

ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE

February 18, 2009

3:35p.m.

MEMBERS PRESENT

Senator Lesil McGuire, Co-Chair
Senator Bill Wielechowski, Co-Chair
Senator Charlie Huggins, Vice Chair
Senator Hollis French
Senator Gary Stevens
Senator Thomas Wagoner

MEMBERS ABSENT

Senator Bert Stedman

COMMITTEE CALENDAR

Overview:

Performance Contracting for Energy Efficiency
Alaska Energy Efficiency Program and Policy Recommendations

PREVIOUS COMMITTEE ACTION

No previous action to record.

WITNESS REGISTER

KEN BAUER

Siemens Building Technology
Buffalo Grove IL

POSITION STATEMENT: Discussed energy-efficiency retrofitting.

CADY LISTER, Senior Consultant

Information Insights, Inc
Fairbanks AK

POSITION STATEMENT: Presented a report called Alaska Energy Efficiency Program and Policy Recommendations.

JOHN DAVIES, Research Director

Cold Climate Housing Research Center
Fairbanks AK

POSITION STATEMENT: Discussed energy efficient construction.

ACTION NARRATIVE

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CO-CHAIR LESIL MCGUIRE called the Senate Resources Standing Committee meeting to order at 3:35 p.m. Present at the call to order were Senators Wielechowski, French, Wagoner, Stevens, Huggins, and McGuire.

CHAIR MCGUIRE introduced Ken Bauer from Siemens Building Technology - just one of the companies looking at energy solutions. It is appropriate for him to be here because some of the recommendations that come out of the Cold Climate Housing Report would entail modifications to Alaskan structures, and Siemens has a creative business approach.

Performance Contracting for Energy Efficiency

Performance Contracting for Energy Efficiency

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KEN BAUER, Siemens Building Technology, Buffalo Grove, Illinois, said he will give an overview of performance contracting, which allows entities to improve their facilities "by using their energy and operational budgets to fund a project with guaranteed results." Performance contracting begins with an energy audit to show how the customer's energy efficiency compares with similar buildings around the country. It is followed by a detailed audit that identifies facility improvement measures and their costs and savings. Once a performance contract is signed, the project is implemented and turned over to the customer. There are ongoing verifications to confirm the energy and other savings.

MR. BAUER showed a flowchart of the process, which is a partnership between Siemens and the customer to design the best plans. The goal is to achieve maximum efficiency for each individual building. Financing is arranged and the savings generated repay the financing. There should be operational, maintenance, and energy savings. "Siemens guarantees that the savings exceed the cost of the financing, otherwise we pay the difference." Siemens will issue a check in the amount of the difference and/or it will implement free additional facility improvements to meet the energy guarantee.

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MR. BAUER showed a flow chart of the "project execution process." Siemens is finishing phase 2 of a project with the state of Alaska. Eight buildings were done in phase 1: Diamond

Courthouse, Alaska Office Building, Court Plaza building, Douglas Island building, and the State Office Building in Juneau, and the Aviation building, Department of Transportation annex, and Public Safety building in Anchorage. Siemens is also finishing a Department of Corrections project for 8 buildings around the state.

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MR. BAUER said some of the improvements include lighting upgrades, low-flow plumbing fixtures, heating system upgrades, insulation, and "retro commissioning," which is fine-tuning existing systems. Siemens installed an ozone machine in one prison so detergent works with colder water, which saves on hot water costs.

MR. BAUER said another facet is alternative energy, which is especially important in the Bush. In conclusion, there are several other energy services companies that do the same thing.

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SENATOR WIELECHOWSKI asked if the state or municipality has to pay up front.

