

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

Fairbanks, Alaska

June 17, 2009

5:03 p.m.

**MEMBERS PRESENT**

Representative Bryce Edgmon, Co-Chair  
Representative Charisse Millett, Co-Chair  
Representative Nancy Dahlstrom  
Representative Jay Ramras  
Representative Pete Petersen  
Representative Chris Tuck

**MEMBERS ABSENT**

Representative Kyle Johansen

**OTHER LEGISLATORS PRESENT**

Representative John Coghill  
Representative David Guttenberg  
Representative Scott Kawasaki

**COMMITTEE CALENDAR**

STATEWIDE ENERGY PLAN

- HEARD

HOUSE BILL NO. 218

"An Act establishing and relating to the Department of Energy and to the board of directors of the Alaska Energy Authority; transferring the Alaska Energy Authority and the Alaska Natural Gas Authority to the Department of Energy; and transferring the home energy and weatherization program to the Department of Energy."

- HEARD AND HELD

HOUSE BILL NO. 219

"An Act relating to the renewable energy grant fund."

- HEARD AND HELD

**PREVIOUS COMMITTEE ACTION**

BILL: HB 218

SHORT TITLE: CREATING DEPT OF ENERGY/AEA BD

SPONSOR(S): ENERGY

04/06/09 (H) READ THE FIRST TIME - REFERRALS  
04/06/09 (H) ENE, FIN  
05/29/09 (H) ENE AT 1:00 PM Bethel  
05/29/09 (H) Heard & Held  
05/29/09 (H) MINUTE(ENE)  
06/17/09 (H) ENE AT 5:00 PM Fairbanks

BILL: HB 219

SHORT TITLE: RENEWABLE ENERGY GRANT REQUIREMENTS

SPONSOR(S): ENERGY

04/06/09 (H) READ THE FIRST TIME - REFERRALS  
04/06/09 (H) ENE, RES, FIN  
05/29/09 (H) ENE AT 1:00 PM Bethel  
05/29/09 (H) Heard & Held  
05/29/09 (H) MINUTE(ENE)  
06/17/09 (H) ENE AT 5:00 PM Fairbanks

**WITNESS REGISTER**

HAROLD HEINZE, Chief Executive Officer (CEO)  
Alaska Natural Gas Development Authority (ANGDA)  
Department of Revenue (DOR)  
Anchorage, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

MARY ANN PEASE, Contractor  
to the Alaska Natural Gas Development Authority (ANDGA)  
Department of Revenue (DOR)  
Anchorage, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and 219.

GWEN HOLDMANN, Director  
Alaska Center for Energy and Power (ACEP)  
University of Alaska Fairbanks  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

KATHERINE KEITH, Wind-Diesel Coordinator

Wind-Diesel Applications Center (WiDAC)  
Alaska Center for Energy and Power (ACEP)  
University of Alaska Fairbanks  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

TOM STAUDENMAIER  
Anchorage, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

INGEMAR MATHIASSEN, Energy Coordinator  
Northwest Arctic Borough  
Ambler, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

DAVID GARDNER, Vice President  
Marketing & Member Services  
Golden Valley Electric  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

GARY NEWMAN  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

JESSIE PETERSEN, Director  
Issues and Energy  
Northern Alaskan Environmental Center (NAEC)  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

RICHARD SEIFERT, Professor/Energy and Housing Specialist  
Health, Home & Family Development  
Cooperative Extension Service  
University of Alaska Fairbanks  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

JEFFREY WERNER, Research Professional  
Natural Resources and Agricultural Sciences

University of Alaska Fairbanks;  
Director  
Future Farmers of America (FFA)  
University of Alaska Fairbanks  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

DAN RAYNES

Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

DOUGLAS B. REYNOLDS, Ph.D., Professor  
Economics  
School of Management  
University of Alaska Fairbanks  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

MARY WALKER, Project Coordinator  
Alaska Interface Power and Light (AIPL)  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

BOB BEACH

Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

GREG EGAN

Remote Power, Inc.;  
Solar Wind Consultants  
Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

DEREK PRICE

Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

MERRICK PIERCE

Fairbanks, Alaska

**POSITION STATEMENT:** Testified during the hearing on HB 218 and HB 219.

**ACTION NARRATIVE**

[5:03:01 PM](#)

**CO-CHAIR CHARISSE MILLETT** called the House Special Committee on Energy meeting to order at 5:03 p.m. Representatives Petersen, Dahlstrom, Tuck, Ramras, Edgmon, and Millett were present at the call to order.

Statewide Energy Plan

HB 218-CREATING DEPT OF ENERGY/AEA BD

HB 219-RENEWABLE ENERGY GRANT REQUIREMENTS

[5:03:11 PM](#)

CO-CHAIR MILLETT announced that the only order of business was the discussion on a statewide energy plan as it relates to HOUSE BILL NO. 218, "An Act establishing and relating to the Department of Energy and to the board of directors of the Alaska Energy Authority; transferring the Alaska Energy Authority and the Alaska Natural Gas Authority to the Department of Energy; and transferring the home energy and weatherization program to the Department of Energy." and HOUSE BILL NO. 219, "An Act relating to the renewable energy grant fund."

[5:03:56 PM](#)

CO-CHAIR MILLETT reviewed the bills before the committee. She related that HB 218 would create a Department of Energy in Alaska. She noted that the committee has heard during its meetings throughout the state that there is a need to centralize the state's energy policy to make it a more user-friendly system. Co-Chair Millett reviewed that HB 219 would serve as a clean-up bill for House Bill 152 - a renewable energy bill passed two years ago. The proposed legislation would allow energy projects to be fully funded and supported, as well as adding an economist to review those projects to ensure they are financially sound.

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CO-CHAIR EDGMON remarked that as a rural legislator, he is familiar with the challenges in not only coping with, but also finding solutions to, the energy problem the state is currently

facing. He noted that a rally held in Fairbanks earlier in the year helped set the tone for much of what is happening in the legislature now. He stated that although he does not want to make light of the dwindling gas supply issue in Southwestern Alaska, he is pleased that the energy crises in rural Alaska and Fairbanks is a "front burner issue" in the legislature right now.

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CO-CHAIR MILLETT had each legislator present state his/her district, then she reviewed the process by which the committee would hear testimony.

[5:09:37 PM](#)

HAROLD HEINZE, Chief Executive Officer (CEO), Alaska Natural Gas Development Authority (ANGDA), Department of Revenue (DOR), complimented the committee for its efforts in traveling around Alaska to hear residents voice their concerns about energy. He said there is no silver bullet solution, but rather a number of ideas and solutions will need to come together. He said ANGDA's concern has been, "How do you keep working on several different things simultaneously?" He said ANGDA is currently working on propane from a North Slope facility, which is in reaction to the price of oil jumping to \$140 a barrel. He stated his belief that there is opportunity to generate sizeable propane supplies from the plentiful supply on the North Slope, and to do so within a couple years, which would affect Fairbanks, the river and maritime communities, private users, and industrial utility users.

MR. HEINZE said even though ANGDA is a political subdivision of the state, it has enough "business roots" that its focus today is on the private sector. He expressed ANGDA's hope that whatever the legislature does, it does not lose sight that it is the private sector that motivates what is done. He said there is nothing wrong with the government helping to facilitate and play a positive and supportive role; however, it will be the private sector which has the influence.

[5:12:44 PM](#)

MARY ANN PEASE, Contractor to the Alaska Natural Gas Development Authority (ANDGA), Department of Revenue (DOR), told the committee that "this propane project" could be up and running within two years, delivering propane to many rural communities.

