ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON ENERGY
March 22, 2012
3:08 p.m.

MEMBERS PRESENT

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

MEMBERS ABSENT

Representative Kurt Olson

COMMITTEE CALENDAR

PRESENTATION: POLARCONSULT - HVDC TRANSMISSION

- HEARD

HOUSE BILL NO. 323
"An Act relating to the Alaska energy efficient home grant fund; and creating a grant program for converting homes in regions designated as particulate matter nonattainment areas to efficient home heating systems."

- HEARD & HELD

PREVIOUS COMMITTEE ACTION

BILL: HB 323
SHORT TITLE: NONATTAIN AREA HOME HEATING SYSTEM GRANTS
SPONSOR(s): REPRESENTATIVE(s) T.WILSON

02/17/12	(H)	READ THE FIRST TIME - REFERRALS
02/17/12	(H)	ENE, FIN
03/06/12	(H)	ENE AT 3:00 PM BARNES 124
03/06/12	(H)	<Bill Hearing Postponed to 3/13/12>
03/13/12	(H)	ENE AT 3:00 PM BARNES 124
03/13/12	(H)	Heard & Held
03/13/12	(H)	MINUTE(ENE)
03/22/12	(H)	ENE AT 3:00 PM BARNES 124

WITNESS REGISTER

JOEL GROVES, P.E.
Civil Engineer
Polarconsult Alaska, Inc.
Anchorage, Alaska
POSITION STATEMENT: Provided a PowerPoint presentation entitled, "Low Power HVDC System for Rural Alaska Applications," dated 3/22/12.

REPRESENTATIVE TAMMIE WILSON
Alaska State Legislature
Juneau, Alaska
POSITION STATEMENT: Speaking as the sponsor, presented further information on HB 323 and answered questions.

JOHN ANDERSON, Program Officer
Weatherization
Alaska Housing Finance Corporation (AHFC)
Department of Revenue (DOR)
Anchorage, Alaska
POSITION STATEMENT: Answered questions during the hearing on HB 323.

ROSIE RICKETTS, Program Manager
Home Energy Rebate Program
Alaska Housing Finance Corporation (AHFC)
Department of Revenue (DOR)
Anchorage, Alaska
POSITION STATEMENT: Answered a question during the hearing on HB 323.

ACTION NARRATIVE

3:08:09 PM

CO-CHAIR LANCE PRUITT called the House Special Committee on Energy meeting to order at 3:08 p.m. Representatives Pruitt, Petersen, Saddler, and Tuck were present at the call to order. Representatives Lynn and Foster arrived as the meeting was in progress.

PRESENTATION: POLARCONSULT - HVDC TRANSMISSION

3:08:49 PM

CO-CHAIR PRUITT announced that the first order of business would be a presentation by Polarconsult Alaska, Inc. ("polarconsult"), on high-voltage direct current (HVDC) electrical transmission.

3:08:58 PM

JOEL GROVES, P.E., Civil Engineer, polarconsult, informed the committee he is the project manager for a research and development program to develop a low-power, HVDC transmission system for rural Alaska applications. Mr. Groves gave brief background information on polarconsult, saying his company is an Anchorage-based engineering consulting firm that has been in business since 1978 and has served over 200 municipal, private, and public sector clients statewide. Polarconsult specializes in affordable engineering and energy solutions for rural Alaska including all phases of the design, construction, and operation of small hydroelectric projects. He provided a brief history of HVDC. The first commercial power station in the world was a direct current generating and transmission system, however, in the 1880s, direct current was not a commercially viable technology, and alternating current became the system used to transmit electricity. In the 1950s, HVDC was used commercially in Europe, and today there are about 30 HVDC converter stations throughout North America, and over 100 in service worldwide. Mr. Groves advised that HVDC is a proven and affordable technology in its niche market, which is typically as a transmission system that can move a lot of power over long distances.

3:12:48 PM

CO-CHAIR PRUITT observed many of the existing HVDC transmission lines are underwater.

MR. GROVES said HVDC is well-suited to long-distance submarine cable applications.

