialist
Dalson Energy, Inc.
Anchorage, Alaska

POSITION STATEMENT: Provided a PowerPoint presentation entitled, "Biomass Energy Fundamentals," dated February, 2012.

DAVE STANCLIFF, Vice President
Tok Chamber of Commerce
Tok, Alaska

POSITION STATEMENT: Speaking on behalf of the Tok Chamber of Commerce, gave comments on the biomass boiler at the Tok School.

GREG WOLF, Executive Director
World Trade Center Alaska (WTCAL)
Anchorage, Alaska

POSITION STATEMENT: Provided a PowerPoint presentation entitled, "Alaska's Place in the World: An Update on International Trade," dated 2/21/12.

ACTION NARRATIVE

[10:25:22 AM](#)

CHAIR BOB HERRON called the House Special Committee on Economic Development, International Trade and Tourism meeting to order at 10:25 a.m. Representatives Herron, Keller, Tuck, and Thompson were present at the call to order. Representatives Foster, Gardner, and Joule arrived as the meeting was in progress. Representative Miller and Senator Menard were also present.

PRESENTATION: Southeast Integrated Resource Plan: Available Resources and Benefits of Wood-fired Boilers

[10:26:03 AM](#)

CHAIR HERRON announced that the first order of business would be the first of four speakers on biomass and the benefits of wood-fired boilers.

[10:26:31 AM](#)

JIM STRANDBERG, Project Manager, Southeast Integrated Resource Plan, Alaska Energy Authority (AEA), Department of Commerce, Community & Economic Development (DCCED), introduced the presentation on the economics of biomass as an alternative fuel within the context of the Southeast Integrated Resource Plan (SEIRP). Mr. Strandberg said SEIRP is an integrated analysis of heating and electric power needs for Southeast Alaska. The draft plan proposes the use of alternative energy to bring down the cost of heating and to control the growth of electric demand in Southeast Alaska, and is designed to serve as a foundation for economic development and revitalization. The results could apply to other parts of the state. He stressed that AEA and the public are reviewing the draft document with the final report expected in April.

[10:29:08 AM](#)

DEVANY PLETOVICH, Program Manager, Biomass in Combined Heat and Power, AEA, DCCED, stated the intent of the presentation is to acquaint the committee with the economic drivers that led to the recommendations for biomass in SEIRP. The current situation is a trend toward residences - and many commercial establishments - switching from fuel oil heat to electric space heating because fuel oil prices are rising, and the cost of hydroelectric (hydro) generated electricity has remained stable. Unfortunately, the increase in demand for hydro generated electricity has depleted reserve hydro to the point that utilities are using diesel generation to supplement hydro during the winter, which causes higher prices for everyone. To address

this issue, Black & Veatch, AEA's consultants on SEIRP, developed recommendations. Ms. Plentovich discussed the qualities of electricity, noting electricity is the only choice for lighting, appliances, and motors, but that space heating can also be generated by coal, fuel oil, natural gas, and biomass. Black & Veatch's analysis indicated strong economic benefits for biomass, especially considering that in Southeast Alaska, 75 percent of an average family's energy cost is for space heating. From an economic standpoint, analysis revealed that the payback of recent pellet heating conversions in Southeast is four to seven years; for example, the Sealaska building conversion will be about a four and one-half year payback, the Kake school - if funded - will be about a six to seven year payback, and the U.S. Coast Guard air station in Sitka - if converted - will be about a five year payback. Although there is not a lot of experience with pellets, AEA will continue to monitor the operation and performance of these systems to ensure converting to pellet heating is the right economic decision. The cost of importing pellets from the Pacific Northwest is similar to the cost of hydro, and up to one-half of the cost of diesel fuel. Further, the maintenance and operation of pellet boilers are similar to that of oil boilers. She pointed out there is an economic development opportunity of manufacturing pellets locally from sawmill waste or wood from the Healthy Forest Initiative, U.S. Forest Service, U.S. Department of Agriculture.