MR. BAUER gave an example of a project estimated to cost \$1 million and that Siemens believed would save the facility \$100,000 per year. Without any financing costs, it would take ten years to pay the \$1 million back. There would be an up-front cost for the detailed audit, which would be rolled into that. There would also be financing costs. So if the final cost were \$1.2 million, there would be a \$1.2 million note to be paid off. So the payments would be tailored so that each year the customer would pay \$100,000 on this note, which would come from the realized savings (on electricity, gas, etcetera). Siemens will not guarantee dollars, but it will guarantee consumption because of energy price fluctuations. If an entity has a grant, it may shorten the time and save money on interest.

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SENATOR WIELECHOWSKI said the Finance Committee will appreciate the zero fiscal note. He asked for examples on the state buildings that Siemens has done.

MR. BAUER said the first Department of Transportation project has a 12-year contract and is saving a little over \$250,000 per year. The project investment was a little over \$4 million. "However when they did the measurement and verification, the project actually came in 24 percent better than we had

originally planned, so the last figure I saw is probably going to pay off in ... a little under nine years." He doesn't have the figures for the Department of Corrections, but it originally was a 15-year payback, and a \$750,000 savings per year. But that has not been verified yet. Normally the company looks for a 15-year pay back or less.

CHAIR MCGUIRE asked him to keep the committee posted on projects.

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Alaska Energy Efficiency Program and Policy Recommendations

Alaska Energy Efficiency Program and Policy Recommendations

CADY LISTER, Senior Consultant, Information Insights, Inc, Fairbanks, said she was one of the principal authors of the Alaska Energy Efficiency Program and Policy Recommendations. When the report was written the price of fuel was significantly higher than now. She used slides for her presentation.

MS. LISTER said the benefits of energy efficiency include the ability to do it now. There is voluminous data to prove its worth. Efficiency relies on advances in technology, which are becoming more plentiful instead of being depleted like fossil fuels. Saving energy usually costs less than buying it. It reduces pollution and carbon use. The project started with a literature review of Alaska energy programs. The last time Alaska saw high energy prices was in the 1980s during the Iran/Iraq war. Money was spent on energy programs, and some programs were then adopted, and some of those went away when the price of oil went down. She reviewed those programs to find out why they did not work or did not stick. She also reviewed best practices in other countries. The Rocky Mountain Institute assisted in that.

MS. LISTER said an energy efficiency work session was held in January 2008. Experts sat down and hammered out what had and had not been done in Alaska; what had been talked about; and where road blocks were. The Alaska Energy Authority (AEA) and the Alaska Housing Finance Corporation (AHFC) have collected a lot of data about energy programs in Alaska for a long time. Interim recommendations for the legislature were developed. Energy and policy professionals gave a lot of feedback. Then the final recommendations were produced.

MS. LISTER said Alaska is ranked at 41 in the nation by ACEEE [American Council for an Energy-Efficient Economy]. The criteria used was utility spending on efficiency and conservation; combined heat and power; building codes; transportation policies; appliance standards; tax incentives; and state leadership by example. There are only two positives. Alaska does combined heat and power in rural areas, and the AHFC building codes are good, but there is no state energy code for buildings. Alaska is dead-last in utility spending on efficiency. Only two states are behind Alaska in terms of dollars spent per resident. Alaska spent 11 cents per person, and most of that was spent by the Golden Valley Electric Association (GVEA).

MS. LISTER looked at best practices but steered away from those of California because Alaskans wouldn't like them. She said 39 states have building energy codes that require a minimum level of efficiency for new residential and commercial construction. Alaska does not. Other best practices include appliance standards; efficiency funding to pay for program and outreach, which helps change behaviors; energy efficiency in state facilities, which is fairly widespread and found in at least 36 states; tax incentives, used in many states and most effective in states with significant taxes; pay-as-you save programs, which are similar to the Siemens program and may include incentives for switching to efficient light bulbs, for example.

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SENATOR WAGONER asked about building energy codes. Is it necessary to create a code or could the state set up design specifications for any state buildings? Universities are using less glass in their buildings.

MS. LISTER said setting up a list of how to build is essentially a building code.