She suggested that propane could be used as a "bridge fuel." She said the project was first envisioned to come down the planned natural gas pipeline, with compressor stations every 75-100 miles to extract the propane. The increased price of diesel fuel - in some places up to \$7 a gallon - has created a compelling need for alternative solutions that can be implemented within two years. She stated that propane will eventually be a long-term opportunity for Alaska, because even after the construction of a gas pipeline, there will be a lack of alternative energy to diesel in many of the state's mining operations. Propane is available on the North Slope and is cost effective. She talked about having an open-access propane facility on the North Slope, where there are opportunities for barging on the Bering Sea, trucking on the Haul Road, and shipping on the Yukon and other rivers.

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MS. PEASE said "this chart" clearly shows the difference between the Prudhoe Bay technical extraction and what the private sector opportunity is "outside of that fence." She said ANGDA's role ends at a metering facility, and it is at that point where the private sector needs to build the gas extraction facility, the distribution system, the storage facility, and provide trucking to "bring it to those points as an alternative to what they're delivering today." She talked about a conference that was held today, during which participants expressed an interest in "reviewing this further."

MS. PEASE discussed critical "next steps." First, she related, it must be determined what an industrial load is, because that will make the economics more viable. She spoke of the potential conversion of, for example, Golden Valley Electric Association's "LN 6,000s." She mentioned there are other associated private sector opportunities, as well. Ms. Pease said during ANGDA's lunch presentation several "financing giants" gave presentations, including Macquarie group, First Southwest Company, and J.P. Morgan. The themes covered included: public/private partnership, public sector financing, and bonding opportunities. "All of these factors will work together to deliver what is a very cost-effective solution for Alaskans," Ms. Pease stated.

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MS. PEASE reported that the producer with which ANGDA has been communicating has requested a detailed technical review. She

indicated that NANA Worley Parsons, an expert on the North Slope, presented initial findings, and subsequent reports are expected soon. The producer company also requires an economic sustainability model, which shows that ANGDA has assessed the demand of a "base load customer," as well as some villages and communities. Ms. Pease said, "When that is done, we could finalize the term and volume agreement."

MS. PEASE reiterated that "this propane opportunity" is a bridge solution. She explained that once natural gas sales are commercially available from the North Slope, "this project in its current form will morph." Currently, the propane is captive on the North Slope, and it is possible to "sell those molecules as long as there's not a market price available for them." She offered a conservative estimate that commercial gas will be flowing in 10-12 years.

5:19:16 PM

MS. PEASE stated that ANGDA is acting as facilitator and has negotiated terms that would deliver "an extremely favorable propane molecule in this wholesale facility." The forecasted price is about one-twentieth on an MMBtu basis of the price of oil, and that price is critical, she said. The next step is to ensure there is a private sector interest and commitment. She indicated that ANGDA would like to communicate with the committee and the conference participants within the next 30 days.

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MS. PEASE, in response to Co-Chair Edgmon, reviewed that the purpose of the aforementioned conference was to engage Alaskans in the discussion of using propane as a bridge fuel, to demonstrate the project could be up and running within a two-year period, to show that the price point of propane is compelling as an alternative fuel, and to whet the appetite of the private sector.

5:21:19 PM

MR. HEINZE used Golden Valley Electric as an example of an entity that is not an efficient user of an oil-based product, but potentially would be an efficient user of gas. He noted that Scott Goldsmith, in his analysis, looked at the Fairbanks residents who use fuel oil to heat their homes. He indicated that the advantage of switching to propane may present itself

more quickly for some users than for others. He said Red Dog Mine was present at the conference and may find that the most efficient way to fuel itself is through the use of propane. With any gas pipeline, there will be tremendous activity exploring for and developing gas. Currently, diesel fuel is being used to generate the equipment used for that exploration, but using propane instead may be one of its best uses, he said. Mr. Heinze stated there is not one case for which propane would not be extraordinarily attractive should oil reach \$140 a barrel.

5:24:02 PM

REPRESENTATIVE RAMRAS shared that he was a propane user for 20 years, but switched to gas. He said that propane "gels" at minus 42 degrees Fahrenheit - just when it is needed most. He said he has found natural gas to be a superior feed stock with a more reliable price. He said one of the problems with diesel is that it is delivered by barge once a year, at which point the price is set. He questioned whether [propane] would be delivered throughout the year, whether it would be tied to a commodity price, and how it would be prevented from liquefying.

MR. HEINZE responded that ANGDA has proposed making Arctic-grade propane in Prudhoe Bay, which would have a little more ethane in it and would continue to gasify at colder temperatures. He said propane is coming from Canada, and it is priced in a way that is directly tied to the oil refinery side of the business. Furthermore, there is a long delivery route, which makes the transportation cost high. He said he does not think anyone is ripping off the state, but he expressed his disappointment that there is no competition. Mr. Heinze said ANDGA anticipates a discount in the pricing point on the North Slope as compared to any oil price historically. Second, he stated, "If the transportation system can take advantage of the closeness, the logistics, and everything else, we believe it can be very competitive." He related that Scott Goldsmith, based on yesterday's oil price of \$67 a barrel/\$61 North Slope Crude, calculated a delivered price in Fairbanks of \$1.16. He added that that price was based on Mr. Scott's estimates of the capital requirements, as well as buying the raw molecules. He continued as follows:

Now, that's a pretty healthy margin over what we would see as a competitive price with, say, fuel oil, or even naphtha derived from \$67 a barrel oil. That's probably at least close to a dollar good on the

margin. And that is a lot of room for both profit and for passing on a savings to the consumer ....

We think it's going to take new pricing cost model: the realities of how you buy it, when you buy it - all those types of things. We had a number of people at the conference today who pointed out that the smart move was to get ... a big "pickle tank" - not these ... 100-pound bottles, but at least maybe a couple hundred-gallon tank - and fill it every year or two years so you could kind of annualize the price and maybe avoid some of the month to month instability.

MR. HEINZE said ANGDA believes that if [propane] is available, plentiful, and reasonably priced, then it has a chance to be an alternative solution. He clarified that ANGDA is not proposing the state decide between propane and fuel oil, but is suggesting that a person who presently uses wood to heat his/her home, for example, add a propane stove. That way, the person has a choice of which method to use. He suggested that may be a good strategy for many Alaskans in the long term, if propane is readily available.

[5:31:00 PM](#)

REPRESENTATIVE RAMRAS said he believes natural gas is the long-term solution, but said he is pleased this discussion about bridge fuel is taking place. He stated that there is not enough demand in Fairbanks to justify building a pipe that would serve only Fairbanks; the city requires the Anchorage market. Likewise, he stated his understanding that in order for there to be economical propane available to rural Alaska, Fairbanks needs to be a hub user of propane. He said a stated timeline for a natural gas pipeline is five years, while Mr. Heinze has said it would take two years to deliver propane as a bridge feedstock. He queried, "So, that would leave three years, and then what happens to rural Alaska and what happens to the investment in the propane manufacturing infrastructure if that demand goes away by 50 percent after the first couple years?"

[5:33:35 PM](#)

MR. HEINZE said ANGDA's early focus has been on Golden Valley Electric, because "anything you do to help them ... helps everybody." He stated, "They are of a size of us that if they alone wanted to go to propane, then that gives you the economy of scale right there." He continued:

For instance, we've looked at Red Dog Mine, who is not going to quickly enjoy the relief of anything other than what can be barged to them, frankly, for a number of years - maybe decades. ... Propane use there, for instance, is not as much as Golden Valley, but it's a large fraction of it. We have made no assessment at this point of the use on the North Slope, for instance. And it may turn out that use - just on the basis of gallons of diesel - turns out to be even a bigger number than what we're talking about here in the Fairbanks area.

... So, on the one side, I think our focus has clearly been that the Fairbanks market - in particular, Golden Valley - and the heating market here is an important element to include; but if it's not available, there are other people who will not be served by any gas line that still may represent more than a enough load to move the project forward.

