

**ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON ENERGY**

February 14, 2012
3:11 p.m.

MEMBERS PRESENT

Representative Neal Foster, Co-Chair
Representative Bob Lynn
Representative Kurt Olson
Representative Pete Petersen
Representative Chris Tuck

MEMBERS ABSENT

Representative Lance Pruitt, Co-Chair
Representative Dan Saddler

OTHER LEGISLATORS PRESENT

Representative Bryce Edgmon

COMMITTEE CALENDAR

HOUSE BILL NO. 294

"An Act relating to the power cost equalization program."

- HEARD & HELD

PRESENTATION: OVERVIEW BY COLD CLIMATE HOUSING RESEARCH CENTER

- HEARD

PRESENTATION: PROGRESS REPORT ON LAKE CHIKUMINUK HYDROPOWER PROJECT

- HEARD

PREVIOUS COMMITTEE ACTION

BILL: HB 294

SHORT TITLE: POWER COST EQUALIZATION

SPONSOR(S): REPRESENTATIVE(S) EDGMON

01/25/12	(H)	READ THE FIRST TIME - REFERRALS
01/25/12	(H)	ENE, FIN
02/14/12	(H)	ENE AT 3:00 PM BARNES 124

WITNESS REGISTER

REPRESENTATIVE BRYCE EDGMON
Alaska State Legislature
Juneau, Alaska

POSITION STATEMENT: As the prime sponsor of HB 294, introduced the bill.

SARA FISHER-GOAD, Executive Director
Alaska Energy Authority (AEA)
Department of Commerce, Community & Economic Development (DCCED)
Anchorage, Alaska

POSITION STATEMENT: Answered questions during the hearing on HB 294.

MEERA KOHLER, President and Chief Executive Officer
Alaska Village Electric Cooperative (AVEC)
Anchorage, Alaska

POSITION STATEMENT: Testified in support of HB 294.

BRAD REEVE, General Manager
Kotzebue Electric Association
Kotzebue, Alaska

POSITION STATEMENT: Testified in favor of HB 294.

JODI MITCHELL, Chief Executive Officer and General Manager
Inside Passage Electric Cooperative
Auke Bay, Alaska

POSITION STATEMENT: Testified in support of HB 294.

JOHN HANDELAND, General Manager
Nome Joint Utility System
Nome, Alaska

POSITION STATEMENT: Testified in support of HB 294.

GENE STRONG, Board Member
Inside Passage Electric Cooperative
Klukwan, Alaska

POSITION STATEMENT: Testified in support of HB 294.

PETER ANDREW, President
Board of Directors
Nushagak Electric & Telephone Cooperative, Inc.
Dillingham, Alaska

POSITION STATEMENT: Testified in support of HB 294.

ANDREW GUY, President and Chief Executive Officer
Calista Corporation
Anchorage, Alaska
POSITION STATEMENT: Testified in support of HB 294.

HENRICH KADAKE SR, Mayor
City of Kake
Kake, Alaska
POSITION STATEMENT: Testified in support of HB 294.

ANDY VARNER, Executive Director
Southwest Alaska Municipal Conference
Anchorage, Alaska
POSITION STATEMENT: Testified in support of HB 294.

ROBERT VENABLES, Energy Coordinator
Southeast Conference
Juneau, Alaska
POSITION STATEMENT: Testified in support of HB 294.

TARA BOURDUKOF SY, Director
Human Services
Aleutian Pribilof Islands Association, Inc.
Anchorage, Alaska
POSITION STATEMENT: Testified in favor of HB 294.

MARK WASIERSKI, Coordinator
Head Start
Aleutian Pribilof Islands Association, Inc.
Anchorage, Alaska
POSITION STATEMENT: Testified in support of HB 294.

ANGELA MORGAN, Executive Director
Middle Rivers
Interior Rivers Resource Conservation & Development Council,
Inc. (IRRC&D)
Natural Resources Conservation Service (NRCS)
U.S. Department of Agriculture; Representative
Aniak Traditional Council
Aniak, Alaska
POSITION STATEMENT: Testified in support of HB 294.

JACK HEBERT, President and Chief Executive Officer
Cold Climate Housing Research Center
Fairbanks, Alaska
POSITION STATEMENT: Provided a PowerPoint presentation
entitled, "Promoting and advancing the development of healthy,

durable, and sustainable shelter for Alaskans and other circumpolar people."