JOHN DAVIES, Research Director, Cold Climate Housing Research Center, Fairbanks, said the AHFC adopted the Building Energy Efficiency Standards for Alaska, and it is an energy efficiency code that applies to projects that AHFC finances. The discussion is about broadening that code to include all buildings. There are two approaches to how such codes can be structured. It can be a list of prescriptive specifications or it could be a performance standard. Both paths are allowed in code. Most people use the performance standard for residential buildings.

SENATOR HUGGINS said Alaska has a weatherization rebate program, and he asked if that was factored in.

MS. LISTER said her group promoted the program, but it was not included when ACEEE rated the states. It would likely give Alaska a few more points.

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SENATOR HUGGINS said he would like to get an A- on that.

MS. LISTER continued her discussion of best practices. She said other states use revolving loan funds that are capitalized for purposes of providing money for energy efficiencies. The loans would be repaid and available for others to use. It could be used for school districts, for example.

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MS. LISTER said other incentives include fast-tracking building permits and allowing agencies to keep the money that is saved by reducing energy bills. Alaska has a weak regulatory environment and has little end-use management programs in any of the utilities. In other parts of the world utilities use end-use management. There is interest among the utilities in moving that way, and GVEA has. Another strategy is requiring utilities to use a total-resource cost test and purchase all energy efficient measures that meet the test.

MS. LISTER said another best practice is aligning utility incentives equally. Often utility incentive programs do not align the utility's profits equally with supply and demand resources, and utilities will profit from high consumption. Another idea is to create rate structures that encourage lower consumption. Most utilities do the opposite. Another strategy is a non by-passable charge on a utility bill that is used to fund energy efficiency initiatives. She noted that GVEA did that and had very, very little push-back from consumers.

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SENATOR FRENCH asked what a non by-passable charge is.

MS. LISTER said, "It just means you have to pay it." It is a fixed charge of a dollar or two a month. Some utilities don't feel like they can charge more, but GVEA did it and didn't have a lot of problem with it. GVEA explained what it was used for.

MS. LISTER said there are education best practices of ongoing consumer education about energy efficiency and renewable energy. When people talk about behavior change they bring up tobacco, which took consistent and dedicated funds to succeed.

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MS. LISTER suggested builder education for new technology and school curricula that includes the value of energy efficiency and conservation. There are lesson plans available to schools.

CHAIR MCGUIRE noted a meeting at 5:15 tonight to discuss energy and alternative energy in Alaska's schools.

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MS. LISTER agreed there are a lot of opportunities in schools. She said the recommendations in the report are presented in nine categories: state leadership; funding energy efficiency; public education; baseline data; existing and new residential buildings; existing and new commercial buildings; and public buildings. The entire report is on the web.

MS. LISTER said the governor should articulate an energy efficiency vision for Alaska and provide leadership in terms of action. She should designate a sub-cabinet for state end-use efficiency programs. "Whenever the demand side gets together with the supply side, the supply side gets a lot more exciting because it's about stuff and projects, and it can create jobs, and it uses new snazzy-looking technology." If there are not people whose sole task is looking at the end-use efficiency side, then the effort gets sucked into the supply side.

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MS. LISTER said the report recommends four options for funding energy efficiency programs. The first is the state funding energy efficiency programs through legislative appropriation. That is least favorable because funds won't get reappropriated in low money years. The second is the RCA implementing a system benefit charge to support end-use efficiency programs. The charge would show up on the utility bill, and it would be a dedicated, continuous funding stream. Thirdly, the state should capitalize an end-use efficiency endowment. The fourth option is the state offering matching grants to local governments interested in creating a local energy plan that incorporates energy efficiency and conservation. It makes the most sense to have the RCA require a system benefit charge, but it may be the most difficult to implement.

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MS. LISTER recommended that the legislature fund a comprehensive public awareness campaign with at least \$1 million per year. There is some good baseline data, but it is pretty spotty, even

along the Railbelt. That is where they focused this work. A baseline is important so the state can know if programs are working. "You could be spending money and think its working, but you just don't really know."