MR. HEINZE said part of the reason for today's aforementioned conference was to round up all the players to find out who is really interested in receiving gas, "because then we could start in the form of propane and start to work with it." He continued:

Certainly it is not lost on us that any gas pipeline passing near this area provides an opportunity to feed into Fairbanks natural gas. Certainly we're aware that they proposed an LNG project from the North Slope. But certainly we also know that in most of the United States there are times when propane air is introduced into natural gas distribution systems, and it functions just like methane. And all those potential trade-offs are there.

The definition out of this project will be whether there is a long-term source of propane. At the level of 2,000 barrels a day - 2,500 barrels a day of propane - if that endangers the instate system, then I would just simply say to you the instate system is not robust enough to move forward ... - it is at too high a risk.

[5:36:28 PM](#)

MS. PEASE added that the assessment of this opportunity is best ascertained by the business considering the use of propane as an alternative. She said the people who run the Red Dog Mine are savvy and are going to review their numbers - currently \$17 million a year for fuel, which translates to approximately \$4.05 a gallon - to figure out what the cost would be to put in the mine's own gas extraction facility. The project provides an alternative, and the business community can assess whether or not propane use is economical. Ms. Pease stated that it does make sense to "have an industrial load," because without it, "using the very small communities along the Yukon/Kuskokwim for the first phase of this is not going to make that much sense."

[5:37:45 PM](#)

REPRESENTATIVE TUCK spoke of the currently monopoly of one or two diesel fuel suppliers to rural Alaska communities, and he asked how more competition between providers of propane could be fostered.

MS. PEASE answered that just by having propane available as an alternative will create a more competitive market. She explained that she thinks having the feedstock at a price that is comparable or less than the price of that which is imported from Alberta, Canada, or Seattle, Washington, will result in "more players in the market."

[5:39:13 PM](#)

MR. HEINZE added that one of the strong reasons for ANGDA's involvement is that it will ensure that there is "an open access wholesale facility." The project will be a private sector effort, but ANGDA believes that the competition that is intrinsic to the free enterprise system is the best way to have competitive pricing.

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REPRESENTATIVE TUCK said he is having a difficult time imagining any entity other than Crowley being able to deliver the propane to the communities, because that company is already so well established both in providing diesel and containers. He reiterated his desire to see competition in terms of the delivery of both diesel and propane to communities.

[5:40:47 PM](#)

MR. HEINZE responded that Crowley is a fine provider, but it would defeat ANGDA's purpose to make that company the only provider of service. He noted that propane containers can be moved on barges, and various communities could own those containers, for example. He stated, "If you can get some diversity of those, we believe you can create a competitive situation out there." That competition will have an impact on the pricing and availability of diesel, as well, Mr. Heinze said, which "will not go away."

[5:41:35 PM](#)

REPRESENTATIVE COGHILL asked Mr. Heinze to help the committee understand the equivalent of propane to diesel.

MR. HEINZE replied that there are a lot less Btus in propane than in fuel oil or diesel. In a circumstance where fuel oil is priced at \$3 a gallon, it would make sense to charge around \$2.50 for the same amount of Btus of diesel and approximately \$2 for the same amount of propane. He clarified that the consumer would pay less for propane per gallon, because its Btu content is less. He emphasized that the price of diesel and fuel oil is driven directly by the price of oil. He continued:

If it's \$35 oil, I can advise you right now: please stay with your fuel oil system, okay? If it's \$70 a barrel, you might want to think about some alternative if you haven't already turned the thermostat down a lot already. And at \$140 a barrel, you better be looking for something other than a fuel oil/diesel-type product to burn if you can.

MS. PEASE emphasized the importance of considering the carbon footprint. Propane is an extremely clean burning fuel, she noted, and for Fairbanks, with its tendency to not meet air quality standards during each winter, having alternative fuels to use is critical.

[5:44:12 PM](#)

REPRESENTATIVE COGHILL remarked that in Alaska, the road system and off-road system have different dynamics. He surmised that delivery of propane to market on the road system could be consistent. Regarding the off-road system, he said huge amounts of money have been put "into infrastructure for storage." He asked, "Have you got a model that shows what the new investment

is going to be and what the divestment of the other is going to be, so that the Btu equivalent somehow balances out?"

MR. HEINZE responded that the delivery and storage system have to be one in the same.

[5:46:02 PM](#)

MS. PEASE noted that another benefit is the substantial differential in the cost of insurance and bonding associated with the transport of propane versus diesel. She reiterated that propane is not a replacement fuel, but an alternative fuel.

MR. HEINZE told the committee that one of the people [at the aforementioned conference] presented that the least expensive energy idea that has been brought forth in Alaska is to use a hybrid of propane and wind. When the wind is blowing, the propane engine does not run; the propane turns on automatically when the wind energy decreases beyond a certain point.

[5:47:13 PM](#)

CO-CHAIR MILLETT reminded everyone that the cheapest energy available is the energy that is not used.

[5:47:20 PM](#)

REPRESENTATIVE RAMRAS pointed out that saying a propane and wind hybrid is the least expensive does not demonstrate consideration of the upfront capital costs of building such a system. He said there is no easy solution, and he emphasized that it is important not to make every community think it can have wind and propane power when presently they are using diesel. Dumping that capital cost on 200 communities, for example, would burden the state.

[5:48:20 PM](#)

CO-CHAIR MILLETT said Representative Ramras has a good point. She noted that the committee has been talking with the Denali Commission about its tank farm diesel upgrades across the state. That entity has put a lot of state and federal money into those new tank farms. She indicated that it is worth questioning when the state should stop capital infrastructure build up for diesel fuel and begin supporting propane use, and whether it is a reality to support all methods. She said there are a lot of

interesting ideas, including the need for transmission upgrades. She stated that the committee hopes to hear more from ANGDA.

5:49:15 PM

CO-CHAIR MILLETT announced that the committee would hear testimony from the Alaska Center for Energy and Power.

5:49:25 PM

GWEN HOLDMANN, Director, Alaska Center for Energy and Power (ACEP), said ACEP does research involving fossil and renewable resources, and its focus is on technology, as well as resource and economic evaluation of "near-term opportunities for Alaska." One of those opportunities is to develop a "wind-diesel system." Ms. Holdmann said this is an area in which Alaska has the opportunity to further its role as a world leader. She stated, "One of the challenges with this type of technology is that we have a lot of different people going in a lot of different directions." She said the University of Alaska can play the role of a coordinating entity to provide the information people need to make smart decisions and put good projects together in the state.

MS. HOLDMANN relayed that ACEP has developed and organizes the Wind-Diesel Applications Center - a partnership comprised of a number of different entities. She introduced Katherine Keith as the coordinator of the center. She noted that Ms. Keith is from the City of Kotzebue and "worked on" the Kotzebue Electric Association - currently the leading system in the state.

5:51:06 PM

KATHERINE KEITH, Wind-Diesel Coordinator, Wind-Diesel Applications Center (WiDAC), Alaska Center for Energy and Power (ACEP), University of Alaska Fairbanks, stated that wind-diesel technology can be a solution to high energy costs for over 116 communities, [as shown on the second slide of page 1 of Ms. Keith's handout to a slide presentation]. She indicated that the map on the slide was compiled by the Alaska Energy Authority (AEA). The map also shows that there is a potential for up to 240 megawatts (mWh) of "installed wind."

MS. KEITH emphasized the importance of analyzing the past, and she said Alaska is fortunate to be able to analyze the past performance of existing systems, including those systems in the City of Kotzebue, the City of Toksook Bay, the City of Wales,

and the City of Savoonga, for example. She relayed that there are 35 proposed wind projects - many of which are wind-diesel affiliated.

