ALASKA STATE LEGISLATURE
SENATE SPECIAL COMMITTEE ON IN-STATE ENERGY
March 26, 2013
7:31 a.m.

MEMBERS PRESENT

Senator Click Bishop, Co-Chair
Senator John Coghill, Co-Chair
Senator Peter Micciche
Senator Dennis Egan

MEMBERS ABSENT

Senator Bill Wielechowski

OTHER LEGISLATORS PRESENT

Senator Cathy Giessel

COMMITTEE CALENDAR

PRESENTATION: TANANA CHIEFS CONFERENCE - INTERIOR ENERGY NEEDS

- HEARD

OVERVIEW: ALASKA ENERGY ECONOMY: PROBLEMS AND SOLUTIONS

- HEARD

WITNESS REGISTER

DAVE PELUNIS-MESSIER, Rural Energy Coordinator
Tanana Chiefs Conference
Fairbanks, Alaska
POSITION STATEMENT: Provided an overview of the Tanana Chiefs Conference's energy needs.

JULIE ROBERTS-HYSLOP, Vice President
Tanana Chiefs Conference
Fairbanks, Alaska
POSITION STATEMENT: Provided an overview of the Tanana Chiefs Conference's energy needs.

BERNIE KARL, Owner
Chena Hot Springs Resort
North Pole, Alaska

POSITION STATEMENT: Provided an overview of renewable energy and food projects in Alaska.

ACTION NARRATIVE

7:31:53 AM
CO-CHAIR CLICK BISHOP called the Senate Special Committee on In-State Energy meeting to order at 7:31 a.m. Present at the call to order were Senators Egan, Micciche, Co-Chair Coghill, and Co-Chair Bishop.

7:32:38 AM
CO-CHAIR BISHOP announced that Senator Giessel was in attendance.

PRESENTATION: Tanana Chiefs Conference, Interior Energy Needs

7:33:26 AM
CO-CHAIR BISHOP announced that the first order of business would be a presentation on the cost of energy in Interior Alaska.

DAVE PELUNIS-MESSIER, Rural Energy Coordinator, Tanana Chiefs Conference, introduced himself.

JULIE ROBERTS-HYSLOP, Vice President, Tanana Chiefs Conference, introduced herself.

MR. PELUNIS-MESSIER said the Tanana Chiefs Conference (TCC) was a tribal consortium with 42 member communities, representing 39 villages, and 37 federally recognized tribes. He said TCC's mission was to provide a unified voice in advancing sovereign tribal governments through the promotion of physical and mental wellness, education, socioeconomic development, and Interior Alaska's native culture. He noted that energy fit in a big way in terms of socioeconomic development while adding strength to native communities. He said TCC was composed of [235,000 square miles] or 37 percent of Alaska's land area. He explained that TCC was Alaska's largest regional-corporation landowner.

7:35:16 AM
MS. ROBERTS-HYSLOP stated that she would share her experiences of living in rural Alaska. She revealed that she was born in Tanana and had lived in rural Alaska all of her life. She said Tanana's cost of living had gone up tremendously, especially the cost of energy. She explained that Tanana was 130 miles from Fairbanks with most goods delivered by small airlines or river

barge access during the summer months. She noted that Tanana had explored road access feasibility during the past several years with the hope of working with the state to improve supply delivery. She noted that Tanana's gasoline cost was $6 per gallon, $10 for a quart of oil, and $6 per gallon for heating fuel. She noted that most Tanana residents burned wood for heating during the winter. She said Tanana was exploring renewable energy alternatives that included expanded biomass use in the village's laundry, school system, and city facilities. She stated that rural villages faced high transportation costs in order to receive goods, but conceded that living in rural Alaska was a choice. She said her hope was for TCC to work with the state to find energy cost solutions in rural Alaska and to look at all possibilities. She explained that Arctic villages in the TCC region were paying $10 per gallon of [gasoline] and high energy costs affected the subsistence lifestyle. She stated that it was necessary to look at other energy cost solutions. She detailed her support for propane and natural gas as alternatives that could help make a difference in villages.