ALAN WILSON, Chairman
Board of Directors
Cold Climate Housing Research Center
Fairbanks, Alaska

POSITION STATEMENT: Answered a question during the presentation by the Cold Climate Housing Research Center.

CHRISTINE KLEIN, Chief Operating Officer
Calista Corporation; Representative
Nuvista Light & Electric Cooperative, Inc.
Anchorage, Alaska

POSITION STATEMENT: Gave remarks on the Chikuminuk Lake Hydropower project and introduced Ms. Brown, Chief Executive Officer of Nuvista Light & Electric Cooperative, Inc.

ELAINE BROWN, Chief Executive Officer
Nuvista Light & Electric Cooperative, Inc.
Anchorage, Alaska

POSITION STATEMENT: Provided a PowerPoint presentation entitled, "Chikuminuk Lake Hydropower," dated February, 2012.

ACTION NARRATIVE

[3:11:58 PM](#)

CO-CHAIR NEAL FOSTER called the House Special Committee on Energy meeting to order at 3:11 p.m. Representatives Foster, Petersen, Lynn, and Tuck were present at the call to order. Representatives Pruitt and Saddler were excused. Representative Olson arrived as the meeting was in progress. Representative Edgmon was also present.

HB 294-POWER COST EQUALIZATION

[3:12:46 PM](#)

CO-CHAIR FOSTER announced that the first order of business would be HOUSE BILL NO. 294, "An Act relating to the power cost equalization program."

[3:13:48 PM](#)

REPRESENTATIVE LYNN moved to adopt HB 294 as the working document. There being no objection, HB 294 was before the committee.

[3:14:31 PM](#)

REPRESENTATIVE LYNN moved to adopt the two fiscal notes attached to HB 294, one of which was identified as HB294-DCCED-AIDEA-02-10-12. There being no objection, the fiscal notes were adopted.

[3:15:12 PM](#)

REPRESENTATIVE BRYCE EDGMON, Alaska State Legislature, prime sponsor of HB 294, introduced the bill, saying that HB 294 proposes to return the power cost equalization (PCE) program to its pre-1999 form. At that time, the program offered subsidies to all users in rural communities with the exception of federal facilities. Today, the PCE program provides subsidies to consumers up to the level of 500 kilowatt (kW) hours of use per month, and is largely limited to residential users in eligible communities. The bill will expand the monthly cap to 700 kW hours and will also return more non-residential users back into the program. Although discussion about HB 294 will focus on the PCE program, Representative Edgmon expressed his intent to also discuss the immediate issue of the high cost of energy in rural communities that rely on diesel fuel for almost any activity. Representative Edgmon observed that the PCE program is already in place and, with expansion, could provide immediate relief from the high cost of energy to rural Alaska. He acknowledged that the bill has supporters and detractors and testimony will cover the fiscal impact and weaknesses of the program - he welcomed the debate. The legislature has taken a lot of action regarding energy issues recently because of the increase in oil prices; in fact, the state has spent a considerable amount of money for weatherization, home energy rebate, low-income home heating assistance, and community revenue sharing programs, and \$400 million has been directed to the PCE endowment, yet it has not had much effect on the utility bills in rural areas. Representative Edgmon urged for a vigorous discussion of the bill, and a focus on the rising costs of energy in rural Alaska.

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REPRESENTATIVE PETERSEN asked whether grocery stores would qualify for PCE with the changes to the program authorized by HB 294.

REPRESENTATIVE EDGMON indicated yes, and pointed out that the increase from 500 kW hours to 700 kW hours would not make a difference in Dillingham or Bethel, but would make a difference in the energy costs of a business in a small village, and thereby in the overall cost structure of rural Alaska.

3:22:06 PM

SARA FISHER-GOAD, Executive Director, Alaska Energy Authority (AEA), discussed the fiscal impact of the legislation. She directed attention to the fiscal note identified as HB294-DCCED-AEA-02-10-12, and said the estimated increase in the cost of the program is approximately \$33,126,000. On page 2 of the fiscal note the estimate is divided into three sections: \$15,140,000 represents the 40 percent increase in customers' reimbursement from 500 to 700 kW hours per month - this estimate is based on the assumption that all customers will use 700 kW hours for 12 months, although this may not be true; \$17,900,000 represents the annual cost to include commercial and public school customers as eligible customers - this estimate was based on 1999 statistics for commercial customers and two public school buildings per community; and \$86,000 represents an annual increase of one additional PCE clerk to manage the program and verify eligibility. Ms. Fisher-Goad said page 3 indicated out-year estimates broken down to the PCE endowment fund and the \$400,000,000 coming to the program in future years. The PCE endowment is based on a three-year average market value so AEA's projections are for earnings to 7 percent of the market value. She advised that the second fiscal note reflects the new clerk position at the Alaska Industrial Development and Export Agency (AIDEA), because AIDEA has the positions that carry out AEA programs.