MS. KEITH said wind-diesel systems are classified as low, medium, or high, [as shown on the second slide on page 2 of the handout]. The more wind on the system, she explained, the more diesel will be saved. However, as the wind on the system increases, so does the complexity of the system, and, thus, the capital cost. The goal in using a high penetration wind-diesel system, she said, is to be able to shut off the diesel. She stated, "Internationally this is recognized as the next generation wind diesel system."

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MS. KEITH related that Alaska has three systems which could be considered high penetration, and they are located in the City of Wales, the City of Saint Paul, and the City of Savoonga. The system in the City of Wales was installed in the 90s and uses energy storage and a secondary load - a boiler. The City of Saint Paul's system does not use energy storage, but does use a boiler. The City of Savoonga does not shut down its diesel, but is able to "see penetration of over 75 percent wind on the system at any one point," which Ms. Keith said she thinks is a major accomplishment. She relayed that one of the challenges of high penetration wind-diesel systems is that the power stability - frequency and voltage - are controlled by the diesel generator; therefore, when the power is shut off, there needs to be a lot of auxiliary equipment which is able to "do that in its place."

MS. KEITH stated that there are over a dozen systems in the state that could be high penetration systems. The Cities of Kotzebue and Nome are both expanding their wind farms. The City of Kotzebue is considering the use of a flow battery to provide power stability and "time shifting." The systems in the Cities of Buckland, Deering, and Noorvik are presently in the design phase. The systems in the Cities of Mekoryuk, Toksook Bay, and Quinhagak are using no energy storage; they are using a secondary load. Kwigillingok ("Kwig") and Kongiganak ("Kong") are using smart-grade technology - possibly a fly wheel. The City of Wales offers a lengthy report listing what that community has learned about retrofitting a diesel power plant with a high penetration wind system. The bottom line, Ms. Keith said, is that a lot of these technologies are still "pre-commercial." The topic of energy storage is foremost in the

discussions taking place not only in Alaska, but also in the Lower 48. She listed the following methods used: flow batteries, standard lead acid batteries, pumped "hydro," compressed air, and hydrogen. She said there are a lot of methods, and "we don't want to ignore the thermal applications or the transportation applications, both of which are as important as the electricity in the rural communities." Once there is excess wind, there is always a way to figure out how to use the extra electricity. She stated, "The purpose of WiDAC is to support the broader deployment of cost-effective wind-diesel technologies to reduce or stabilize the cost of energy in these rural communities."

[5:57:40 PM](#)

MS. KEITH said WiDAC has affiliations with the National Renewable Energy Laboratory (NREL), the (indisc.) National Laboratory, and AEA. She described WiDAC as a funnel - a means of collaboration between wind-diesel stake holders, industry partners, various research organizations, developers, and the utilities in the state. Through discussion with stake holders, she said, it is possible to find ways to optimize wind-diesel systems and save more fuel and reduce or stabilize the cost of power. As a result of discussions, WiDAC can: train engineers in renewable energy technologies, put more wind technicians out in the field, and ultimately come up with more innovations. She stated that WiDAC focuses on three critical areas: research and development, technical support, and workforce development and education.

[5:59:00 PM](#)

MS. KEITH stated that WiDAC needs to: develop Alaska-specific verification testing for wind turbines and control strategy; find lower-cost methods to reduce the cost of wind turbine installation and the cost of the foundation; develop crane-free turbine erection; proof, test, and develop dispatch strategies for medium and high penetration systems; and look at smart grids. This work is best done in a laboratory setting, she relayed, which is where a wind-diesel simulator is "coming in." She explained that WiDAC is designing a system to be held at the Fairbanks facility which will be similar to the one at the National Renewable Energy Lab. The system will allow WiDAC to simulate a village load scenario and wind resource, and from that evaluate the control strategy. Data from that test can be sent back to the developers and manufacturers so they can create more robust renewable energy technologies for Alaska. Another

advantage of the simulator is that it can "characterize hardware" to ultimately create a more accurate model.

[6:01:01 PM](#)

MS. KEITH said WiDAC has organized a summit to be held [June 22, 2009] to which she welcomed all legislators. Alaska is the leader in wind-diesel technology across the world, she stated.

[6:01:50 PM](#)

CO-CHAIR EDGMON recalled taking a tour of the City of Nome's Banner Wind Farm in January or February. He said there were 18 wind turbines. The whole project was built "ahead of time," under budget, and was purported to provide up to 10 percent of the overall power load of the community, perhaps in cooperation with the Rock Creek Mine, he said. He said he has since heard there are problems with the system, and he asked Ms. Keith if she could provide more details.

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MS. KEITH responded that any project installed in a new setting is bound to have a "growing period." The percentage of energy availability from wind turbines is always low during the first few months. She reported that the City of Nome has experienced technical problems with "the tip breaks" on the Integrity turbines, which is the same problem experienced in the City of Kotzebue. Of the two locations, the City of Nome has more challenging weather conditions, she said. The City of Nome is working aggressively with the manufacturer to find solutions. She said, "It's just a lot of work keeping these things going." She said one of the main focus areas for WiDAC is technical support, because it is a major issue. She said she thinks the City of Nome is an example of a project that is "not quite there yet," but will be by this time next year.

[6:05:03 PM](#)

CO-CHAIR EDGMON offered his understanding that there are wind turbines in disuse in the Cities of St. Paul and Sand Point. He said there are situations in which utility companies, village corporations, or private entities cannot come to an overall agreement of who will provide power and who is going to "have the base load to make it work." He asked if that issue - beyond the infrastructure and application - would be discussed next week.

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MS. KEITH answered that the topic of technical support will be discussed within the context of how communities can be helped to "put a successful project in the ground." She added, "Community disagreement is one of the biggest hurdles out there."

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MS. KEITH, in response to Representative Tuck, said WiDAC is aggressively considering energy source possibilities and checking to ensure that manufacturers' claims are sound. She said it does not make sense to invest in a large battery bank if it has to be continually rebuilt every five years. She said the advantage of running a slow battery is the ability to endlessly "charge and discharge" it "without degradation." Batteries can be tested on the aforementioned simulator, she noted.

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MS. HOLDMANN added that she had a long conversation with the Bering Straits Native Corporation regarding its wind farm. She said, "It would have been nice if they would have asked our opinion, in terms of the type of turbine that they selected for that project, because it may not have been really appropriate for that site, and there's a good chance that we could have let them know that they were going to have these kinds of issues."

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MS. KEITH said currently manufacturers work with utilities in Alaska to fine tune their wind turbines. There is no standardized process for making that happen, but WiDAC hopes to develop a cold weather wind turbine verification process. She said WiDAC is developing a "hub and spoke type method" for testing in the best areas.

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REPRESENTATIVE TUCK expressed thanks for the tour of the facility today and appreciation for the work of WiDAC. He stated his vision is for prototypes to be developed in Alaska, especially since the state is the forerunner in developing wind-diesel technologies.

MS. KEITH opined that the state will have more success when it thinks "big," develops economies of scale and prototypes, and exports its technology.

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CO-CHAIR MILLETT opened public testimony.

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TOM STAUDENMAIER shared his experience in the military. He said he was asked to get involved with the electric utility issue in 1982, but he emphasized that he does not and will not work for any electric utility. He said his job was to create a program that would cut people's electric bills "in half to 80 percent." He talked about people who have been fired at Matanuska Electric. He related that there are nine electric utilities in Southcentral and Interior Alaska, with 75 board members, 9 computers, and \$180,000 "at your monthly billing." He multiplied that by the average three household occupants to get \$520,000, and added Southeast and Northwest Kodiak to get a total human population of 670,000.