7:39:27 AM
MR. PELUNIS-MESSIER displayed an Interior Rural Energy map that showed village energy infrastructure and costs. He noted that Anchorage and Barrow focused on gas; the Railbelt used coal as a cheap energy source; and most of the rural communities predominantly used oil based energy sources for heating, electricity, and transportation. He reiterated that oil based energy costs were affecting nearly all aspects of life. He said TCC was looking at ways to help their communities lower energy costs and provide economic development. He explained that TCC emphasized locally sourced energy so that communities could be self-sustaining.

He addressed a University of Alaska-Anchorage Institute of Social and Economic Research (ISER) study on the percentage of a household's income that was spent on energy. He noted that rural Alaska spent 16 percent of household income on energy in 2000 and 47 percent in 2008. He said the high cost of energy was having a significant impact on rural Alaska and the community members were really feeling it. He said the 2011 Power Cost Equalization (PCE) reports showed over 2.5 million gallons of diesel fuel was used to electrify and heat rural Alaska. He said higher energy costs directly impacted goods and services, healthcare, electricity, heating, transportation, and the percentage of household income that went towards energy expenses. He remarked that high energy costs stifled economic development.

7:42:33 AM
MR. PELUNIS-MESSIER explained that his initial rural energy focus changed from electricity to space-heating. He detailed that 75 percent of every energy-dollar went towards heating homes, stores, and schools. He noted that a number of TCC school districts were in danger of closing due to low student attendance and teacher-student resource diversion towards heating costs. He explained that TCC was working to make biomass a viable heat source to lower school districts' costs as well as providing communities with additional economic development.

He addressed energy opportunities with the Alaska Energy Authority (AEA) as follows:

- Village End Use Efficiency Program (VEEP).
- Rural Power Systems Upgrade Program (RPSU).

He said VEEP funded different entities to work in communities to go through and do basic efficiency work. He explained that efficiency work lowered the overall base-load in communities, generally on the electrical system. He stated that a smaller base-load equated to less diesel usage and possible generator down-sizing.

He said excluding the Alaska Village Electric Cooperative (AVEC), RPSU was a key program to help rural utilities with new generator purchases, technical assistance related to heat recovery systems, and distribution systems support.

He addressed renewable energy and noted a solar panel installation at the Nenana Teen Rec Center. He said the solar panels were producing great amounts of energy with low operational and maintenance service. He detailed that less than three hours of operations and maintenance were committed to the solar panels over a two to three year period. He explained that he was a big proponent of solar power and noted that TCC did not have much wind in the region.

He expressed the importance of energy efficiency related to fan motors, pumps, and lighting inspections. He said it was important to know where the energy was going in order to make smart decisions.

He said lower cost propane to Fairbanks would have an impact on rural Alaska. He estimated that rural delivered propane from Fairbanks could reduce current costs by 30 to 40 percent. He

noted that there were a lot of synergies to fit propane in with existing generators and heating systems. He stated that affordable energy in rural Alaska would provide more opportunities for economic development.

7:47:37 AM
MS. ROBERTS-HYSLOP noted that a 100 pound bottle of propane in Tanana was $189.

MR. PELUNIS-MESSIER said basic building efficiency often went unnoticed. He mentioned that Tanana recently sponsored a resolution at the TCC annual convention that called for the highest efficiency standards in the state for new building construction in the TCC region. He noted Thorsten Chlupp as the owner of Reina, LLC; a company from Fairbanks that built passive solar standard homes. He explained that Reina, LLC was working with the city of Tanana to retrofit homes. He said the new standards for public buildings financed with public money in the TCC region were as follows:

- Roof: R-100;
- Walls: R-70;
- Floor/Slab: R-50.

He asserted that current building standards had led to inefficient buildings. He said the new standards model insured oil and wood based energy that went into buildings and villages would be used more efficiently. He remarked that weatherization has had a huge impact on the TCC region. He explained that the average person who received weatherization had realized an average of $2000 in annual energy cost savings.