3:26:27 PM

MEERA KOHLER, President and Chief Executive Officer, Alaska Village Electric Cooperative (AVEC), said AVEC is a nonprofit member-owned utility serving 54 villages. She advised AVEC is showing a decline in population for the first time since 1968, which is a reflection of the exodus from the villages that began in 2008. She expressed AVEC's support of HB 294, and recalled that PCE was established in 1984 to bring the cost of electricity in rural Alaska to a level equal to that of urban Alaskans. At the time of inception, the benefit of up to 700 kW hours was extended to all nongovernment consumers. The program has been trimmed back several times in different ways and the result is that eligible kW hours have been reduced by about one-

half. The bill seeks to restore additional eligible hours and eligibility to commercial customers. Ms. Kohler opined the restoration of eligibility is a meaningful benefit for the thousands of Alaskans who are commercial customers. The members of AVEC account for about one-third of the state's PCE benefits - \$11.3 million - and restoring the benefits as directed by HB 294 will result in an additional \$4,280,000 in PCE credits to its members. Further, adding school facilities in AVEC's villages adds \$227,000, and brings the total to a 40 percent increase. Ms. Kohler acknowledged these numbers are different than what was presented by AEA, because AEA assumed customers would claim 700 kW hours for 12 months. Also, the actual average consumption of PCE-eligible electricity by residential consumers is currently 284 - not - 500, kW hours. Her organization estimates that its customers' average consumption would go up from 380 to about 600 kW hours, or less. According to AEA's report, FY 10 total cost of electricity in PCE communities was about \$157,600,000, and PCE provided less than 20 percent. She concluded that restoring the benefits will result in an increase of program cost to about 27 percent of the cost of delivering electricity in rural Alaska, and she strongly encouraged the committee to support the bill.

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BRAD REEVE, General Manager, Kotzebue Electric Association, said his company is in favor of reexamining the program to seek a reduction in the high cost of power in rural areas. The average usage in Kotzebue is about 560 kW hours per month, and the winter seasonal use is the most difficult for families to manage. He acknowledged there has been past opposition to the "government paying government for relief," as addressed by the bill; however, the benefits to schools and businesses in small villages could "make or break" them. Mr. Reeve suggested continuing conservation and taking a close look at the details of the program. He expressed his wish for a similar program for heating fuel due to the very high prices for diesel in Kotzebue. Mr. Reeve closed, saying any assistance is appreciated.

[3:34:47 PM](#)

JODI MITCHELL, Chief Executive Officer, Inside Passage Electric Cooperative (IPEC), informed the committee IPEC is a regulated, member-owned, nonprofit, electric cooperative that serves five rural service areas in Southeast with primarily diesel-generated power. She spoke in support of the bill, and opined that energy costs are a quality-of-life issue. Ms. Mitchell cautioned that

the 500 kW hours limit in the winter causes the utility to have a higher rate because of lesser economies of scale. Further, she had heard from her members that businesses are failing in the face of uncertain energy costs, and because customers are devoid of disposable income. Members of her cooperative have also seen out-migration, especially in Kake, and this is very disturbing because of the potential loss of its culture.

[3:39:13 PM](#)

JOHN HANDELAND, General Manager, Nome Joint Utility System, advised that the City of Nome has been interested in changes to the program for a number of years. Nome is also experiencing record-breaking cold and an increased cost of fuel, thus the city council and utility board have made energy issues a higher priority. He said the increase to 700 kW hours is beneficial and the addition of businesses and commercial customers will provide assistance to small businesses. Mr. Handeland pointed out that the 70 kW per month eligible for community facilities in each residential community is the limit at least since 1999, but there have been changes...

[3:41:43 PM](#)

Due to technical difficulties, the committee took an at-ease from 3:41 p.m. to 3:46 p.m.