[10:33:16 AM](#)

MS. PLENTOVICH said AEA studied the Black & Veatch analysis and determined the potential impact of its recommendations over the next five years on the three communities of Juneau, Angoon, and Craig. Slide 4 displayed the impact on Angoon: In Angoon, the average family now pays about \$350 per month for space heating. If SEIRP is fully implemented - including hydro and transmission projects, energy efficiency, demand side management, and biomass for heating - by 2016, the family's cost would be \$183 per month. If nothing is done, the family's cost increases to \$426 per month. Slide 5 displayed the same analysis for Craig on Prince of Wales (POW) Island: In Craig, the average family now pays about \$273 per month for space heating. If SEIRP is fully implemented, in 2016, the family's cost would be about \$183 per month. If nothing is done, the family's cost increases to \$417 per month. Slide 6 displayed the same analysis for Juneau: In Juneau, the average family now pays about \$225 per month. If SEIRP is fully implemented, in 2016, the family's cost would be \$129 per month. If nothing is done, the family's cost increases to \$312 per month. She then compared the emissions of pellet

boilers to other fuels: lower dioxide and net greenhouse gases than oil and propane; higher particulate matter and carbon dioxide, although there have been improvements through two-stage combustion and emissions controls. From maintenance experience with Sealaska's boiler, she advised that five minutes per week are required to check on the boiler, every two to three months a drum of nontoxic ash is removed, and an annual inspection and cleaning is conducted in the summer. Also, the favorable economics of biomass in SEIRP are based on imported pellets; however, if there were a large demand in Southeast, pellets could be manufactured locally, as is soon to occur in North Pole.

[10:38:01 AM](#)

CHAIR HERRON asked who manufactures pellets in Alaska.

MS. PLENTOVICH said there are small pellet facilities in Ketchikan and Petersburg. A large manufacturer would produce about 30,000 tons per year and would employ about 25 workers.

REPRESENTATIVE KELLER clarified that the full implementation of SEIRP is with imported pellets. He pointed out that wood chips are less expensive.

MS. PLENTOVICH said correct. The SEIRP recommendations from Black & Veatch are based on the cost of imported pellets; local manufacturing is an opportunity for the future once there is sufficient demand.

[10:39:54 AM](#)

MR. STRANDBERG added that "the approach was really designed to give a conservative economic analysis of the pellet option." He assured the committee there is a large market outside of the U.S. for pellets. He restated the goal of bringing jobs to Alaska with pellet manufacturing.

REPRESENTATIVE THOMPSON asked whether there was a manufacturer in Southcentral.

MS. PLENTOVICH understood the plant in North Pole is the first of a large scale.

[10:41:09 AM](#)

CHAIR HERRON asked how much the transportation cost for pellets is from the Pacific Northwest to Southeast.

MS. PLENTOVICH estimated pellets in the Pacific Northwest cost about \$150 per ton, but pellets in bulk cost about \$250 per ton in Southeast, thus 40 to 50 percent of the cost is transportation.

CHAIR HERRON observed that Southeast has wood, and asked when the region could manufacture pellets.

[10:42:44 AM](#)

MR. STRANDBERG said he was unsure because it depends on actions taken by the region and the abilities of the private sector to develop that sort of industry.

REPRESENTATIVE JOULE asked whether access to the resource for pellets is a problem.

MR. STRANDBERG said yes. That is a significant problem, and the ability to harvest timber is a major issue in Southeast Alaska and a key driver in the ability to develop local industries.

[10:44:00 AM](#)

TONY SLATONBARKER, PE, Program Manager, Alternative Energy and Sustainability, Coffman Engineers, said his presentation would be more specific about the installation and operation of pellet, chip, and cord wood boiler systems, and noted that the variety of systems means one is not limited to biomass energy production because there is not a source of pellets. Slide 1 was a list of the types of systems: residential or commercial; individual facilities or central boilers with a distribution system; and cord wood, hog fuel, pellets, or wood chips. One of the key components of the systems is the fuel source and its quality - pellets are very uniform and make the systems run better. Access to fuel is also a factor; in fact, in Delta Junction there is a proposal to grow and burn barley. Pellets must be manufactured to certain specifications for boilers. Slides 4 through 8 displayed options for pellet and wood chip delivery and storage systems.

[10:47:47 AM](#)

MR. SLATONBARKER explained slide 10 was a diagram of the layout of the cord wood boilers at Thorne Bay, including a wood storage

facility and boiler rooms. Slide 11 was a photo of the layout in Delta Greely with a large, separate building for the boiler and for chip storage. Delivery methods from storage into the boiler room were by auger or conveyor belt. Slide 14 illustrated a standard simple system of pellet delivery from a silo to the boiler, and with ash deposited into the bottom. Slide 15 illustrated Chiptec high tech controls similar to the installation in Tok. The Chiptec controls monitor pumps, the burn chamber, gasification, flow rates, temperatures, and fans. Slide 17 pictured three boiler systems: gasification, which is heated wood that produces gas and generates hot water or steam; a prefabricated GARN unit; and a larger, chip wood system. Further describing the systems, he said the process produces flue gas from which particulates must be removed, and stacks are usually 30 to 50 feet tall. Combustion in the boilers is above 85 percent so there is not a lot of ash. Ash can be put in a landfill or used for farming. Slides 22 and 23 pictured the outside and inside of the Delta Greely High School boiler and storage building. Slides 24 and 25 pictured wood chips storage options, such as an exterior silo, bins, and covered storage.