He referred to a Building Life Cycle chart that showed the total ownership costs in buildings. He noted that 84 percent of a building's cost during an 80 year life cycle was related to operating costs with design and construction costs accounting for 16 percent. He explained that people tend to focus on minimizing the design and construction costs rather than spending additional dollars upfront to decrease operational costs during the 80 year life cycle. He noted that a large public building constructed without the higher efficiency standards could be a burden to a community.

7:51:16 AM
He addressed biomass and stated that it was important to note that dollars spent on locally harvested biomass stayed in a community rather dollars spent on oil that left a community. He

noted an example in Tanana where 30,000 gallons of diesel were imported to heat the public buildings [in 2006]. He said Tanana's city manager saw an opportunity for economic development when diesel prices increased. He explained that oil-fired units were replaced with biomass and gasification systems. He reported that in 2013, Tanana was on track to reduce their consumption from 30,000 to 12,000 gallons with the remainder supplied from locally sourced biomass. He explained that the jobs generated from biomass were decent paying jobs for Tanana residents that also provided intangible benefits from the ability to earn a paycheck. He summarized that locally sourced energy from rural communities would lead to the most overall benefit.

MS. ROBERTS-HYSLOP said the upriver village of Stevens Village delivered 50 cords of wood to the City of Tanana last fall. She explained that the biomass opportunities were available to both locals and area villages to contribute.

7:54:15 AM
SENATOR MICCICHE noted that Tanana was on the river system and asked why coal was not a consideration and part of their portfolio. He stated that coal stockpiled well and remarked about Tanana's energy struggles over the years.

MS. ROBERTS-HYSLOP replied that Tanana had not explored the different types of energy that could be used. She said coal would be something that Tanana would look at. She noted that her attendance at the committee meeting was to explore all opportunities to reduce costs in TCC's villages.

SENATOR MICCICHE declared that Ms. Roberts-Hyslop's response was a common theme throughout the state. He explained that coal was a fraction of oil's cost with efficient and environmentally responsible ways to use it.

MS. ROBERTS-HYSLOP disclosed that getting the energy source to the villages would have to be considered.

CO-CHAIR BISHOP related that there was a working coal mile during the late 1800s approximately 30 miles north of Rampart and the coal was used to supply steamboats.

CO-CHAIR COGHILL commented that a road going into Tanana could change the dynamic. He remarked that the river only had a few weeks during the year when coal could be delivered. He remarked that a road system would allow for year-round delivery.

SENATOR MICCICHE responded that he agreed and commented that if oil was being moved, coal could be moved too. He noted that coal was as dense as oil at the fraction of the cost.

7:57:20 AM
MR. PELUNIS-MESSIER stated that oil was a bit more common due to its energy density and ability to fly-in. He noted that almost all TCC villages were setup for diesel fuel. He agreed that there were other opportunities and TCC would continue to look at them. He explained that new energies required both an equipment and mindset change. He said it would take time to catch up to the fluctuating oil prices.

He addressed biomass and noted that a cord of white spruce was equal to 130 gallons of diesel. He revealed that both Tanana and Tetlin were using wood. He noted that the villages of Hughes, Huslia, Koyukuk, and Anvik were all looking at different district-heating systems or heating individual buildings through the use of locally sourced biomass. He affirmed that biomass kept money in the community and lowered the cost of energy.

He commented that the "simple as possible" models were the most successful in rural Alaska. He explained that too many moving parts meant too many points of failure. He said there were two main sources of energy: diesel and cord wood. He remarked that residents were used to their systems and the energy sources required little maintenance, a necessary attribute during minus 40 degree conditions and times when supply planes were unable to deliver fuel.

CHAIR COGHILL asked for an explanation on Tanana's central heating system and its wood source.