[3:46:30 PM](#)

MR. HANDELAND continued to say that the number of kilowatts that are available for local community facilities is an area that should be reviewed as the legislature works on the bill. He disagreed that the change in the PCE eligibility rate impacts residents' efforts toward conservation; in fact, customers are fully aware of the level at which PCE is available and use electricity out of necessity, not out of luxury. Regarding AEA's assumption on the use of electricity to compute the cost of the program, he pointed out that people need assistance during the winter, and suggested kilowatts could be banked like "roll-over minutes," against the need for higher use in the winter for supplemental heat. This would not be difficult to monitor using modern day accounting systems. Finally, Mr. Handeland stated that the City of Nome, because of the extreme cold, is seeing a substantial increase in its accounts receivable, and is recommending that the effective date of HB 294 be retroactive to the start of the current state fiscal year - 7/1/11 - for the benefit of consumers who need help.

3:53:03 PM

GENE STRONG, Board Member, IPEC, said he supports the increase to 700 kW hours as this will help rural communities and stop out-migration to urban areas. He also encouraged seasonal billing, instead of monthly billing, because by the time PCE papers arrive the oil bills are past due. Mr. Strong noted that the economies of the small communities are tight, and nonexistent in winter. His utility covers a large area of five communities that are not connected, although there are some hydroelectric projects that will be underway in the future with legislative support.

3:56:18 PM

PETER ANDREW, President of the Board of Directors, Nushagak Electric & Telephone Cooperative, Inc., expressed his support of HB 294. Nushagak is in the Bristol Bay region and provides electricity, telephone, cable TV, and internet service. Mr. Andrew explained that like Nome, Dillingham serves as a hub to provide for many smaller communities, and restoring the increase in kW hours will enhance economic growth and will help Alaskans. His area has also suffered from record cold and he urged support for the bill.

3:57:46 PM

REPRESENTATIVE EDGMON asked how the aftermath from the cold winter will impact the Bristol Bay region and IPEC utility customers.

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MR. ANDREW said he has seen Alaskans buying heating oil five gallons at a time. This bill "frees them up a little bit more to buy a little more fuel." In addition, Dillingham residents have been using wood for heat and the weatherization program has helped rural Alaskans stretch their dollars.

4:00:01 PM

ANDREW GUY, President and Chief Executive Officer, Calista Corporation, spoke in support of HB 294, specifically for the provision to include commercial businesses. The Alaska Native Claims Settlement Act (ANCSA) corporations were formed 40 years ago to benefit shareholders and descendants, and to improve

socioeconomic standards. One of the best ways to do that is to start new businesses that provide jobs; however, it is very hard to start and operate a business in rural Alaska because of the cost of electricity. In his travels around his region, he sees people going to Bethel and Anchorage to shop, due to the higher cost of local goods. Mr. Guy said this is wrong and stops growth in the local economy. He urged consideration of HB 294 as it will help village corporations grow by lowering the cost of doing business. He expressed his belief that urban businesses have benefited from energy programs in the Railbelt, and rural Alaska deserves parity.

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HENRICH KADAKE SR, Mayor, City of Kake, said he whole-heartedly supports the bill because the population in Kake has decreased almost 45 percent - from over 900 residents to 510. The decrease in population is due to the small businesses in Kake that cannot operate because they cannot afford energy, and because houses are not kept warm. Ninety percent of the population lives on a fixed income, and even the tribal corporations cannot stay in business. Mr. Kadake urged the committee to support the bill saying, "it's a good thing for the people in the rural communities and Southeast too."

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ANDY VARNER, Executive Director, Southwest Alaska Municipal Conference (SWAMC), said SWAMC is the Alaska Regional Development Organization Region (ARDOR) representing Bristol Bay Borough, Lake & Peninsula Borough, Kodiak Island Borough, and the Aleutian and the Pribilof Islands. He expressed his appreciation to Representative Edgmon for introducing the legislation. One of the major objectives of SWAMC is to increase economic and business development in its region; however, rural Alaska is a challenging environment in which to operate a business. The high costs of energy, infrastructure, and long distances to markets combine to stifle economic development, particularly when the full cost of energy is passed on to consumers in a vicious cycle. Mr. Varner agreed that many businesses are on the verge of closing because of fuel costs, and observed that schools need to put their money into curricula. In times of high oil prices, the state "rides on the back of residents and businesses," and HB 294 is a good start to a conversation on the goal of keeping people in business in rural Alaska. He advised that PCE is critical to rural Alaskans - as are the other programs supporting energy efficiency,

renewable energy, and weatherization - but HB 294 would directly impact businesses.