MR. STAUDENMAIER spoke of a proposal to combine utilities under one cooperative in the Southcentral and Interior part of the state, to rename it the Alaska Southcentral Interior Electric Cooperative Incorporated, and to appoint a 16-member board. He said "the people" would own the utility and control it, with "the reinforcement of the Alaska State Senate." The proposal also calls to tie the grids together in Southeast, Alaska, by combining all the cooperatives in that area and reducing the board to seven members. There are 1,500 miles of power lines that need to be built. Furthermore, the proposal would have the state use oil revenue money to "liquidate \$3 billion in debt."

6:17:04 PM

MR. STAUDENMAIER continued:

Another issue that's [a] concern: Not only do you cut your bill in half to 80 percent, but you roll the interest back in the state at \$300 million a year. Dollar rolls five times, that's an extra buy-in pump of about \$1.5 billion.

We also have laid out every city's light bill, every school district's light bill. You're from Anchorage?

The municipal light bill is right under \$10 million cash every 12 months. Lacking 50,000. The school district is \$10 million cash. Where does that money come from? Property taxes. So, the trick here is you clean it up, merge it out, tie the grid together, take your own money, (indisc.) debt, and keep your cash in your pocket.

MR. STAUDENMAIER said in order to industrialize the state it is first necessary to create a need, "and then you have enough juice to build the Susitna hydro-electric project for the next 200 years." He continued:

Now, nobody has ever done a study on this, but we have it all -- on Governor Palin's deal: we're opposed to that. They want to add a bureaucracy over and above what you already have here. Now, I ... don't work for the utilities. ... We are supported by a substantial loan of business people from Southcentral, Interior, Valdez, you name it. They're fed up.

CO-CHAIR MILLETT asked Mr. Staudenmaier to clarify his affiliation.

MR. STAUDENMAIER responded that he was elected as a board member to the Matanuska Electric Association, Inc. He spoke of being re-elected numerous times, and being "gagged" to keep quiet regarding a turbine bought illegally. The turbine, he related, sat idle in the City of Soldotna, and after 15 years it "seized up." Mr. Staudenmaier indicated that federal funds were cut off, but there was an order to finance the turbine in 1984. Eight years ago, he said, VECO Corporation got the contract to pick that turbine up, and they took it to Nikiski and put it in a fertilizer plant, which is now shut down. He said the cost was \$29 million. He said he met with the Federal Bureau of Investigation (FBI) to uncover a "white-collared criminal operation."

CO-CHAIR MILLETT asked Mr. Staudenmaier to return to the main focus of his testimony.

MR. STAUDENMAIER said the bottom line is to "clean it up, merge it out, tie the grids together, take our own money, pay off our debts." The result would be an extra dividend check for everyone between \$25-50,000. He indicated that if the state wants to industrialize, it should build power lines out to the villages. He said there were a half billion dollars under

former Governor Hickel to do all the interties, but former Governor Knowles cut off the money, with only one intertie [remaining].

[6:20:38 PM](#)

MR. STAUDENMAIER contended that tying the grid together is a matter of national security because of the missile system.

MR. STAUDENMAIER talked about ownership of utility companies - both as a taxpayer and by being a board member. He continued:

So, the question is: why are we paying the duplication process? And the problem is, it's called duplicity. Debt service and interest has nothing to do with the generation of a kilowatt of power, period. You've got 400 people on a payroll you don't need.

MR. STAUDENMAIER said either the utilities will be kept under local control or sold off to the highest bidder, the latter of which he indicated would be crazy. He said there is going to be a merger between Matanuska Electric and Chugach Electric, which will save \$500 million "by not building a new turbine." In response to Co-Chair Millett, he said he would give the committee his study information and he indicated that information pertaining to this issue could also be found on line.

[6:23:42 PM](#)

REPRESENTATIVE DAHLSTROM noted that Mr. Staudenmaier had used the term "we" throughout his testimony, and she asked if he could tell the committee the names of the other people involved.

MR. STAUDENMAIER responded that a variety of people donated money "to bring this to [fruition] through Staudenmaier's Electric Merger Committee."

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INGEMAR MATHIASSEN, Energy Coordinator, Northwest Arctic Borough, stated that electricity is not the problem in villages, but diesel is. He said it is really a shipping issue. He added, "That's where the [power cost equalization (PCE)] belongs." He said, "If anything's going to happen with the propane issue, as far as coming into the picture for electricity

generation, then the PCE has to be applied to that in some fashion, so that that could happen."

[6:25:32 PM](#)

DAVID GARDNER, Vice President, Marketing & Member Services, Golden Valley Electric, remarked that energy is both the lifeblood of society and a scarce resource. He stated, "As demand for energy increases in Alaska and around the world, as stocks of oil and natural gas are depleted, and as new regulatory structures establish physical ... disincentives for carbon emitted by fuel, the cost of these fuels may rise sharply." He said Alaskans accept the necessity of tightening their belts during tough times; however, assuring continued affordability and reliable energy is a problem that will call upon the creativity and dedication of the private sector, as well as the rigorous actions of local, state, and federal governments.

MR. GARDNER stated that GVE strongly advocates the development of a comprehensive energy plan for Alaska, which would be a vision for the role that Alaskan utilities and state governmental officials, agencies, and elected representatives can play in solving the energy problem and shaping the energy future. He acknowledged that the federal government has larger issues to address, such as funding for energy research and development and legislation or regulation of greenhouse gases; however, there are steps that Alaskans can take to ensure more stable independent patterns of energy generation and use.

MR. GARDNER listed those components that GVE believes a plan should attempt to identify. First, he said, would be utility scale renewable resources. He reviewed that statute requires that Alaska's electric utility companies provide power to consumers at the lowest possible cost and help keep electric rates low in the state. However, certain features of this structure in the state have acted as barriers to the amount of electricity generated by renewable resources in the state - especially on utility-scale projects. He said, "Alaska's law makers and electric utilities will need to work together to overcome these barriers as carbon emissions from traditional fossil fuel power plants come under greater scrutiny in coming months and years." He suggested one immediate step should be to move forward with the Susitna hydro-electric project.

MR. GARDNER said the second component to a plan should be electrical efficiency, which would include the reduction of the

demand for energy - also considered a resource. He reported that reducing consumption by one kilowatt hour is equivalent to increasing supply by the same amount, thus products and practices, such as programmable thermostats, "smart meters," efficient appliances, efficient lighting systems, building insulation, and simple common sense reductions to demand can all play a role in meeting the state's electrical production needs.

MR. GARDNER said the third component would be to increase the amount of electricity generated by renewable energy sources, replace aging infrastructure, and develop a transmission grid across the state - all which will require a significant investment in the construction of new transmission lines. Alaska must establish a power pool - like that in the Lower 48 - to facilitate the planning and coordinates of transmission line development throughout the state. The responsibilities of that power pool would include: planning, siting, routing, transmission line addition, and sources of financing for new lines and line upgrades - difficult and expensive, but achievable tasks if local, state, and federal official work together with private and public utilities.

MR. GARDNER related that the fourth component would be energy diversity. He explained that regardless of the future of regulatory change, the focus of Alaska's energy utilities must be on developing a diverse portfolio of generating sources, in order to provide affordable and reliable energy to Alaskans in the most environmentally responsible method possible. Because of the state's vast natural resources, he relayed, the diversity of energy portfolio must include coal, hydro-electric, oil, natural gas, wind, solar, geothermal, and biomass [power].

MR. GARDNER said the fifth component would be a renewable portfolio standard (RPS) or renewable energy standard (RES), which he explained are statutory requirements that all utilities operating within a state generate a certain percentage of the electricity they distribute from renewable sources. Currently, he noted, 28 states have adopted such legislation, and changes in the federal government, including President Obama's renewable initiative and shifts in congressional committees, indicate that a nationwide RPS or RES may be enacted in the near future. Mr. Gardner added, "However, Golden Valley opposes mandatory legislation, because without careful consideration, these requirements can lead to inequitable subsidies from one region of the state to another, causing electric consumers to suffer from low electric reliability and precipitous rate increases."