CHAIR MCGUIRE said it is important to know if enough money is being spent and to know if something is working.

MS. LISTER said the AEA should establish an energy use index for all public buildings. That will let people know how much energy their buildings are consuming. It needs to be put in context.

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SENATOR FRENCH said that is a great suggestion and asked how to make it happen.

MS. LISTER said it's not that tricky, it is just how much a building consumes. Buildings with shared costs might be more difficult to assess.

MR. DAVIES said it can happen by executive order. It is not expensive, but it requires someone to do it.

CHAIR MCGUIRE asked if it would be a website.

MR. DAVIES said it would be a database of BTUs per square foot.

SENATOR FRENCH said that would be a way to pick the ten worst buildings in the state that need to be weatherized.

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MS. LISTER said the legislature significantly increased the funding for low-income weatherization, which was one of the recommendations. Also, the AHFC should create a certification and training program for energy retrofit and new construction, and it should subsidize up to 100 percent of costs for home energy audits for households not eligible for low-income weatherization and offer low-interest loans for energy conservation improvements. The legislature also did that in the form of grants or rebates.

CHAIR MCGUIRE asked why AHFC was chosen as the entity to do certification and training.

MS. LISTER said it has the most expertise.

MR. DAVIES said AHFC has a program for training energy raters.

MS. LISTER said the legislature should fund a pilot smart-meter program through the AHFC and AEA. Some people like smart meters and others are skeptical. There are cheaper units that appear to improve peoples' behavior. The Ontario government bought a smart meter for every single household, and it expects to recoup those costs by delaying new infrastructure development.

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CHAIR MCGUIRE asked how smart meters work. "Does it yell at you when you leave the lights on?"

MR. DAVIES said they just provide immediate feedback, which causes people to change their behavior and save up to 10 percent in energy costs. It is like getting an electric bill every day. Some utilities vary their rates by the time of day, so smart meters can help people schedule their energy use.

MS. LISTER said the report recommends the legislature adopt BEES (building energy efficiency standard) as the new state code for residential construction. The state should enforce the codes and contractor licensing to ensure quality and energy efficiency.

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SENATOR WIELECHOWSKI said he thinks Alaska could get about \$28 million from the federal stimulus package. One requirement is a state building code.

MS. LISTER said, "You have to have assurances that you will have one."

SENATOR WIELECHOWSKI noted that 39 states already have them.

MS. LISTER said the report recommends that the AEA subsidize energy audits for existing commercial facilities and offer loans for improvements. Commercial facilities are often large and built with blueprints from California, and they waste a huge amount of energy. The RCA should require utilities to implement pay-as-you-save loan programs.

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MS. LISTER said the AEA should contract for a stakeholder process to develop a commercial energy efficiency building code for new commercial construction. The governor should direct each state agency to reduce energy consumption by 20 percent from 2000 levels. The Board of Regents should direct the university to do the same. The legislature should fund an energy audit for

every school in the state. The state should fund AEA to revive the Institutional Conservation Program to offer public schools energy conservation matching grants.

CHAIR MCGUIRE asked if there are federal dollars for that.

MS. LISTER said no. The AEA should establish a low-interest loan program for public facilities with payments geared to projected savings in energy.

MR. DAVIES said the energy audit for schools could be funded by stimulus funds.

MS. LISTER gave an overview of where Alaska stands now. Weatherization received \$200 million, the home energy rebate program was funded at \$160 million, and renewable energy was funded at \$100 million. There is a fair amount of market driven conservation now in rural Alaska. Rural Alaskans use less energy than urban Alaskans.

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MS. LISTER said there is a broad and growing awareness of energy issues. Supply side solutions continue to dominate discussions, which are important but they aren't the only thing.