[4:09:32 PM](#)

ROBERT VENABLES, Energy Coordinator, Southeast Conference, stated that Southeast Conference is the state's regional development organization for Southeast Alaska, and the federally recognized economic district. He thanked the legislature for its efforts to bring about the long-term improvements that are needed to develop regional and renewable energy resources that will diminish and displace the dependency on diesel fuel, as well as the need for PCE. At this time, however, communities have devastated economies and businesses are hurting in communities like Hoonah, and disappearing in communities like Angoon and Kake. In Southeast, the cost of operating schools continues to increase although federal support has diminished. The bill does not seek to establish a new program, but restores the original intent of PCE, and gives rural businesses a future. Mr. Venables said that HB 294 can help as everyone works for better long-term solutions.

[4:12:24 PM](#)

TARA BOURDUKOFYSY, Director, Human Services, Aleutian Pribilof Islands Association, Inc. (APIA), said APIA represents 13 of the federally recognized tribes in its region. Ms. Bourdukofsy supervises the federal Head Start, Administration for Children and Families, Department of Health and Human Services programs in Sand Point, St. Paul, Unalaska, and King Cove, and she introduced the Head Start coordinator. She said APIA is very encouraged by the bill and urged that it be moved forward.

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MARK WASIERSKI, Coordinator, Head Start, APIA, informed the committee of the importance of including Head Start programs as part of the school system in Alaska so PCE can be available to rural programs whether they are housed alone, within a school district, or are in another facility, such as a tribal community building. Rapidly increasing power costs have drastically impacted the Head Start program's ability to provide the basic program needs of health, safety oversight, and nutritional services, as money is diverted to pay for power costs of up to \$2,000 per month. The inclusion of Head Start programs into PCE will free money to more adequately provide for the basic required services that Head Start provides to Alaska's most

needy children. Mr. Wasierski expressed his full support of the bill and a return to the "1998 levels."

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ANGELA MORGAN, Executive Director, Middle River, Interior Rivers Resource Conservation & Development Council, Inc. (Interior Rivers RC&D), Natural Resource Conservation Service (NRCS), U.S. Department of Agriculture, and a representative of the Aniak Traditional Council, said Interior Rivers RC&D council represents eleven villages on the middle Kuskokwim River and four villages on the Yukon River. She said she was also speaking on behalf of the Aniak Traditional Council. One of the main goals of Interior Rivers RC&D council is to seek economic development for the villages, therefore, she expressed her support of HB 294, and the increase from 500 to 700 kW hours. Her region has also suffered from extremely cold weather, especially in the middle Yukon River and middle Kuskokwim River areas, and residents are having broken pipes and difficulties caring for their families and elders during power outages. Even with the current level of PCE, residents are paying over \$1,000 per month for fuel and electricity, and are worried about being disconnected for nonpayment of their bills. Ms. Morgan stressed that small businesses also need to be eligible for PCE, and acknowledged the past work by legislators that has helped the region.

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CO-CHAIR FOSTER said HB 294 would be held for further consideration.

[4:21:00 PM](#)

PRESENTATION: OVERVIEW BY COLD CLIMATE HOUSING RESEARCH CENTER

[4:21:25 PM](#)

CO-CHAIR FOSTER announced the next order of business would be a presentation by the Cold Climate Housing Research Center.

[4:21:24 PM](#)

JACK HEBERT, President and Chief Executive Officer, Cold Climate Housing Research Center (CCHRC), provided a PowerPoint presentation entitled, "Promoting and advancing the development of healthy, durable, and sustainable shelter for Alaskans and other circumpolar people." Mr. Hebert said CCHRC is a 501c3