REPRESENTATIVE PETERSEN asked how much power is lost when converting HVDC power back to alternating current (AC) after long distance transmission.

MR. GROVES responded that the loss associated with power converters is estimated to be 1 percent to 2 percent for a very large converter station. On small scale converters, there is a 3 percent to 4 percent per terminal loss, which must be factored into the overall economics of the power intertie.

3:14:29 PM

REPRESENTATIVE TUCK asked whether there is also line loss associated with direct current (DC) power.

MR. GROVES said yes; however, the line loss is typically lower than with an AC line. One of the reasons DC is well-suited for rural Alaska applications is by the use of a single-wire, earth-return circuit, which has an insulated cable or overhead line operating at high voltage, and the electrical circuit is completed through ground electrodes. This type of circuit is more efficient than a two-wire circuit because the net resistance of the ground is less than that of the second wire. Mr. Groves, in further response to Representative Tuck, said there is no concern with phases because it is a completely asynchronous intertie.

REPRESENTATIVE TUCK observed most power generation is AC. He asked if DC is used just for main transmission, or for distribution as well.

MR. GROVES advised that all DC applications are transmission. The majority of existing commercial DC applications are point-to-point power transmission, although there is currently industry research into multi-terminal DC networks.

REPRESENTATIVE TUCK then asked how large a facility is needed for power conversion from 50 kilovolts down to "distribution."

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MR. GROVES said a one megawatt power converter will fit inside a 12 foot x 20 foot enclosure. Returning to the presentation, he stated existing HVDC applications are for the large scale transfer of large amounts of power over long distances. In fact, the commercial range of existing HVDC converters goes from about 50 megawatts (MW) to 5,000 MW; in comparison, the peak load in the Railbelt is about 800 MW. One example of a HVDC application is the system from Three Gorges Dam, which is the world's largest hydroelectric facility and which moves thousands of MW of power hundreds of miles to China's coastal cities. In the U.S., there is the Pacific DC Intertie, which is a 3,100 MW intertie between the Columbia River and Southern California. In rural Alaska, however, loads are between hundreds of kilowatts (kW) and tens of MW, and existing commercial DC technologies are too large to be economic. Mr. Groves said, "That's where this project comes in, is where developing a much smaller - what we

call a low-power one MW - DC technology to try and capitalize on a lot of the benefits of HVDC and bring those benefits to rural Alaska markets and energy needs."

MR. GROVES pointed out that an HVDC intertie would cost less per mile than an AC line in rural Alaska, because an AC intertie requires three or four wires, and a DC earth-return circuit only needs a single or two-wire line. Fewer overhead wires require fewer structures, saving 20 percent to 30 percent on the cost of the power line. Furthermore, construction standards for overhead lines and support poles were developed in the Midwest, and do not work very well in rural Alaska because of shipping costs and geotechnical conditions such as permafrost and frozen slump. Steel piles must often be used to support power poles, also adding expense. Thus, the higher costs of the technical requirements of a DC intertie can become economic, because the installation cost is cut in half. Other benefits are the use of long-distance submarine cables and the use of fewer overhead wires, which is a benefit to migratory birds. Furthermore, HVDC systems have lower line losses and an asynchronous connection for the transfer of power. Some of the disadvantages of HVDC are: the converter stations are more expensive than AC transformers by a factor of ten; HVDC is strictly for transmission; converters have higher power losses than AC transformers; and HVDC one MW technology is a developing technology that lacks a performance record, has limited suppliers, and garners reluctance on the part of the utilities.

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MR. GROVES displayed slide 5, entitled, "Rural Alaska HVDC Economics (Cap. Cost)," that indicated generic cost estimates applicable to a challenging setting in the Bush for the construction of an AC intertie, a HVDC intertie of standard Rural Utilities Service (RUS), U.S. Department of Agriculture (USDA) construction, and a HVDC intertie of Alaska-specific design. The breakeven point for the overhead HVDC interties was between six and twenty-two miles. He advised that interties of lengths shorter than that are not good candidates for HVDC, but longer interties can be built with greater savings. Slide 6, entitled, "Rural Alaska HVDC Economics (Life Cycle)," indicated life cycle costs, taking into consideration that HVDC power converters have higher line losses and are very sophisticated, thus have higher operation and maintenance (O&M) and repair costs. Mr. Groves said on a life cycle basis, the breakeven point moves out between twelve and thirty-one miles.