MS. ROBERTS-HYSLOP answered that during the spring time, the river was running and a lot of drift wood was present. She explained that drift wood was harvested from the river and stacked into cords for use in Tanana. She noted that the drift wood was seasoned and did not require trees in the area to be cut down.

CHAIR COGHILL inquired if the Tanana central heating system was used at the school and "washeteria." He asked what other public facilities used the central heating system.

MS. ROBERTS-HYSLOP replied that the city office, fire station, and teacher-units were on the system. She explained that Tanana was converting public buildings into biomass systems.

CO-CHAIR COGHILL asked how many years the system had been in use.

MS. ROBERTS-HYSLOP answered that the system had been in use for seven or eight years. She noted that there had been a dramatic reduction in oil costs from using wood to heat the laundry facility.

CO-CHAIR COGHILL commended Tanana for their central heating system.

8:01:14 AM
MR. PELUNIS-MESSIER addressed propane and noted that TCC recently passed Resolution 2013-12 in support of HB74 and SB23. He stated that affordable energy was the key to any sustainable economy and rural Alaska was no different. He said the proposed gas trucking plan could decrease TCC's propane costs by 50 percent. He set forth that lower cost propane would allow for the conversion of electric ranges, water heaters, and dryers to on-demand units. He remarked that reducing the electrical grid load would allow for downsizing generators, expand renewables use, and increase battery storage viability. He affirmed that having added lower cost energy would provide for greater flexibility, allow for more money to be kept in a community, and act as a key component to overall economic sustainability.

He addressed the Hydrokinetics Turbine Project (HTP) in Ruby, Alaska. He explained that HTP was difficult to install and implement. He reported that HTP was pulled out of the water due to unsustainability on a village-scale and could not be turned over to the community to continue operations. He commented that it was important to get a village-level perspective when considering different technologies. He noted that an electric utility in Eagle, Alaska had implemented a similar project with the same experiences as HTP. He summarized that he was proud of how TCC spent the HTP money and the research path taken.

He addressed an energy efficiency project at the Nenana Rec Center (NRC). He said NRC had solar panels installed, but the most important installation was the addition of programmable zone-valves and thermostats, components that were not in NRC's initial design. He noted that NRC had balance-valves that required a utility person to adjust and the effect was full-

blast heat at all times. He stated that the greatest impact on NRC were the lowest cost items, a result that furthered the idea that efficiency would be where TCC spent its time and money for the biggest impact.

8:04:54 AM
MR. PELUNIS-MESSIER explained the TCC Energy Model as follows:

1. Collect Data & Plan
   There had been plenty of money spent on inefficient projects that did not work out because the proper homework was not done. Knowing the community, where the energy was going, and tracking the energy were important components.
2. Efficiency First
   Focusing on efficiency would impart the biggest impact for money spent.
3. Renewable Energy
   Biomass and solar were the two simplest forms of renewable energy for interior Alaska.

He addressed putting the TCC Energy Model into practice. He referred to a project at Manley Hot Springs were the electrical load was reduced through efficiency upgrades. He said electrical consumption was reduced in half and less diesel fuel was used for the generator. He noted that a solar panel and battery storage installation was being considered to further reduce diesel use by the generator.

8:08:30 AM
He summarized that local and cheaper energy was going to lead to more sustainable communities. He said energy was expensive regardless of its source and it made a lot more sense to try to use energy as efficiently as possible. He remarked that renewables were excellent when locally sourced, but were only part of the solution. He asserted that discussions on energy in rural Alaska required a holistic view.

SENATOR GIESSEL commended Mr. Pelunis-Messier for his efforts in energy efficiency. She stated that Mr. Pelunis-Messier had shared a lot of the things that need to be done in rural Alaska. She commented on her experience regarding thermostats in rural Alaska and having to open windows in the winter because a building was so hot. She noted the importance of higher insulation levels in buildings and expressed her hope that Mr. Pelunis-Messier was spreading his rural energy information beyond the TCC region.