nonprofit founded by the Alaska state homebuilding industry to find practicable solutions to the cost of power and the cost of energy. The work of CCHRC is more urgent, timely, and important now than ever. The Alaska Housing Finance Corporation (AHFC) supports the research at CCHRC in a big way, although it also seeks funding from other sources. The CCHRC headquarters in Fairbanks is a LEED Platinum certified building, and is considered to be the most energy efficient building at its latitude in the world. It was built at less than the cost of a standard commercial building, and uses approximately 50 percent less energy. He cautioned that shelter is a matter of physical and economic life or death in Alaska due to the issue of sustainability, thus CCHRC aggressively works on the outer envelope of a house, and also on indoor air quality, affordability, and on using programs that allow homeowner involvement in design and construction. Mr. Herbert recalled CCHRC was founded in 1999 and now has over 30 employees working on programs from Barrow to Hydaberg; it is a statewide organization with 50 active projects, many in rural Alaska. Although the urban areas are not neglected, the people living in areas in a "crisis mode" have led to the origination of CCHRC's sustainable northern shelter and communities program. He explained that the sustainable northern shelter and communities program is a process that begins with working with a local community - looking at the physical, environmental and economic resources available - and using indigenous wisdom with 21st century technologies. This process will "bring the good from the past into today and try to make it work." There are many problems when adapting to the present: the cost of energy, the cost of construction, and the fact that building a home in rural Alaska is not attainable for most families even though they have creativity and talent.

[4:29:35 PM](#)

MR. HEBERT warned that a partnership between housing authorities and rural and urban populations must move quickly to find answers to these issues. For example, the first prototype home was built three years ago in Anaktuvuk Pass, and was a collaborative effort with the residents there; in fact, the architecture of the home reflects the culture and lifestyle of the area. As building scientists, the goal of CCHRC was to deliver the materials for one house in a DC-6 and build it quickly with local labor. The house was greatly successful, whenever possible using local materials, local people, alternative energy systems, sustainable systems, and onsite water and waste water treatment to avoid the cost of connecting

with a utility. The house has a simple heating and ventilation system, has been occupied for three years, and uses 150 gallons of fuel oil per year to keep the entire house from 78 degrees to 80 degrees in winter.

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CO-CHAIR FOSTER asked whether earth "berming" is used all around the house.

MR. HEBERT explained that earth berming is used against the prevailing wind to prevent "drift." A refined design of the Anaktuvuk Pass prototype is now being used by the Tagiugmiullu Nunamiullu Housing Authority (TNHA) in five villages on the North Slope. In further response to Co-Chair Foster, he said the cost of a regular new house in Anaktuvuk Pass is \$750,000; the cost of the prototype was about \$300,000.

[4:34:16 PM](#)

MR. HEBERT, in response to Representative Petersen, said the prototype is 1,100 square feet, with three bedrooms.

MR. HEBERT, in response to Co-Chair Foster, said the house has an R-value rating of R-60, and is constructed with soy-based foam with no conductive surfaces to the outside. This design is specific to Anaktuvuk Pass, however, in other regions the same principles and approach are used; for example, on the North Slope it is not possible to berm earth over the house, so the house itself sits on an R-120 thermal rack that protects the permafrost.

[4:35:34 PM](#)

REPRESENTATIVE LYNN asked how the houses are protected from humidity inside the house.

MR. HEBERT explained the prototype uses a recirculating system with a heating element in the airstream of the heat recovery ventilator (HRV). The heater is small - 17,000 British thermal units (Btu) - and puts air into the airstream of the HRV. Instruments in the home indicate the level of CO₂, moisture, temperature, and occupant load in order to maintain a very healthy indoor air quality.

[4:37:06 PM](#)

CO-CHAIR FOSTER noted the low rate of oil consumption.

MR. HEBERT advised that the prototype was modeled to use 112 gallons of fuel per year, but the homeowner keeps the home very warm. He turned to the housing situation in Quinhagak, where over 30 percent of the homes are at catastrophic structural failure and are using 1,200 to 1,400 gallons of fuel oil per year. The prototype design, which was developed by the residents, was similar to a yurt - the shape of their traditional homes - and was very thermally efficient for this area and provided safe egress. The house also used a HRV system and a small Toyotomi heater. This prototype has used 170 gallons of fuel per year for the past two years with very good indoor air quality. Mr. Hebert observed that it is hard to demonstrate the work CCHRC does in rural villages, but a new project starting this spring on the site of the University of Alaska Fairbanks (UAF) will do so. The Sustainable Village at UAF, which will be built over the next ten years, will consist of four zero-energy homes per year that will be built with renewable and efficient systems in a village setting. Students will design and build the houses under a private sector model, meaning that the houses will be financed and paid for by the students who will be the anchor tenants. The village will demonstrate science and will allow for builders to conveniently "tinker with a prototype."