3:28:32 PM

REPRESENTATIVE SADDLER asked why Alaska-specific construction is less costly.

MR. GROVES explained that Alaska-specific design allows for greater distances between poles, and the use of lighter poles, guy-wires, and unique foundations.

MR. GROVES displayed slide 7, entitled "Comparative Economics Low-Power HVDC vs. AC Interties," that indicated 30 percent savings over the cost of an AC intertie on a 25-mile, one MW overhead HVDC intertie, and 40 percent savings on a 60-mile, one MW overhead HVDC intertie. Furthermore, case studies have revealed 50 percent savings over the cost of an AC intertie on a 25-mile, two MW submarine HVDC intertie, and 30 percent savings on a 60-mile, five MW overhead HVDC intertie. He said this technology has profound cost savings for rural Alaska interties.

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REPRESENTATIVE TUCK asked for a comparison of the insulation qualities of AC and DC cable.

MR. GROVES explained that the nominal voltage of a DC line is its stated voltage, so a 50 kV DC line must be insulated approximately to the equivalent of a 34.5 kV AC line. In further response to Representative Tuck, he said the equivalent is about 40 percent less. There is an issue on overhead applications with exposed insulators, because a DC conductor has a static electric field that attracts contamination by dust and salt spray. Again to Representative Tuck, he said he was unsure whether birds land on a DC line, and offered to find out.

3:35:19 PM

MR. GROVES turned attention to a case study of a submarine cable from Green's Creek Mine to Hoonah. The estimated cost for a five MW DC cable and two MW power converters to serve Hoonah's existing load - with room for growth - was approximately $23 million, which is about one-half of the cost of an AC cable. In response to Co-Chair Pruitt, he said the project was discussed to a limited extent with the general manager of Hoonah's utility, Inside Passage Electric Cooperative (IPEC), however, polarconsult conducted the analysis as an independent conceptual cost estimate of pre-commercial technology in order to determine if the continued development of this technology is justified.

He said the results of the case study are "significant, to say the least." Another site-specific conceptual case study was on a line from the known geothermal resource at Pilgrim Hot Springs to Nome. If there were an economically feasible five MW resource developed at Pilgrim Hot Springs, a conventional AC overhead intertie to transmit the power to the market in Nome would cost about $37 million. A bi-polar overhead HVDC system would cost about $26 million, which is approximately a 30 percent savings. At this time there is no estimate on the cost of developing the geothermal plant, so there is no overall economic analysis of the power supply, and this is simply a comparison of the power intertie. Returning to the Hoonah system, he said if IPEC could buy electricity at six cents per kilowatt hour from Alaska Electric Light and Power (AEL&P), and displace diesel-generated power, the estimated cost-benefit ratio for the Hoonah project is approximately 0.6, and with an increased load the cost-benefit ratio would approach 1.

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MR. GROVES continued to discuss how less expensive interties help rural Alaska. For example, interconnecting power between villages would create the economies of scale that are necessary to reduce energy costs. In addition, interties allow for the consolidation of bulk fuel storage and the elimination of duplicate power plants. Larger plants serving larger loads through mini-grids would result in more efficient diesel generation, and combined loads allow for the cost-effective development of local energy resources. He described the possible cost savings from building larger hydroelectric resources because the cost of permitting is the same, and design, transmission, and access costs are similar, but the larger load will serve two to three villages instead of one.

REPRESENTATIVE SADDLER observed that polarconsult estimated AC interties cost $400,000 per mile to construct.

MR. GROVES said yes, this data was compiled from rural power lines that have been built in the last 10 years. Although not precise, those costs ranged from $200,000 to $600,000 per mile to build. In further response to Representative Saddler, he said the costs are high because of logistics and transportation problems that arise from working in permafrost and tundra regions where heavy equipment to build the line can only be used in the winter, but the equipment has to be barged up the summer before. So, expensive equipment is mobilized for one full year

in order to complete a two-month construction project. Also, the cost of shipping is high.