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MR. GARDNER said the sixth component would be comprised of a number of resource utilization measures and actions. First, GVE proposes partnering with the Alaska State Legislature and Congressional Delegation to extend the federal production tax credit for renewable energy. Second, GVE proposes that federal tax credit for wind production be made tradable, which would allow not-for-profit utilities, such as GVE, to capture tax credits that are otherwise available only to investor-owned utilities. Third, GVE proposes that annual appropriations to the renewable energy production incentive be increased. Those appropriations are designed to offer public utilities incentives for the development of renewable generation capacity, in place of production tax credit. Fourth, GVE proposes the expansion of clean renewable energy bonds (CREBs). Under one congressional plan, he noted, billions of dollars worth of CREBs would be available to public utilities and electric cooperatives for new, renewable energy projects. Fifth and sixth, GVE proposes that continuation of federal tax credits for small-scale wind production and residential "photo mosaic" electrical generation systems be supported. Seventh, GVE proposes the support - in partnership with the University of Alaska - of the development and rapid low-cost implementation of carbon capture and sequestration technologies at existing and future coal-fired generating plants.

MR. GARDNER moved on to the seventh component, which is related to the work of the Alaska Center for Energy and Power. He said researching new energy technology is crucial for the continued availability of affordable, reliable energy in Alaska. He stated that research which leads to advances in the viability of efficiency of renewable energy technologies can create jobs, lessen dependency on foreign fossil fuel, and reduce greenhouse gas emissions. Furthermore, research that identifies new means of conservation can help lower demand for energy, thereby reducing its cost.

MR. GARDNER said the eighth component would be to plan today for tomorrow's energy solutions. He said GVE supports the efforts of both the House Special Committee on Energy and the Senate Special Committee on Energy to develop a vision for Alaska's energy future. A vision would be instrumental in establishing both a state energy policy and plan that would streamline current energy programs, as well as developing future energy solutions for the state.

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MR. GARDNER said GVE has provided draft language as its suggestion for an energy policy, which he read as follows:

It is the policy of the state that Alaska, through a statewide energy plan, have adequate, reliable, affordable, sustainable, and clean energy resources, by promoting the development of nonrenewable energy resources, including natural gas, coal and oil, and renewable energy resources, including geothermal, solar, wind, biomass, and hydro-electric. Alaska will promote the development of resources and infrastructure sufficient to meet the state's growing energy demand, while reducing dependency on foreign energy sources through energy conservation, energy efficiency, energy research, energy related workforce development, and state regulatory processes that balance economic cost with environmental quality.

[6:34:49 PM](#)

MR. GARDNER, in response to Representative Ramras, explained that propane was not overlooked in GVE's consideration, but rather is considered with natural gas. In response to Co-Chair Millett, he said GVE would support geothermal energy, but "Susitna seems to be the one that's in the public eye right now" and GVE believes [that project] would have the greatest long-term benefit for the state.

[6:35:44 PM](#)

GARY NEWMAN told the committee that he has been involved in energy issues since the mid to late 70s, and he offered his related work history. He clarified that he is testifying on behalf of himself. He stated that the legislature has a big job in trying to come up with an energy plan for the state. He suggested that the state first needs to have a mission in order to come up with a plan. He observed that HB 218 contains "marching orders for the Department of Energy." He said the following factors are involved in this issue, which are not always compatible: economic, from the perspective of both the state and the private sector; environmental, which is contentious; and political. He said, "Everybody has their stake in it in one form or fashion."

MR. NEWMAN remarked that he is pleased with some of the ideas he heard from Mr. Gardner, but does not understand other ideas. For example, he mentioned GVE's work to get \$300 million in federal and state money invested in a coal plan in partnership with Usibelli Coal Mine, Inc., which is still not up and running more than a decade later. The point, he said, is that there was public investment in that project that was promoted by the private sector. He added, "And when you folks are investing in the public, we don't have an unlimited supply of funds." He indicated that coal gasification/liquefaction is guesswork, because it has not been done commercially. He mentioned an amount of \$3-\$5 billion. He said, "I think if you invest in that, you're going to say you don't have the money for something else." "Susitna's even more over the top," at \$10-\$20 billion, he estimated.

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MR. NEWMAN charged the legislature to come up with a plan that will be best for the state in the long term. He cited House Concurrent Resolution 56 "from many years ago," which "said we should be doing something towards dealing with CO2 mitigation." He said to date that has not really happened. He mentioned burning nonrenewable energy, and spoke of the role of regulatory environment. Mr. Newman made suggestions, which he said are partly addressed in [AS] 44.38.020, with the exception of the aforementioned reduction of CO2. He said conservation is the cheapest path - "the less you use, the more efficiently you use it." He noted that Representative Ramras had spoken of propane as a bridging fuel to natural gas, and he said 20 years ago, natural gas was being considered as a bridging fuel "toward renewable." He recalled a discussion with a resource economist who estimated there was enough instate proven reserves of natural gas to last 500-1,000 years. Mr. Newman indicated that he may not be able to see 500 years ahead, but he can picture what is best for the state in the next 50 years.

MR. NEWMAN mentioned "cap and trade" and carbon tax. He said part of the reason renewable [energy] has "had a hard time," is because "you're not valuing the full and true cost of whatever energy you're using." He highly recommended that the legislature find some way of "balancing that." He urged the committee to take a look at House Concurrent Resolution 56 as "something that never happened despite the legislature's request to the executive branch."

[6:43:25 PM](#)

JESSIE PETERSEN, Director, Issues and Energy, Northern Alaskan Environmental Center (NAEC), said Alaska can reach Governor Palin's goal of 50 percent renewable energy by 2025 if the state looks to the future for real solutions. He related that people who live in the Interior are ready and willing to work with legislators to find a solution to the energy problem. He said it is possible with Alaska's vast renewable energy sources and new technology to meet the state's energy needs, save money, revitalize the state's economy, and reduce greenhouse gas emissions, without having to "look through past technologies for our answers." Ms. Petersen stated her belief that in order to achieve these goals, Alaska will first need state leadership on an energy vision, which is what the legislature is showing by being present in Fairbanks today. She urged leadership to work with GVE to create an energy vision that can be beneficial to utilities while still focusing on energy efficiency and renewable energies.

MS. PETERSEN suggested utilizing "decoupling" measures, and "other policies to remove the traditional formula that more energy use equals cheaper rates." She also suggested that the state implement a renewable portfolio standard. Other states that have done so have had great success. She said Alaska's energy plan should: reduce carbon emissions; provide affordable and reliable base load power for communities; reduce dependence on nonrenewable fossil fuel; implement energy efficiency and conservation programs that save energy, thus saving money that can be given back to communities; invest in new technology; and empower Alaskans to be part of the solution, for example, through workforce development and training programs.

MS. PETERSEN thanked the legislature for supporting the numerous energy efficiency and renewable energy bills that were introduced during the 2009 session, and for consideration of HB 218 and HB 219. She opined that HB 218 would be "wonderful." She stated support of the idea to have a centralized entity to address energy issues. She urged the legislators to work to "get some of those bills finalized and passed" in 2010. She said it is time for Alaskans to reclaim their position as leaders, and the state is blessed with an abundance of diverse renewable energy options and innovative leaders. An investment in renewable energy and energy efficiency will create new economic opportunities, while helping to address climate change - "the challenge of our lifetime," she stated.