SENATOR EGAN concurred with Senator Giessel's comments. He recounted a major situation in Juneau when the city's hydroelectric source was lost and the cost per kilowatt hour (kWh) increased from $0.08 to $0.54. He recounted how he had to learn how to save energy during the hydroelectric power outage and installed energy efficient upgrades in his home to save money. He commented that people do not care about saving energy until they faced high energy prices. He noted that his home electrical consumption was cut in half. He asked what Mr. Pelunis-Messier factored into pricing for his calculations on price per cord.

8:12:16 AM
MR. PELUNIS-MESSIER replied that the average cost was $250 to $300 per cord of wood and the price equivalent British Thermal Unit (BTU) was $2.00 to $2.40 per gallon for diesel.

CO-CHAIR BISHOP noted the population decrease in Tanana and the importance of bringing back jobs to the rural communities. He asserted that local employment had a positive impact on the health of a community by decreasing law enforcement problems and reducing suicide. He stated that a whole host of benefits are provided beyond bring energy to a community.

SENATOR MICCICHE expressed his appreciation that TCC was not waiting for someone to solve their energy problems. He recounted his trip to Tanana and remarked about the impressive education levels, particularly of the community's female leadership. He said he applauded TCC and commented that he was always looking for a better way. He affirmed that the In-State Energy Committee would help assist TCC.

8:14:42 AM
CO-CHAIR BISHOP announced an at-ease.

OVERVIEW: Alaska Energy/Economy: Problems and Solutions

8:17:38 AM
CO-CHAIR BISHOP called the In-State Energy Committee back to order. He stated that the next order of business would be a presentation by Bernie Karl, owner of Chena Hot Springs Resort. He said Mr. Karl has been a pioneer-leader in alternative energy in Alaska. He announced that Mr. Karl would talk about alternative energy problems and solutions.

8:18:11 AM
BERNIE KARL, Owner, Chena Hot Springs Resort, stated that he would speak to the committee about something that was his life. He remarked that there were not problems, only opportunities. He said the issue was taking opportunities and calling them problems. He stated that Webster's definition for failure was, "if you do not succeed." He noted that children were taught that failure was if you do not succeed and he rhetorically asked who would want to be a failure. He asserted that failure was if a person did not try and declared that a person could never fail if they did not quit. He said he was living proof of not quitting. He stated that he had a lot of opportunities in his life, but not a problem. He recounted that he was the sixth child of sixteen children and taught that god was important rather than money.

He addressed what was important with energy. He said his company's vision was for the state and all of the communities to become self-sustaining, something that should be shared by all individuals. He declared that the only reason why the state did not have sustainable energy was due to its addiction to oil and greed. He said the state was stealing from future generations. He explained that the U.S. was five percent of the world's population and consumed 25 to 30 percent of the world's energy. He stated that people do not like the U.S. because the country was an energy-hog.

8:21:04 AM
He addressed problems relating to fuel source, fuel delivery, and food security. He said Alaska's fuel source was oil and the state was addicted to it. He remarked that 90 percent of the food consumed in Alaska was imported. He said last year in the U.S., 40 percent of the food was brought in from countries with no labor laws, environmental laws, and paid no import duties. He remarked that every economy that had gotten away from agronomy had failed. He stated that the country was moving away from its roots and no longer had morals. He cited his moral-based decisions were interfered with due to the state's high regulation levels. He disclosed that 900,000 regulations were put into place since 1990. He stated his intent was not to ask for money, but to ask for regulation relief in order to allow people to do things.

He said the state was on the downhill side of its big oil field and only had a savings account. He declared that the reality of less state money required more innovation and practical application of intelligence. He cited his use of a water-ram to

water his gardens, an $800 piece of equipment that had no operation costs. He touted his geothermal project that produced $0.06 kWh electricity. He explained that his year-round system to grow food in all weather conditions. He conceded his access to geothermal energy, but noted that harnessing 2 percent of the earth's energy would equate to a thousand times more energy than the world consumed. He said the U.S. imported 8 million barrels of oil each day from unfriendly countries. He explained the reason for a lack of geothermal energy was due to an addiction to oil.