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MR. GROVES displayed slide 11, "Where do Economies of Scale Begin?," explaining that this is an analysis of the power cost equalization (PCE) database. Participating villages were organized by their amount of annual generation, with annual demand for 2007, 2008, and 2009, identified on the graph. He pointed out the graph shows that very small villages have extremely expensive electricity, and about 70 percent of the villages that participate in PCE generate between 40 kilowatts (kW) and 300 kW annually, and as the amount of generation increased, the residential price lowers by about 10 cents. In the section of the graph showing the largest communities - those that generate over 300 kW - there are no extreme high prices. He concluded that moving villages into "half a megawatt, one megawatt, two megawatt class[es], that's where you can expect to see some significant economies of scale."

3:49:14 PM

REPRESENTATIVE SADDLER surmised linking communities will lead to cost savings.

REPRESENTATIVE TUCK noted some villages have been able to lower their costs over the three reported years.

MR. GROVES advised the point of slide 11 is to look for general statewide trends.

There was discussion on the vagaries of the chart.

CO-CHAIR PRUITT pointed out the trend indicated was that costs in communities are going up.

3:52:02 PM

MR. GROVES acknowledged that some of the increases in costs in 2009 were a reflection of the increase in the global price of oil. Also, in some small villages, utilities have "postage stamp rates" which can skew the data, as can poor reporting. He returned attention to the HVDC project overview: Develop a low-power HVDC transmission system suitable for use in rural Alaska applications. From 2005 to 2007, polarconsult conducted an internal technology review to determine whether this type of

technology could be developed and - in 2007 - received funding from the Denali Commission to pursue preliminary design and feasibility analysis. This phase of the project was managed by Alaska Village Electric Cooperative Inc. (AVEC), and consisted of working with Princeton Power Systems Inc., to develop a prototype of the converter. From 2009 to 2011, Phase 11 prototyping and testing were funded by the Denali Commission and managed by the Alaska Center for Energy and Power (ACEP), University of Alaska Fairbanks (UAF). Phase 11 consisted of the successful construction, specification, testing, and design of a full-scale one MW prototype converter with two 500 kW modules. This phase proved the efficiency, functionality, and cost of the unit. On the intertie side, polarconsult found innovative overhead system designs and has determined that the system is technically viable, economically robust, and promises profound savings for rural Alaska interties. Therefore, polarconsult has applied for a grant from the Denali Commission emerging energy technology grant (EETG) program for Phase 111 of the project, which will consist of additional development on the converters, the definition of technical compliance standards, and safety testing. The converters will then be tested at ACEP in Fairbanks and following that, will be operated as a DC link on a utility system to prove the units under Alaska conditions. Sometime between 2015 and 2016, the technology will be mature, validated, and ready for commercial deployment.

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REPRESENTATIVE TUCK asked where the prototype was manufactured.

MR. GROVES said the hardware is in Princeton, New Jersey. In further response to Representative Tuck, he said the prototype is solid-state power electronics and the overall efficiency of the prototype converter is 96 percent to 97 percent, thus the 3 percent to 4 percent loss is heat that must be dissipated. To accomplish this, the 500 kW converter is housed in a low-voltage cabinet that is air-cooled, and in a high-voltage transformer tank that is cooled by passive convection.

4:01:43 PM

MR. GROVES further explained the one MW system consists of two 500 kW powertrains operating in parallel, and two low-voltage cabinets so, if there is a single point of failure, one unit will continue to transmit up to 500 kW of power over the intertie. If needed, repairs are not made on site, but bad units can be unplugged, airlifted out, and replaced.

4:04:06 PM

CO-CHAIR FOSTER asked what size village would be served by a one MW converter.

MR. GROVES said he was unsure, however, the peak load in Nome is 10 MW and the average load is 2 MW to 4 MW.

CO-CHAIR FOSTER advised that the population of Nome is 3,500 people and the average load is 3.5 MW.