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RICHARD SEIFERT, Professor/Energy and Housing Specialist, Health, Home & Family Development, Cooperative Extension Service, University of Alaska Fairbanks, stated that the legislature's consideration of creating a Department of Energy is "both optimistic and terrifying." He explained that he has been in Alaska for 39 years, was appointed at a young age by then Governor Hammond to a group called, "The Alaska Energy Center," which was formed to attempt to do "many of the types of things" that Senate Bill 152 did. He said he was also in Governor Cowper's Energy Policy Committee, and he worked in a Division of Energy and Power Development in the 80s, which acted like a Department of Energy, but was "scattered to the winds like the fall of the Roman Empire." He suggested that there is an entire history of which he is aware, of which today's legislators are not. He explained that is why he looks today upon the proposed legislation with trepidation. He credited Yogi Berra as having said, "You can learn an awful lot just by watching." He added, "You can also learn an awful lot just by asking the right questions."

MR. SEIFERT said a primary question is: Just how much can renewable provide? He indicated that much of his study has been in an effort to answer that question. He said whether or not the state could sustain itself on renewable energy should be a question for the state to answer and an overarching goal to reach when developing its energy policy. He recommended electrifying Alaska's entire energy grid with renewable energy sources to the degree possible, which would result in the state's not being "vulnerable from pressures to taxing carbon" or "using electricity at the expense of possible climate change." He emphasized the importance of the climate change issue.

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MR. SEIFERT said another piece of history that is repeating itself is the idea of "doing energy development by project." He stressed that this is a bad idea that has never worked well, and he stated that Alaska must choose an energy policy that is not driven by that legacy. He said he is asking the legislature to adopt a scientific, holistic, durable, "reality" view that is based on engineering, in order to optimize the entire state's "resource mix and renewable potential." He stated, "We have forced half-baked solutions and maladapted projects on our defenseless communities, and we've got to stop that; we just can't do that anymore."

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MR. SEIFERT outlined key elements of a good energy policy. First, he said, "Always do the conservation." He thanked the legislature for \$3 million he received toward his conservation work. He indicated that money toward conservation efforts is not only the right thing to do, but the first thing that should be done. Next, Mr. Seifert encouraged the state to "accentuate the positive, look for the best renewable - wind on the coast, hydro where it's available, and the least damaging biomass and fossil fuels only when absolutely nothing else will suffice." He told the legislature to place the highest value on the highest value energy, to create renewably powered electric utilities, and to develop renewable electrification as much as possible. He recommended that the legislature always ask, "How durable is the system? Will it last? Does it cause climate change? Can it be sustained?" He encouraged the state to "pay as you go," finance with its own collateral, and use the permanent fund if necessary to bond for the state's energy future. He said, "This is not only consistent, but it's possibly the wisest use of our permanent fund." He warned against using financial advisors, encouraging the state instead to "use that permanent fund to make a permanent improvement in the state."

MR. SEIFERT asked for budget support for education - the University of Alaska, Alaska Center for Engine and Power (ACEP), the Engineering Department, and Cooperative Extension. He emphasized the necessity of a state energy policy in order to prosper and have a comfortable standard of living. He mentioned communication, Internet, and financial security, and said, "Without reliable renewable electricity, none of these will last."

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REPRESENTATIVE TUCK said it is true that whenever opportunities present themselves, there are also dangers that come along with them. He expressed his hope that Mr. Seifert would stay involved with this process.

6:56:21 PM

MR. SEIFERT responded, "I'm your biggest fan and your biggest critic." In response to Co-Chair Millett, he noted that he has two web site addresses.

[6:56:35 PM](#)

JEFFREY WERNER, Research Professional, School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks; Director, Future Farmers of America (FFA), University of Alaska Fairbanks, asked that the legislature pay particular attention to the educational needs of youth as it works on an energy plan. The number of students going into remedial English and Mathematics is astounding, he noted. He said Alaska doesn't even appear on the ranking for natural resource education in high schools. He stated that science directly relates to energy use. He related that 90 percent of people in Alaska do not know how much they are paying for natural gas and electricity, and 50 percent of Alaskans do not know what they pay for gasoline at the pump. He called that a "disconnect," and indicated that "the giants" who provide the sources do not contribute to educating Alaskans. He said people in Fairbanks do know how much it costs to keep their houses warm, "because that's a real-time thing." However, he remarked that young people do not know the energy requirements to make that warmth available.

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MR. WERNER said FFA's students represent Alaska's agriculture, fisheries, and forestry; the FFA tagline is "feeding, fueling, and financing Alaska." The objective of FFA is to energize and educate youth and excite them about the opportunities in the state for "keeping Alaska for Alaskans." He said the young people involved in FFA understand the relation of energy to Alaska's future. Mr. Werner related that another important issue is how Alaska will feed itself. He said the "Lake and Peninsula Borough" does not presently have a way to feed its communities there, and is looking for innovative ways to make that happen. Mr. Werner said that is possible, but the borough's limiting factor right now is energy. Without English, Mathematics, and Science at the basic level, even starting with first-graders, Mr. Werner questioned how the topics of energy and natural resources would be infused into the educational system. He opined that in Alaska, "every kid should know how to build a fish wheel and how to use a chainsaw."

[7:02:12 PM](#)

MR. WERNER expressed excitement about the committee's proposed energy policy, and said he and the FFA would like to be part of the solution.

[7:03:26 PM](#)

MR. WERNER, in response to Representative Guttenberg, talked about what attracts children to FFA and 4-H. He said children come from all walks of life, and sometimes the experience they have in either organization is "the one thing they find success in." He offered further details, including his own experience growing up.

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REPRESENTATIVE TUCK supported Mr. Werner's message regarding the relevancy of exposing children to experiences in which they become engaged. He talked about making connections with students and expressed his appreciation for Mr. Werner's testimony.

[7:06:09 PM](#)

DAN RAYNES relayed that he is an owner of a small automotive shop in Fairbanks. He said he discovered on the Internet that people in Australia are making an electromagnetic motor that will pull 25 kWh and rates 500 percent efficiency. He said a car only rates 40 percent efficiency. Mr. Raynes stated that the electromagnetic motors are long-lived; the magnets are expected to last 140 years. He said it would be possible to make an electromagnetic [wind] turbine, which would end the need for using diesel. He surmised that a motor could be made two to four times as strong just by using bigger magnets and bigger components.

MR. RAYNES said the problem in schools is that teachers think of everybody as a number; there needs to be more one-on-one attention. He said he only finished tenth grade, but has owned his own shop since he was 16 or 17 years of age.

MR. RAYNES said oil companies are never going to be put out of business, because oil will always be needed. He explained that he is not trying to put anyone out of business. He said he knows propane is a good deal and there is potential there.

[7:10:47 PM](#)

DOUGLAS B. REYNOLDS, Ph.D., Professor, Economics, School of Management, University of Alaska Fairbanks, stated that there is large economy of scale or there are small projects, and they are

almost mutually exclusive. He said backyard coal boilers are an option. He said he doesn't think that "in this turbulent time" the state needs to "worry about global warming right now," because the projected bullet line will "take care of things eventually." Until that happens, there may be five to ten years during which coal could be used.

DR. REYNOLDS suggested that the committee consider the use of natural gas to run vehicles. He suggested this idea might need some subsidizing.

[7:14:00 PM](#)

REPRESENTATIVE PETERSEN noted that the Country of Brazil uses natural gas to run 20 percent of its vehicles. He also noted that in Washington, D.C., the buses have signs on them to let people know they run on natural gas. He said switching large diesel engines over to using natural gas, which would reduce pollution, may be a good first step. Such a conversion could create a demand for Alaska's natural gas, he remarked.

DR. REYNOLDS suggested that if money is going to be spent to study wind-diesel power, it could also be spent to reduce coal particulates on backyard boilers. He added, "I mean, it doesn't have to be that bad as a stop-gap measure."