8:25:51 AM
MR. KARL said another alternative energy program was in Fairbanks where cardboard and paper waste were converted into $0.10/kWh electricity and sold to Golden Valley Electrical for $0.1150/kWh with $0.0050/kWh avoided cost. He stated that the cardboard and paper program would not be suited for small villages.

He explained the Chena Power Energy Source's (CPES) as follows:

- Modular "Plug and Play" system that was container-housed and required no foundation or infrastructure. Bush Alaska would benefit by not having to build expensive infrastructure.
- Direct-drive system that did not lose 3 to 4 percent efficiency due to moving parts.
- Ready for market with a one year payback.
- Required no state or federal funding to develop.
- Could generate electricity from 2.5 kilowatts (kW) up to 2.5 megawatts (MW).
- Fueled by coal or biomass with 100 percent of its ash used to make [Geopolymer] cement.

He noted that the idea for using the CPES ash to create concrete was presented by the Cold Climate Housing Research Center (CCHRC) from Fairbanks. He said CPES would be the first application of CCHRC's concrete concept. He explained that the concrete's features would be as follows:

- 10,000 pounds per square inch (PSI).
- Fire resistant up to 1800 degrees.
- Uses all waste materials.
- Diverts landfill use.
- Saves money in cement costs.

8:28:43 AM
MR. KARL explained affordable gasifying heating devices that used coal. He said his company would become the largest coal customer in Alaska with a projected 650,000 tons of coal that could potentially be shipped to Bush Alaska. He stated that he was willing to prove to every village that coal was the cheapest energy for the next couple hundred years. He explained being an advocate for gas and propane, but noted that coal was sustainable. He said the largest amount of coal in the world was in Alaska. He said Usibelli Coal Mine (UCM) had been operating for 60 years, paid good wages, and was the best mine in the world. He said his company put together an infrastructure to load UCM coal out of Nenana [for river village shipments] and Seward for shipments to Western Alaska. He said his company had meetings scheduled the following week to address coal shipments to Kotzebue and the Bethel Region. He asserted that energy costs for Western Alaska could be reduced from $10 to $12 per million BTUs, down to $2 per million BTUs by using coal. He commented that the reason coal had not been considered in the past was due to the state's addiction to oil.

He explained a 2.5 kW screw-unit that could be used in homes. He said his goal in the next ten years was for every home in Alaska to be grid-independent by using biomass or solar tubes that used 95 percent of the sun's spectrum. He asserted that the best use for oil and gas was for petrochemicals. He stated that oil and gas should not be exported.

He declared that Alaska should lead the parade in making all of the building blocks for the world and should do so in Alaska with the highest paying jobs in the world. He asserted that smoke-stack-free coal was a very important part of the state's energy future.

He explained the use of modular growing-units. He said several growing-units had been sold and one was working at Chena Hot Springs. He declared that his company would show anybody how to grow reasonably and said knowledge was not any good if it was not shared. He noted that the Chinese had a printing press 4,000 years before Gutenberg and they did not share the knowledge with anyone. He said his company did not charge for their knowledge and noted free energy tours were conducted twice a day. He detailed that over 6,000 children had partaken in energy tours the previous year and over 15,000 during the present year. He explained that children learn about sustainability at no cost to schools or the state.

8:31:55 AM
SENATOR MICCICHE asked for additional personal and company background information.

MR. KARL answered that his businesses were family owned between himself and his wife. He explained that his businesses consisted of 140 employees with operations in Chena Hot Springs, Fairbanks, the North Slope, and Kodiak. He said his businesses were the Chena Hot Springs Resort, Chena Power, K & K Recycling, and Kodiak Cape Narrows Lodge. He stated that he was an American by birth and an Alaskan by choice for 40 years.