MR. GROVES said a one MW converter system will serve 70 percent to 80 percent of all of the villages in the state. In fact, a 500 kW system will serve about 50 percent of the villages in the state.

REPRESENTATIVE TUCK asked whether the DC converter can also convert DC to AC.

MR. GROVES said this is a bidirectional system and the same equipment functions on either end of the system. The power flow on an intertie can be automatically or manually reversed. He displayed several slides showing the prototype unit.

4:10:54 PM

REPRESENTATIVE SADDLER asked for the life cycle of the system compared to that of AC lines.

MR. GROVES said the power electronics are designed for 50 years - which is comparable to an electrical intertie - with routine preventative maintenance. The control interface is expected to be replaced in five years, circuit boards are good for twenty-five years, and basic hardware has a fifty-year life.

MR. GROVES displayed slide 19 that was a photograph of the installation of micro-thermopiles at a foundation test site in Fairbanks. The micro-thermopiles are 1.5 inch in diameter and 25 feet long, and are a smaller version of those used on the overhead portions of the Trans-Alaska Pipeline System (TAPS), which freeze the ground and keep the foundation stronger in permafrost areas during summer. In response to Representative Saddler, he confirmed that the micro-thermopiles are thermal and structural, because they have a guy-wire structure. Slide 21 was a photograph of the first fiberglass power pole installed in Alaska. It was also the first spliced pole; spliced pole

technology will allow for the use of taller poles shipped in sections of standard 40-foot and 20-foot lengths.

4:17:21 PM

REPRESENTATIVE TUCK asked whether the thermopiles are drilled in the ground.

MR. GROVES explained a hole was drilled and backfilled with a sand and water slurry. At some point it may be possible to airlift all the equipment to the job site, which would allow for summer installation and save money. In further response to Representative Tuck, he described several methods to utilize poles depending on the type of circuit installed.

4:23:08 PM

MR. GROVES closed, saying polarconsult formed a Phase 11 stakeholders advisory group comprised of electric utilities and entities associated with the electric industry from across the state. Furthermore, some of the key team members on the project were experts from international, national, and local sources.

CO-CHAIR PRUITT asked whether the utilities are ready to accept this technology.

MR. GROVES advised that AVEC is supportive of the technology, but conservative in its implementation.

4:27:29 PM

The committee took an at-ease from 4:27 p.m. to 4:29 p.m.

HB 323-NONATTAIN AREA HOME HEATING SYSTEM GRANTS

4:29:27 PM

CO-CHAIR PRUITT announced that the next order of business would be HOUSE BILL NO. 323, "An Act relating to the Alaska energy efficient home grant fund; and creating a grant program for converting homes in regions designated as particulate matter nonattainment areas to efficient home heating systems."

4:29:39 PM

REPRESENTATIVE TAMMIE WILSON, Alaska State Legislature, informed the committee Fairbanks North Star Borough (FNSB) contains the

only U.S. Environmental Protection Agency (EPA) particulate matter (PM-2.5) nonattainment area in the state, since Juneau avoided this status by banning the burning of wood on certain days. She provided a map of the Fairbanks area that outlined the boundary of the nonattainment area - where the majority of people in the borough live - noting that Eielson Air Force Base is out of the area, but Fort Wainwright Army Base is within the area. Representative T. Wilson then responded to questions raised at a previous hearing, saying that other states have received EPA grants; in fact, Libby, Montana is a nonattainment area that received an EPA grant for a change-out program to convert wood stoves. Spokane, Washington has a state-funded program to convert non-EPA certified wood stoves. To answer the question as to whether an energy rater may be liable if his or her estimate was lower than the final cost of the conversion, she said someone can always be sued. The purpose of the program is to bring an energy rater in, not only to look at the oil-fired furnace and non-EPA certified wood stove, but also to discuss issues specific to the home such as the proper size of the wood stove or oil furnace. The rater will also identify other problems such as gaps in windows, insulation, and inefficient light bulbs, in a similar way to the Golden Valley Electric Association (GVEA) program. Representative T. Wilson stressed that this program is specifically designed to help those in the middle class who cannot qualify for, or have not participated in, the Alaska Housing Finance Corporation (AHFC), Department of Revenue (DOR), weatherization or energy rebate programs.