[10:53:13 AM](#)

REPRESENTATIVE THOMPSON asked whether cord wood systems are more labor intensive.

MR. SLATONBARKER indicated yes, the cord wood must be loaded three to four times per day. They are also different in that the GARN boiler has a large water tank that is heated by the burning wood, and which then stores hot water for a matter of hours. In further response to Representative Thompson, he said he did not know how the cost of barley compared to the cost of pellets.

REPRESENTATIVE GARDNER asked whether it is practical for a homeowner with a fuel oil system to add a pellet heating system and switch back and forth.

MR. SLATONBARKER advised that in a system piped with hot water a pellet system could be installed side by side. In further response to Representative Gardner, he said he was unsure of the cost of such an installation.

REPRESENTATIVE THOMPSON related his daughter's successful experience with a pellet stove.

[10:56:43 AM](#)

REPRESENTATIVE TUCK recalled the installation of the wood chip boiler in Tok served the dual purpose of providing biomass heat and of clearing the land to protect the community from wildfires. He noted SEIRP generated mixed feelings about the biomass recommendation because Southeast has hydro, in addition to wood, and future industry development was not included in the plan. Previous testimony to the House Special Committee on Energy informed him of the use of barley pellets in rural Alaska and he expressed his interest in longer-ranging technology.

[10:59:03 AM](#)

THOMAS DEERFIELD, Independent Biomass Energy Specialist, Dalson Energy, Inc., said his presentation would be an advocacy presentation. The status quo for Alaska is 10,000 years of wood energy and 60 years of fossil fuel energy in the form of a "thermostat culture." Mr. Deerfield advised that fossil fuel systems do not require local and rural jobs, and instead maintain dependencies that are unsustainable. He opined fossil fuel costs are going up and rural communities are completely dependent on imported fossil fuels delivered to tank farms. Conversely, biomass energy is about local fuels which create local jobs and job training, and builds sustainable economies in Bush, rural, and urban communities. However, building the needed long-term, sustainable, and renewable fuel infrastructure will take a long time, but the cost is reasonable when the cost of oil is at \$3 or \$4 and up per gallon. He also pointed out the benefit of wildfire risk reduction, comparing the cost of \$10,000 to \$20,000 per acre to fight a fire, with \$1,200 per acre to thin and remove the small trees that are not suitable for lumber. The benefits also include the economic localization of jobs for harvesting, processing, and running the biomass plant.

[11:03:54 AM](#)

MR. DEERFIELD displayed slide 3 which listed the categories of scale for: cord wood, pellet, and wood chip systems. The choice of system is dependent upon the size of the load; for example, cord wood systems make a lot of sense for loads up to 500,000 British thermal units (Btu) per hour; small and large commercial buildings are suited to pellet systems; and industrial facilities and schools are suited for wood chip systems. The choice is also dependent upon the kinds of biomass available and local labor. As an aside he said, "It matters less ... where the pellets come from as we get started." Slide

4 indicated trends in the Lower 48: Vermont and Montana have directly subsidized successful wood chip or pellet systems for schools, and there is some support for biomass heat in all of the other states. In Canada, the Northwest Territories (NWT) is using 12,000 tons per year of pellets due to its commitment four years ago to support biofuels, and has reduced its dependency on foreign oil fuel for heat by 70 percent. Yukon Territory is following the NWT model. British Columbia produces over 1 million tons of pellets per year - most of which go to Sweden - from beetle-killed trees. Mr. Deerfield observed that Alaska also has a source of pellets from beetle-killed trees in the boreal forest. He advised that the European Union (EU) is about 30 years ahead of the U.S. in recognizing that fossil fuels are finite and renewable fuels are sustainable long-term. The EU is using 10 million tons of pellets per year and expects growth to 100 million tons per year.

[11:07:31 AM](#)

MR. DEERFIELD continued to slide 5, entitled, "Lessons Learned." After five years of experience in Alaska, it has been learned that wind power works well on the coast, but is intermittent, and difficult to integrate with small diesel generation. Solar power is also intermittent and seasonal in Alaska. Hydrokinetic is pre-commercial, and small hydroelectric works really well but is very expensive. He concluded that biomass is available here and now, creates more local jobs, is low tech, and is sustainable. Slide 6 listed biomass "rough" costs: pre-feasibility studies to look at sites, \$25,000; feasibility studies, \$50,000 to \$500,000; high efficiency low emission (HELE) cordwood systems are more expensive; residential pellet system, \$3,000 to \$4,000; commercial pellet system, \$20,000 to \$100,000; wood chip systems, \$2,500,000 to \$4,000,000. Cord wood systems create jobs because the wood is manually processed and fed, whereas pellet systems are automated and have lower capital costs, although the fuel costs more. Wood chip systems have lower costs for fuel, although the capital costs are higher. In all cases, there is a lower cost per delivered Btu than any other form of energy in Alaska, except for the nearby natural gas in the Anchorage bowl.