He said his company's grow-units were manufactured in Fairbanks by highly skilled employees. He stated that the modular grow-chambers would allow a person to immediately grow food for their animals. He explained that his company purchased barley from Delta and noted that there had never been a crop failure. He said the barley growers in Delta had 12,000 acres in production out of 84,000 acres of farmable ground. He stated that he had encouraged the Delta barley growers to have all of its farmable acreage in production and he would find a home for all of their barley.

He said the barley from Delta was purchased at $160/ton and planted in the Chena Hot Spring's grow-chamber without herbicides, pesticides, or fertilizers. He explained that he called the growing process "bio-mimicking," doing what god does. He stated that the barley in the grow-chamber used no soil. He divulged that 72 pounds of planted seed equated to 600 pounds of daily food for the company's farm animals. He stated that typical barley provided animals with delivered protein levels at 3 to 5 percent, ground barley at 34 percent. He noted that chickens had gizzards that ground seeds that allowed them to receive addition protein benefit. He declared that the barley grown in his grow-chambers delivered protein levels at 95 percent.

He informed the committee that he was paying $450/ton for the worst hay in world and driving 160 miles one way to get it. He explained that currently he was paying $50/ton for the best hay in the world that was harvested daily. He mentioned that cows eating the grow-chamber hay produced milk with ten percent more butterfat.

MR. KARL said he did not invent the grow-chamber idea, he made it better. He said Thomas Edison had 1,034 patents and improved

upon inventions that were created by others such as the light bulb and the telephone. He asserted that an individual did not have to be the brightest bulb on the tree; a person simply had to be a bulb.

8:36:01 AM
He stated that every village had a landfill. He said village landfills were scary and predicted their elimination within his lifetime. He explained that using modified Air Curtain Burners (ACB) were cleaver and could also be used to generate power during the process. He claimed that ACB could be used in any village for $90,000 to $500,000. He said heat and electricity could be generated from a landfill's trash, no more garbage blowing around or mess. He stated that the modified ACB was approved by the Alaska Department of Environmental Conservation (DEC) for Class II and Class III landfills, the landfill classifications for Bush Alaska. He informed the committee that an ACB was in operation in Fairbanks and the process would change the dynamics of energy. He stated that the first law of thermodynamics was that you could not create or destroy energy, only change its state and use it. He questioned why villages would want the landfill mess when $1.40 per pound was spent to ship energy to Bush Alaska and have it buried. He claimed that there was a solution to landfills and presented an analogy of getting multiple bites out of an apple rather than just one bite.

SENATOR MICCICHE asked what the minimum village size was for a firebox to be economical.

MR. KARL replied 50 people. He said a model was available for $16,000 that would take care of a village's landfill situation, total cost was less than $50,000 delivered with training. He stated that villages easily spent $50,000 annually for landfill equipment fuel while trash continued to blow all over the place. He concluded that the state's addiction to oil was a contributing factor for not using an ACB in the past.

8:39:05 AM
He said the state currently had enough innovation, intelligence and money to provide cheap energy for a vibrant economy. He asserted that the energy options presented to the committee were currently being operated by his company. He stated that his company was one of several organizations that were doing innovative ideas in Alaska. He declared that he was looking forward to working with all of the native corporations, regional corporations, local communities, individuals, and schools.

MR. KARL proclaimed that the problem was not a lack of education, but the problem was due to knowledge not being shared. He explained that Alaska's energy situation was similar to the Chinese not sharing their knowledge. He said it was not a person's fault if they did not know what a firebox, organic Rankine cycle, or grow-chamber was. He said the reason for the In-State Energy Committee was to respond to a great need and find solutions. He declared that the energy solutions were right at hand without taking state or federal money. He said his company was currently spending the money and the senators would be remiss if they did not have some solution. He said the solution was simple and the first step was to want to do it. He informed the committee that GE Capital would finance every one of the projects he presented with zero capital required at 6.5 percent interest. He said not one homeowner or native project would not be funded. He remarked that as the state's spending tightened, the requests for money from the legislature would increase. He said it was not business as usual and there were more opportunities than any time in the state or mankind's history. He asserted that the energy opportunity would lead to the state kicking its oil addiction.