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CHAIR MCGUIRE said it is interesting that the supply side has more interest. Conserving and saving is always less interesting to people than expanding and spending. She has heard the term "nega-watts," and simply not expending a kilowatt hour is the best thing to do, but we talk about other solutions.

MS. LISTER said people think that conservation means they have to negatively changes their lives and be cold or not have clean clothes. But with new technology and by building homes correctly, we can still have our homes at 70 degrees.

MR. DAVIES said new construction is easy, but retrofitting can be messy and difficult. Every home is different. Conservation is the cheapest and is what we should do.

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CHAIR MCGUIRE said her constituents tell her it is hard to get the audit; it is taking months. Are you recruiting more energy auditors? We don't have enough.

MR. DAVIES said he believes it is at equilibrium with the number of people on list and the number getting service. People were on multiple lists so it looked worse than it was, and now we may need a few more raters, but not many.

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MS. LISTER said new people are being certified nearly every week, and she thinks there are enough raters. Anchorage didn't have enough at first.

CHAIR MCGUIRE noted the downturn in the economy, and there is not as much work for appraisers. Perhaps some of them could be re-trained.

MS. LISTER said the real opportunity is for people actually doing the energy work. There are enough raters. It will be hard to find contractors who know how to do energy retrofits, but it is an opportunity for them.

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MR. DAVIES noted the Cold Climate Housing Research Center and its website with this entire report - www.cchrc.org. This presentation is also available through Senator Wielechowski's office. He said a statewide building code has been discussed. Experts recommend it as the single most important strategy. It provides education and a reasonable standard. There is a lot of debate about regulating people in the last frontier. "But if we're going to start providing hundreds of millions of dollars to help people retrofit, then I think there's a public interest in making sure that we don't go too low." There are also pollution and greenhouse gas issues.

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MR. DAVIES said he looked at the amount of money being spent in Fairbanks on energy. It is over \$450 million per year. By cutting that, the money could stay in the economy and circulate. It's a big deal.

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SENATOR WAGONER said this committee won't take on the task of a statewide building code. Who will enforce it? He thinks what is needed is a sub-code that becomes part of a statewide building code. He recommends that someone tackles this outside of the building code and then attach it later.

MR. DAVIES said that is the approach CCHRC took. It was tasked with helping AHFC revise the building energy efficiency

standard. When it started it recast it in terms of the International Energy Conservation Code. The terms are code-like, so it could be slipped right into the building code. AHFC has seen the need for a level playing field for a long time. When homeowners finance a house, they can use an AHFC loan to get a small reduction in mortgage rates, or they can go to Fannie Mae or Freddie Mac and not have energy efficiency requirements. That may change at the federal level, but it hasn't yet. A lot of people don't want to deal with it even though AHFC will get them a lower mortgage rate. Within the last month, the Alaska State Homebuilders Association passed a resolution supporting a statewide energy conservation code, so that removes a major resistance - it is a big change.

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MR. DAVIES said the association tried a voluntary code, but it hasn't worked. Also, being on track to adopt a statewide energy conservation code is required to get some of the federal stimulus funds, particularly the state energy program grants.

SENATOR WIELECHOWSKI said one of his concerns is the additional cost to people building homes. But Mr. Davies said that wouldn't be much. He asked him to explain that.

MR. DAVIES said there are trade offs in designing an energy efficient home. One might spend more on insulation and less on a heating system, for example. That doesn't include the life cycle savings. A little money spent on insulation will get paid back fairly quickly. Adding energy efficiency at the end of a project is more expensive, but if it is programmed in from the beginning it isn't much more expensive. The biggest builder in Fairbanks is building all 5-star-plus buildings, and his houses are slightly lower than the mid-price point in the market.

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CHAIR MCGUIRE said a code has plumbing and other requirements.