[11:10:04 AM](#)

DAVE STANCLIFF, Vice President, Tok Chamber of Commerce, informed the committee green, renewable energy is heating and lighting the Tok School; in fact, in the first year of operation the biomass-fired boiler has saved the school over \$80,000, and

after the addition of a steam-powered turbine, the savings will be over \$200,000. He advised the state investment in the project will be repaid in less than 10 years. Because the life of the project is 25 years, and with the rising cost of fuel oil, the conversion to woody biomass in Tok is a wise use of public funds and forest resources. The project is also boosting the private sector of the local economy by creating a fuel-procurement industry, and reduces hazardous fuel, thereby saving the state \$20,000 per acre in firefighting expenses. Also, the residents of the community are safer. Tok's local utility is in the process of determining whether woody biomass is a viable option for generating power on its local grid. Further, the utility and the Division of Forestry, Department of Natural Resources, are now looking at developing a long-term harvest plan to augment the community action fire plan. Furthermore, wood vendors and the utility's representative from Tok are investigating best practices and the latest technology for fuel harvest and optimal combined heat and power plant operations in Europe. Mr. Stancliff related other examples of the use of wood for heat and power in the U.S. and Europe. He concluded that woody biomass "has opened the door for better forest management, with more trees being planted and growing on otherwise fallow land." Willow and aspen can be used as a rotational crop for harvest by modified agricultural equipment. The Tok School is an example of utilizing this system and leading the way in forest research and management strategies to ensure woody biomass improves the forest and wildlife habitat, reduces pollution and carbon emissions, and reverses the economic decline.

[11:14:58 AM](#)

**PRESENTATION: International Trade Update, World Trade Center
Alaska**

[11:14:26 AM](#)

CHAIR HERRON announced that the final order of business would be a presentation by the executive director of World Trade Center Alaska.

[11:15:56 AM](#)

GREG WOLF, Executive Director, World Trade Center Alaska (WTCAK), provided a PowerPoint presentation entitled, "Alaska's Place in the World: An Update on International Trade," dated 2/21/12. He stated that international trade is a very big

business for Alaska. For the period from January through October, 2011, annual worldwide exports from Alaska totaled \$4.7 billion, which is an all-time record for the second year in a row; in fact, by the end of the year exports exceeded \$5 billion. Alaska's biggest export market is now China, a position previously held by Japan. Exports now represent 10 percent of Alaska's Gross State Product (GSP) of \$50 billion, which is the sum of all goods and services produced in the state. In addition, the income from exports represents new money into the economy and thousands of direct and indirect jobs throughout the state, resulting in a stronger, more diversified economy insulated from "peaks and valleys." Even with its small population, and without large manufacturing or agricultural industries, Alaska ranks 37th among all states in exports.

[11:19:01 AM](#)

CHAIR HERRON handed the gavel to Representative Keller.

[11:19:14 AM](#)

MR. WOLF continued to explain why trade matters: Trade usually includes the export of all commodities; however, the U.S. Department of Commerce (DOC) does not report the export of services such as engineering, construction, environmental services, and architecture, which may account for over \$750,000,000. For example, there was one oil and gas services company that reported \$500 million in exported services. Furthermore, in addition to contributing \$5 billion to the economy, exports account for another \$2 billion in induced and indirect economic benefits. Exports also allow companies in Alaska to become larger through expanded markets and customer bases; in fact, for some Alaska companies, their best bets for growth are markets overseas or in the Lower 48. In response to Representative Tuck, he confirmed that the above mentioned company was incorporated in Alaska at the time of its report.

[11:22:41 AM](#)

MR. WOLF said a recent study by Northern Economics - an Anchorage firm - reported that exports support nearly 15,000 direct, and 9,800 indirect and induced, jobs in Alaska. Export jobs are higher paying jobs and typically pay 13 to 16 percent more than jobs tied solely to the domestic economy. According to DOC there are approximately 340 companies exporting from locations in Alaska. Mr. Wolf displayed slide 4 which was a graph indicating Alaska's top export commodities are as follows:

seafood - 47 percent, which is the state's largest single export item; minerals - 35 percent, the second largest commodity comprised primarily of zinc and lead; energy - 6 percent, consisting of liquefied natural gas (LNG), coal, and refined fuel; precious metals - 5 percent; forest products - 2 percent; and fish meal - 1 percent.