[4:42:42 PM](#)

MR. HEBERT stated that CCHRC is working on innovative solutions such as heat pump technology, solar-thermal strategies, and geopolymers. Another of these is the BrHEAThe System which is a combination high efficiency, long-rig truck heater, incorporated with a HRV, and that runs off a 12-volt battery producing great indoor air quality. There is also a study underway on passive refrigeration and how to use outside air to control the temperature in a refrigerator or freezer. Geopolymer concrete uses fly ash waste from the generation of electricity to replace Portland cement. For the first demonstration of its use in North America, CCHRC will use this product to build an addition to the research center. He advised this industry has great potential for Alaska because the material can be produced here for future dam construction. He pointed to the construction of a net-zero energy home in Fairbanks and added that the addition to the research center will have 50,000 gallons of thermal water storage for winter space heat.

MR. HEBERT turned to the subject of the power of information. The research center needs to publicize its programs along with all of Alaska's unmatched energy efficiency and retrofit programs. In fact, the follow-up on the effectiveness of the programs is of extreme interest internationally. Regarding the retrofit program, he estimated that if the retrofit program continues, and weatherizes all the homes in the state, the energy savings would equal the output of the proposed Susitna Dam. Energy savings also reduce the cost of the power cost equalization (PCE) program. He concluded that Alaskans can find creative solutions.

[4:47:09 PM](#)

ALAN WILSON, Chairman, Board of Directors, Cold Climate Housing Research Center, added the technologies and new materials from CCHRC projects are now being used in 50 percent of the new homes in Juneau, resulting in a 30 percent reduction in energy use.

REPRESENTATIVE LYNN asked whether some of these features can be used in desert areas to conserve air conditioning.

MR. HEBERT indicated yes, and added that the principles learned in an extreme environment can be applied globally.

REPRESENTATIVE PETERSEN asked whether CCHRC was obtaining patents on its new technology.

MR. HEBERT stated that because of the lack of resources, CCHRC intends to get its technology commercialized, and "have others take the ball."

The committee took an at-ease from 4:48 p.m. to 4:51 p.m.

[4:51:05 PM](#)

PRESENTATION: Progress Report on Lake Chikuminuk Hydropower Project

[4:51:29 PM](#)

CO-CHAIR FOSTER announced that the final order of business would be a progress report on Lake Chikuminuk Hydropower Project.

[4:51:37 PM](#)

CHRISTINE KLEIN, Chief Operating Officer, Calista Corporation; Representative, Nuvista Light & Electric Cooperative, Inc., said she would provide an update on the Chikuminuk Lake Hydropower project. Ms. Klein recalled last year her organization requested funding and support for a hydropower project in Southwest Alaska. The legislature made the project possible by appropriating \$10 million for the highest priority project in the Calista - Association of Village Council Presidents (AVCP) region. She introduced Ms. Brown, the new chief executive officer for Nuvista Light & Electric Cooperative ("Nuvista") who was hired in August 2011, after a nationwide search. Nuvista was formed with the mission to improve the energy economics of rural Alaska, and Ms. Klein said this project will "get us on our way." The nonprofit cooperative is made up of 12 board members from throughout the region as well as Alaska Village Electric Cooperative (AVEC), Yukon-Kuskokwim Health Corporation (YKHC), AVCP Regional Housing Authority (AVCP-RHA), Middle Kuskokwim Electric Cooperative, Chaninnik Wind Group, Lower Yukon Representative, AVCP, and Calista Corporation.

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ELAINE BROWN, Chief Executive Officer, Nuvista Light & Electric Cooperative, Inc., provided a PowerPoint presentation entitled, "Chikuminuk Lake Hydropower," dated February 2012. Ms. Brown informed the committee the project will impact 59,000 square miles, 56 villages - providing power to 14 villages - , and the Kuskokwim and Yukon Rivers. She said the population in the region is increasing by approximately 6 percent per year, thus the hydropower project is very important. Recently, Nuvista has reviewed approximately thirty-eight studies of the Yukon-Kuskokwim (Y-K) Delta area, seven of which focus on hydropower. Currently, Nuvista is working with the Alaska Energy Authority (AEA), Department of Commerce, Community & Economic Development, on a comprehensive region-wide energy study. Nuvista is also studying the lack of infrastructure linking communities in the Kuskokwim area. In fact, the Denali Commission has provided information on a proposed grid system. She observed that the population in the Y-K area is increasing in spite of high energy costs and the lack of infrastructure. Her region is looking for a permanent solution that will work with the power cost equalization (PCE) program, and which will address the cost of energy using wind, hydro, and interties, in order to displace five million gallons of diesel fuel used in the Kuskokwim area and save approximately \$32,500,000. The project would also eliminate about 55,000 tons per year of CO2 that are currently released. Slide 4 listed the cost of diesel and electricity in