MR. DAVIES said he would like to see a statewide building code that includes all of those. There are a lot of devils in the details. There will be issues on how to implement it in rural Alaska. Most banks require inspections already, so "if you just added a little more to the task of those inspectors and train them, the additional work would not be that much more." It might cost another \$300 for a home inspection in new construction. If it was done through the private sector like banks are doing, there won't be a need for a large state bureaucracy.

CHAIR MCGUIRE said there are a lot of Alaskans who build their own homes.

MR. DAVIES said there is training out there already. Mr. Davies built his own house and got some of that training. He advocates not applying [the code] to those who self finance; but people need to know that if they want to sell the house later through bank financing, the bank may have issues.

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MR. DAVIES said that the state energy program grant requirements from the stimulus bill require the governor to send a letter to the Secretary of Energy that certifies three things: 1) It assures that Alaska has a program where utilities are supporting consumer energy efficiency policy - programs that provide consumer education for saving energy. 2) The state has adopted residential and commercial energy conservation codes. 3) The state prioritizes these grants toward energy efficiency or renewable energy programs wherever possible. Those three will make Alaska eligible for the money from the stimulus package.

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MR. DAVIES said Alaska should consider a broad statewide program that could be called Sustainable Northern Communities. Most communities in Alaska are not sustainable, considering how they are spending money and designing buildings. He suggested a vision to use oil wealth to transition to a renewable economy. Alaska has taken some steps in the right direction, but it needs to enunciate it as a state vision. It will take enormous effort to get there within 30 years. Alaska will need to focus clearly on the goal. The integrated design process needs to be used. It means coordinating the design and involving all the stakeholders at the beginning of the process. Both AEA and AHFC have talked about it as the "whole village" retrofit.

MR. DAVIES said energy is not separate from agriculture. When planning sustainable communities, one needs to worry about food security. He has heard that Fairbanks has only three days of food in town. Alaskans need to think about how we will feed ourselves. When looking at an energy plan, look at greenhouses and using waste heat to grow food. That is especially important in rural Alaska, but it applies all over the state.

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MR. DAVIES said the CCHRC facilitated the study and Information Insights carried it out with Ms. Lister doing most of the work. The funding came from AHFC and AEA.

CHAIR MCGUIRE thanked them and said when she was in Iceland she saw "exactly this concept of a sustainable community that they have developed." It made the link between energy sustainability and food sustainably with hydroponic vegetable greenhouses. It's exciting to think that Alaskans can decide what we want our communities to look like. It's about sustaining culture and food sources. "I think there are tremendous opportunities that spring from that." Iceland has a sense that it has the energy and the food to keep going.

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SENATOR HUGGINS said he was visiting Fairbanks about a month ago, and he asked about the Anaktuvuk prototype.

MR. DAVIES said they have a program called Sustainable Northern Shelters to provide housing in northern areas. It tries to use an integrated design process and involve the communities. It was applied in Anaktuvuk Pass, where the North Slope Borough asked for a design of a new house. The town hadn't built a new house in 10 years because the last quote for one house was \$750,000. No one could afford it. CCHRC set a goal to do it for \$125,000 to \$150,000 and fit all of the materials in one DC3 plane. A five-person senior complex that was just built there took about 40 "Herc loads" to get the material there. There are no roads or barges that go into Anaktuvuk. CCHRC went to the village and had a two-day design charrette, and over half of the village participated in this two-day discussion on what they wanted their houses to look like. Important design features would include a place to repair snow machines and skin a caribou. Kitchens need to be large for a potlatch-type event. CCHRC worked up a design and went back and had another charrette. The approach that brings everyone together at the beginning is also done with the contractors. "We hope to build this place this summer." The ideas are being tested this winter in Fairbanks. This approach can be used around the state, and other villages have requested assistance. The house will get built with local labor - like a barn raising.

CHAIR MCGUIRE said people will have pride and respect for the building. Observing people being productive is great.

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There being no further business to come before the committee, CHAIR MCGUIRE adjourned the meeting at 4:56 p.m.