[11:26:11 AM](#)

REPRESENTATIVE TUCK recalled in the '80s, the legislature attempted to ensure the value-added manufacture of forest products before their export. He said it would be helpful to compare imports and exports with the intent to decrease the amount of raw materials exported, except for seafood.

MR. WOLF explained that it is difficult to get accurate import information because many goods destined for Alaska first enter the country in California or Washington. He opined the state has a trade surplus with some countries, but it is not reported. Slide 5 displayed Alaska's export markets: China - 28 percent, which is the first time since statehood that the greatest export market has not been Japan; Japan - 20 percent; Korea - 12 percent; Canada - 12 percent. Other markets, although important, are smaller and specific to a type of item, for example, exports to Switzerland are precious metals. Asia accounts for almost 70 percent of Alaska's total exports because Alaska has the resources Asia needs, is relatively nearby, and is stable politically.

[11:31:11 AM](#)

MR. WOLF displayed slide 6, which was a graph of Alaska's worldwide exports from 1994 to 2011. Beginning in 1994, exports were at \$2.5 billion, and values have increased with the exception of times of recession in 1998, 2008, and 2009. However, exports have recovered sharply and have risen to \$5.2 billion in 2011. He pointed out that Alaska has the essential commodities needed for economic development such as energy, minerals, metals, and seafood. Also, emerging markets in China and India are growing at a rate of 8 to 9 percent, and both countries have enormous needs for natural resources and infrastructure. He advised that if it were not for overseas exports of seafood, coal, and metals, Alaska could not support the industry it has. Slide 7 indicated the growth of exports to China from \$103 million in 2000, to an estimated \$1.5 billion in 2011. This is a rate of unprecedented growth.

11:35:50 AM

MR. WOLF advised that there are three overarching trends that are benefitting Alaska exports, noting that there is growth in the consumer global "middle class" of people with more money to spend. Also, a scarcity in resources is tied to population growth and the rising expectations of people around the world. Finally, the continuing decline of the U.S. dollar means goods are more affordable to "non-dollar" buyers. Slide 9 was a graph combining the demand for natural gas in China and India from about 2 billion cubic feet per day in 1987 to 12 billion cubic feet per day in 2009. Slide 10 was a diagram of landed prices for LNG markets around the world showing that markets nearest Alaska, such as Japan and Korea, have LNG prices in double-digits. Turning to the subject of shale gas, Mr. Wolf said that China National Offshore Oil Corporation (CNOOC) has made multi-billion dollar investments in shale gas leases in the Lower 48. Another state-owned corporation, China Petrochemical Corporation (SINOPEC), invested significantly in a partnership with Devon Energy. He opined these investments are driven by the desire to learn natural gas technology for future opportunities in China.

11:40:02 AM

MR. WOLF said WTCAC works with the private sector and community partners utilizing its "Boots on the Ground" strategy, and has led trade missions to a variety of countries so that Alaskans can see and experience first-hand overseas markets for better understanding, and to make business contacts. There is also great value in including government and elected officials on these missions, as some companies and corporations are partially or totally state-owned. Mr. Wolf then described four country-focused trade development programs: Japan Focus; China Calling; Canada Opportunities Next Door; and Korea Connection. A fifth focus is New Markets, New Customers, which applies to emerging markets in India, Singapore, and others. Finally, he listed WTCAC's three long-term strategic partners: the State of Alaska; the University of Alaska; and the U.S. Commercial Service, U.S. Department of Commerce.

11:44:15 AM

REPRESENTATIVE THOMPSON asked whether WTCAC has identified areas and industries through which Alaska could market value-added products.

MR. WOLF said yes, generally in response to companies that seek help; for example, bottling freshwater to ship overseas.

[11:46:16 AM](#)

REPRESENTATIVE TUCK expressed his interest in knowing what part of final manufactured goods Alaska exports. Also, he suggested that the state has the raw materials to manufacture desalination plants for export. This would result in Alaska extracting resources for its own benefit and manufacturing products for export, rather than exporting resources to the rest of the world.

MR. WOLF agreed that more value added to resources before they are exported will capture a higher ultimate value.

REPRESENTATIVE TUCK suggested a look at how Japan - with no resources of its own - became a manufacturing giant.

[11:49:15 AM](#)

ADJOURNMENT

There being no further business before the committee, the House Special Committee on Economic Development, International Trade and Tourism meeting was adjourned at 11:49 a.m.