the Y-K Delta. Ms. Brown pointed out that diesel fuel cost between \$6 and \$10 per gallon in 2011, and is expected to cost between \$7 and \$12 per gallon in the future. In the past, 15-20 percent of family income was used for home heating but now, 60-75 percent of family income is used for heating. In addition, each community has its own electricity generation plant, many of which are aging and in need of replacement. She cautioned that PCE is not a permanent solution. Ms. Brown called attention to slide 5 which was a graph showing electrical cost projections. In 2010, the cost of diesel fuel in the villages averaged \$.825 per kW hours, which was two times the cost of diesel fuel in Bethel, and the cost of electricity was three and one-half times the cost in Anchorage.

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MS. KLEIN added that the slide 5 graph illustrates that the 2005 projection was that the cost would be at \$.70 in 20 years; however, the reality is that the costs are off the graph now.

CO-CHAIR FOSTER asked whether PCE is included in the \$.825 average cost.

MS. KLEIN explained that PCE varies by area and by the amount consumed, but the average of \$.83 is with the subsidy.

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MS. BROWN continued to describe some of the conditions in Nuvista's region: village generators use 20 million gallons of diesel per year, which is one-third of state use; there is no infrastructure except for a few interties; and there are no transmission lines or roads. Nuvista has reviewed previous feasibility studies on coal, hydropower, and alternatives such as wind, bio-mass, and hydro. In coastal villages there is new interest in developing wind generation. Because of the \$10 million provided by the legislature, the Chikuminuk Lake Hydroelectric Energy program has begun its permitting process and licensing phase, and is ready to file its preliminary application to the Federal Energy Regulatory Commission (FERC). Environmental studies, preliminary engineering investigations, and public meetings will be held in the Bristol Bay and Calista Regions this summer. Slide 8 listed the actions completed on the Chikuminuk project: held community meetings in Bethel that resulted in the final choice of the Chikuminuk project; hired executive director and program manager; the Nuvista team - 100 percent Alaskan hire, 75 percent Native hire, and Yupik speaking

- is developing scopes, public meetings, and agency coordination; installed the Chikuminuk stream gauge with the U.S. Geological Survey, U.S. Department of the Interior; comprehensive energy plan underway integrating past and future work; and applied for grants to fund a regional intertie and grid system.

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MS. KLEIN pointed out that Ms. Brown and the Nuvista team are assisting communities with grant applications for federal funding and other available funding.

MS. BROWN continued, saying an engineering agreement was signed with Hatch Engineering in January 2012, and with nine subcontractors from Fairbanks, Anchorage, Wasilla, and Bethel. Slide 9 was a map of the Calista Region divided into subregions that showed existing interties, a proposed intertie, and wind turbines. Slide 10 illustrated the licensing/design/construction schedule for the Chikuminuk Lake hydro project. She said the first two or three years will be extremely busy with field studies, engineering, environmental, agency consulting, public meetings in Dillingham and the Calista Region, and in Anchorage meeting with agencies. The FERC license, final design, and construction begin in 2015, with the project operational in 2021. Slide 11 listed the planned activities for 2012: filing the preliminary FERC permit application; Department of Natural Resources (DNR) meetings on permitting; agency meetings; Wood Tikchik Advisory Council meetings; updates with the affected communities; joint public informational meetings in Anchorage and in the region; and preliminary engineering and dual field season reconnaissance work. Almost two years of field work will be combined into one season, including core drilling in Wood Tikchik to determine if the moraine walls will support the water and the dam. Slide 12 illustrated Chikuminuk Lake Project Phases and she advised that the \$10 million has funded the first phase including licensing activities; field geotech, environmental studies, preliminary engineering, investigations, and holding public meetings within the regions.

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MS. BROWN concluded that the schedule shows activities for the next 10 years. As an aside, she mentioned that the per capita investment in the Y-K Delta is \$17,262, as compared to \$16,200 per capita in the Railbelt.

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REPRESENTATIVE PETERSEN confirmed that the comparison was with the per capita cost of the Susitna River dam project.

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ADJOURNMENT

There being no further business before the committee, the House Special Committee on Energy meeting was adjourned at 5:13 p.m.