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REPRESENTATIVE TUCK understood that for a rebate program the homeowner pays for the work up-front and gets reimbursed after an inspection. He asked whether HB 323 provides for the vendor to perform the work and then turn in vouchers to AHFC for payment, up to $10,000.

4:34:09 PM

REPRESENTATIVE T. WILSON said correct. The intent of the bill is to help those without the up-front cash. She expressed her belief that the air quality in FNSB will improve, but EPA has forced this issue to be resolved by 2014. On 3/15/12, control measures for the nonattainment area were issued for public comment, and FNSB must submit a state implementation plan (SIP). The control package includes the expansion of existing programs which are: the use of dry wood, wood stove change-outs, AHFC

programs, and outdoor boiler retrofits. These programs are helping reduce emissions, but FNSB will not meet its goal without the change-out program or something similar "to help us out a little further." Most worrisome is that on high particulate matter days - that are also low-temperature days - wood burning would be banned in the borough.

4:37:04 PM

REPRESENTATIVE SADDLER asked for an explanation of the emission standards.

REPRESENTATIVE T. WILSON explained the relevant issue is that the wood stove change-out control program has reduced particulate matter 2.1 percent thus far. In further response to Representative Saddler, she acknowledged there was an increase in sulfur dioxide of 0.96 percent, which illustrated her frustration that taking care of one problem may increase another problem. Again to Representative Saddler, she said the control measures have reduced emissions by a cumulative total of 22.04 percent, which is a reduction of between 6.8 and 8.7 in micrograms per cubic meter. The goal is for a reduction of 11 micrograms per cubic meter.

REPRESENTATIVE T. WILSON continued, saying the 2/9/12 draft proposed rules are out for public hearings, demonstrating that FNSB is going down the right road by educating residents on proper burning procedures. In addition, EPA will tighten emission standards on new wood stoves, wood pellet stoves, hydronic heaters, new camp stoves, and new cook stoves. Representative T. Wilson concluded that HB 323 was drafted to address nonattainment areas because other statewide programs may not help FNSB residents, and because these expensive upgrades may only be in effect for five or six years until gas is available.

4:42:30 PM

CO-CHAIR PRUITT acknowledged that it is unknown as to the future of power generation in the Interior due to changes in state policy. He asked, "What would be expected [in five years] by the ... people of Fairbanks, where would they be?"

REPRESENTATIVE T. WILSON related that EPA has set a number without providing modeling or guidelines for attainment. The Department of Environmental Conservation (DEC) and FNSB are trying to figure out what is needed to reach that number. She

said there are no guarantees that the control measures will be sufficient to comply with EPA standards. Representative T. Wilson opined the best solution is for the state to ask EPA to wait for gas to come to the downtown area of Fairbanks, but that is not the administration's chosen option, due to the importance of federal transportation funding to the northern region. In response to Representative Saddler, she explained that if compliance is not met, EPA can recall millions of dollars of transportation funding. Therefore, FNSB must show a good faith effort, averaged over 2012, 2013, and 2014.

4:46:37 PM

REPRESENTATIVE SADDLER asked why EPA is resistant to providing funding for compliance, as it has in other states.

REPRESENTATIVE T. WILSON said the money for that program is gone.

CO-CHAIR PRUITT, returning attention to facets of the bill, asked why it was written to allow for grants, instead of loans, for portions of homeowners' costs.

REPRESENTATIVE T. WILSON said the intent was to follow the guidelines of the rebate program, and to focus on replacing the appliance that would make the most difference.

REPRESENTATIVE PETERSEN asked whether residents have been encouraged to buy propane heating devices, which are more easily converted to natural gas.

REPRESENTATIVE T. WILSON observed propane costs more than oil.

CO-CHAIR PRUITT asked what impact Fort Wainwright Army Base has on the situation.