8:41:38 AM
SENATOR EGAN stated that Mr. Karl was a breath of fresh air. He recalled that some of the best tours he had ever been on were at Chena Hot Springs. He declared that Mr. Karl's innovations were incredible.

MR. KARL announced upcoming innovations included a new "screw" and a hydrogen kitchen-of-the-future that turned human waste into methane gas to cook food. He noted that DEC may have a problem with the kitchen-of-the-future, but his company takes the innovation seriously. He reiterated that his company's knowledge was to be shared. He asserted that each village required a "sparkplug" person to be trained and sent back to be a leader. He declared that money was available and every dime would stay in the villages and the state. He stressed that coal would totally change the dynamics for the next several hundred years in Bush Alaska. He said UCM had 300 years of Prudhoe Bay. He said he was willing to assist with coal mines near Kotzebue and Galena. He declared that there should be coal mines and noted that 75 percent of the state consisted of coal. He said it made no sense to take our children's future life breath by burning gas and oil when coal was available for so many things.

8:43:50 AM

SENATOR EGAN noted a prior conversation that Juneau was looking for a windmill.

MR. KARL addressed Juneau's fog situation and noted his idea to have windmills at the airport to dissipate fog.

SENATOR MICCICHE agreed that there was a factor of addiction, but noted the factor of "just the way it has always been" and the challenge associated with breaking out of it. He addressed having individuals that provided creative solutions and individuals that provided reasons not to consider the creative solutions. He commented on Mr. Karl's opening statement that pertained to the philosophies of raising children to create their own solutions rather than handing them everything. He said the legislature needs to turn loose the spirit of Alaskans rather than providing solutions that never worked. He said the state had an uncanny knack of playing its cards wrong when it came to energy. He commended Mr. Karl for his presentation and stated that he hoped people would get motivated.

MR. KARL replied that he did not understand the tendency of studying everything to death. He explained that money was appropriated for studies, but asked what was wrong with using common sense. He said he found that using common sense was not very common. He asserted that using common sense would mean projects were studied as they moved forward. He explained that he made a lot of changes during a biomass project and the end result was turbines running at 28,000 RPM in a magnetic field, something that was not being done anywhere else off of biomass. He said his company was taking ash and turning it into some of the best cement in the world. He said a lot of people would say that he failed, but he was taking the knowledge he had learned to build a screw-expander. He reiterated Webster's definition that failure was if you do not succeed. He said his biomass project was operational and he would not quit in his attempt to make it a lot better. He declared that his company would share its knowledge.

8:48:01 AM
CO-CHAIR COGHILL commended Mr. Karl for the work he had done and the ideas he brought forth on the energy-front. He commented that Mr. Karl's contribution on growing food was often overlooked. He said Mr. Karl's barley production at Chena Hot Springs was phenomenal and noted that the ability to grow barley would change the economics of the red meat industry in Alaska.

MR. KARL replied that it was a synergy with every dime staying in Alaska. He commended Co-Chair Coghill's father, Senator Coghill, Sr. for being the voice for agriculture in Alaska. He said the Delta barley growers were world class and had production down to a science. He explained that barley was a good and hardy crop that could take a little cold. He said the Delta barley growers did not have a market, but his intent was to provide a market where all 84,000 acres were in production to grow the food to feed Alaska.

He said the state worried about oil and money to fund things. He said the state should start worrying about food. He remarked that food was the most important energy in the world and often was pushed under the rug. He declared that food would come to the forefront and his company would "bring power to the people" so that everybody could be in charge of their own energy. He said everyone comes down to the legislature to ask for money and his company did not require funds. He said his only request from the committee was for less regulation.

8:50:43 AM
CO-CHAIR BISHOP thanked Mr. Karl for his presentation.

8:51:05 AM
There being no further business to come before the Senate In-State Energy Committee, Co-Chair Bishop adjourned the meeting at 8:51 a.m.