4:49:10 PM

REPRESENTATIVE T. WILSON advised that all projects and expansions in Fairbanks now require special permitting to verify that construction and such would not negatively impact air quality. In response to Co-Chair Pruitt, she said the borough changed from number two heating fuel to number one heating fuel, but there was no substantial change in air quality. Within the city, there is district heat, gas, wood fuel, and oil fuel. Because of inversion, pollution from the power plants and commercial buildings is higher in the clouds. Residential wood

smoke from shorter chimneys is lower and is more often registered by the EPA monitors. In addition, as more certified wood stoves are being used, on very cold days wood smoke levels stay high. She compared the problem to that of air pollution which was improved by auto emission controls. Fairbanks is a bowl with very little wind, and the pollution settles on the town.

REPRESENTATIVE PETERSEN recalled other legislation for the home energy rebate program that tried to create a voucher system but the contractors would have to wait 45 days to 60 days to get reimbursed. He asked whether the bill would have similar problems.

REPRESENTATIVE T. WILSON this is a simpler program - one item, the appliance - one check. If vendors say no, no money will be spent.

4:56:34 PM

JOHN ANDERSON, Program Officer, Weatherization, AHFC, advised that the previous voucher idea created an unmanageable process due to the volume of suppliers in the state, however, because this program addresses specific mechanical appliances, it would be more manageable.

REPRESENTATIVE SADDLER asked for the balance of the home energy efficiency grant fund.

4:57:35 PM

ROSIE RICKETTS, Program Manager, Home Energy Rebate Program, AHFC, said the balance is approximately $64 million.

REPRESENTATIVE SADDLER asked what the cost would be to provide $10,000 grants for enough new stoves to reduce pollution sufficiently so that Fairbanks can reach attainment.

MR. ANDERSON estimated 10,000 units at $10,000 each would be equivalent to $100 million.

REPRESENTATIVE T. WILSON pointed out the program would only have whatever funding is allocated by the legislature. Furthermore, the grants are for an amount up to $10,000, and most wood stoves cost much less than that, ranging in price from $2,500 to $3,500. In fact, only oil furnaces older than 1990 would qualify for a replacement cost of $10,000. She stressed that

the program would be "first come, first served," and urged for the initial funding of the program to be $1 million. In further response to Representative Saddler, she said it is hard to know what investment would be necessary to reduce emissions to reach the standard, because the modeling is not done, but more information should be available from DEC by this summer.

REPRESENTATIVE PETERSEN questioned whether $1 million allocated to replace 100 stoves would result in enough of a reduction to attain the goal of the bill.

REPRESENTATIVE T. WILSON said the number of old oil furnaces in use is unknown, and replacing them may cost $10,000 each. However, replacing wood stoves will cost from $3,000 to $3,500 each because the grant will only replace the appliance and not the chimney and other parts.

5:02:20 PM

REPRESENTATIVE SADDLER was interested in a way for the state to recover some of the cost, perhaps by a lien that is paid when the home is sold.

REPRESENTATIVE T. WILSON pointed out that the weatherization program to upgrade homes does not require repayment, nor does the rebate program. The benefit to the state is that it will not lose its federal transportation funding. She acknowledged there are other programs, but oil furnaces have not been addressed. Fairbanks tests the air every day and will know if the program is working in a specific area, and the test results are provided to EPA. The program is limited by close parameters in order to target the dirtiest sources of pollution. Although the income qualifications for other assistance programs seem high, the average cost of heat and electricity in the Interior is from $700 to $1,000, and many residents don't have the extra cash for improvements because of the cost of energy.

5:05:40 PM

CO-CHAIR FOSTER agreed with funding the program for $1 million the first year. He suggested there should be a priority for the dirtiest appliances.

REPRESENTATIVE TUCK clarified that the intent of the previous voucher energy rebate program was to pay the homeowner, not individual vendors, which was objected to by AHFC.

5:07:03 PM

CO-CHAIR PRUITT held over HB 323.

5:07:22 PM

ADJOURNMENT

There being no further business before the committee, the House Special Committee on Energy meeting was adjourned at 5:07 p.m.