[7:15:17 PM](#)

MARY WALKER, Project Coordinator, Alaska Interface Power and Light (AIPL), clarified that AIPL is not a utility; it is an entity that supports base communities in "carrying out the theological imperative to serve as wise and prudent stewards of our creator's earth." She said AIPL currently has 23 member congregations - nearly 7,000 congregants all committed to serve as stewards. She said she cannot speak to HB 218 and 219, but can speak to AIPL's support of an energy vision that in the short term encourages energy efficiency. She emphasized that that support is not only because such efficiency is cost-effective, but also because it is morally responsible not to waste precious resources. She said AIPL hopes to see for the mid to long term the use of renewable energy and nonrenewable energy sources that "no longer externalizes the cost of green house gas pollution." Also related to mid- to long-term solutions, Ms. Walker said AIPL hopes to see "green jobs" for low-income earners and [military] veterans. Regarding an energy audit program, she stated, "We've got waiting lists for people

to do audits on our household, but we don't have the workforce to go in and do the energy efficiency improvement."

7:17:07 PM

MS. WALKER related a story about a reverend who has a congregation of 100 - a third of whom are out of work. She suggested these people could be put to work in "green-collar" jobs.

7:18:29 PM

BOB BEACH, regarding the issue of energy, said these are trying times. He named some of the energy projects most recently funded by the legislature, which use wind, solar, biomass, landfill gas, ocean tidal, incremental hydro, or geothermal power. He said it is important to show the younger generation that "we have their best interests at heart," and that "some of these are solutions for short term." He emphasized the importance of manufacturing. He stated, "Resource extraction without any kind of Alaska stamp of having to have built something from this resource is like giving away 'salt and egg.'" Mr. Beach said Alaska is consuming a lot of gas on the North Slope. He talked about garnering that power into "a clean way of manufacturing steel or any type of metal." He stated, "The mainstay in any of our energy independence has to start with manufacture of our product." Mr. Beach said Alaska is on the cutting edge of energy technology. He talked about "all of this abundance of gas going up the flare pit," and reiterated that it would behoove the state to consider the steel industry.

7:23:56 PM

MR. BEACH spoke about the need in rural areas and villages for alternative energy sources. He stated that [Hurricane] Katrina was bad, but he said it seems like the villages "have been Katrinas forever." He continued:

But with some of these credits that can be captured, using the Indian country label, there would be like a store house for these types of trades in credit, and I think Alaska could benefit quite a bit from having these on the market.

MR. BEACH told the committee to take heart because its members are doing the right thing by considering bills to capture energy.

7:26:02 PM

GREG EGAN, Remote Power, Inc.; Solar Wind Consultants, told the committee that Remote Power, Inc. does solar wind power projects, while Solar Wind Consultants conducts lifecycle cost analyses, feasibility studies, and does engineering. He stated that he would like to see a reversal of Governor Palin's decision not to accept \$28 million in stimulus funds, and he would like that money used to promote small renewable energy systems, conservation, and perhaps some research into a "smart grid." He stated his understanding of a smart grid is that [power] can be turned on and off remotely. He offered an example of how it works, and opined that the system is definitely worth research.

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MR. EGAN recollected that Mr. Seifert talked about durability systems. He said solar power does not get much credit because "the sun doesn't shine all the time." However, it is possible to put a solar panel on a satellite and send it out to space, and it will still [power the satellite] 50 years later. A solar panel is warranted to put out 80 percent of its original output after 25 years. It is possible to get a 15-year warranty for panels, he said. For places where maintenance is not done very often, "solar is not necessarily a bad way to go," he remarked.

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MR. EGAN mentioned the National Renewable Energy Lab's wind resource map, which shows areas of high wind in the colors red and purple. He said the entire coast of Alaska would be colored in red and purple, because there is so much wind. Other areas of the state do not have so much wind. He stated, "If you have geographic diversity in your resources, and they're connected to a grid, ... it doesn't negate the fact that the wind doesn't blow all the time, but it blows a lot more of the time, because you're spreading out over different areas." Mr. Egan said wind is difficult to predict, and energy storage is a necessity. He said if there is a dam, wind can be used when available; hydro power from the dam can be used when there is no wind. A similar plan could work with a combination of wind and solar power.

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MR. EGAN said his company deals with small wind power systems - wind, solar, batteries, and inverters. Batteries work well, and they are a technology that have been around for a long time. They are approximately 97 percent recyclable. He discussed the process of recycling. He noted that Ms. Walker had talked about "real cost." He said as of 2005, there were 3,600 people in the nuclear regulatory commission and 18,000 people with the Environmental Protection Agency (EPA). He questioned how many of those people are working stilts, solar panels, and wind turbines. He said there is a lot of cost involved.

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DEREK PRICE noted that he has e-mailed testimony to the committee. He thanked Mr. Seifert for his testimony. He indicated his concern has to do with the history and future of energy in Alaska. He said the only information he has from the legislature is HB 219, and he said it is not clear whether the goal of the legislature is to reduce costs or to "add renewables." He asked how much money is in the renewable energy grant fund, and whether any money would be added to it in the future, because he said "that has a big effect on what it is you do." The cost of projects always ends up being much greater than anticipated, he remarked. He suggested that the state could consider doing smaller projects. There are already a number of agencies in the state "who do this exact same thing with regard to grant money." He mentioned the Denali Commission, USDA, and GDA, and said he is sure the other electrical utilities also have similar programs.

MR. PRICE said he works for a large for-profit company in Fairbanks, which would like to invest in renewable energy, but must maintain profits and, thus, needs the stability in knowing what the return is going to be. He said he has seen solar studies. Wind information is harder to get, he noted. He continued:

The [Sustainable Natural Alternative Power ("SNAP")] program is very interesting. We would very much like to participate in that, but again, you don't know what the return is going to be. And I think for almost zero administrative costs at a state level, you could help fund a program like that where you would get immediate results - and I mean immediate. You don't need a five-year study to figure out that you can put solar on 100,000 square foot of buildings - that you can put up a turbine on your own property in Healy.

You just don't need those; you can start now. So, all you need to do is have the information necessary and the financial information to make that determination or not.

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MERRICK PIERCE told the committee that he serves on the board of the Alaska Gasline Port Authority (AGPA), but is speaking on his own behalf. He pointed out that Alaskans, on multiple occasions, have expressed their point of view of what the state should do with the gasline. In 1999, the Fairbanks North Star Borough voted overwhelmingly to build the all-Alaska gasline, and the borough created AGPA. The City of Valdez and the North Slope Borough did the same. A couple years later there was an election in which the Alaska Natural Gas Development Authority (ANGDA) was created by overwhelming support - to build a gas pipeline to the City of Valdez.

MR. PIERCE stated his belief that the all-Alaska gasline is the "only viable large-diameter that's going to be built." He said there are insurmountable problems with the line into Canada. First, he said, there are "gargantuan amounts" of shale gas. Second, there are LNG "re-gas" terminals in "the Gulf" that are at half capacity, so all ExxonMobil Corporation has to do if it wants to bring more gas in the Lower 48 markets is to order more gas "out of gutter." There are technological innovations related to clean energy projects, such as solar power, as well as developing technology with directional drilling, which makes shale gas much more affordable to develop, he stated. There are also high transportation costs associated with a 2,000-mile-long journey, which would burn energy. Furthermore, there is the increased prospect that there will be carbon taxes in the near future. The all-Alaska gasline has multiple benefits: a faster build time; the lowest cost clean burning energy for Alaska, the West Coast, Hawaii, and America's important trading allies; the improvement of the United States' balance of trade, which is not balanced; gas to U.S. allies; the monetization of trillions of dollars of gas that is in the North Slope Basin; and a critically needed revenue source for Alaska government. Mr. Pierce stated that as important as it is to have affordable energy for Alaska, the state needs to have a diversified revenue stream. He named some possible affects of not getting started with a viable gasline.

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MR. PIERCE offered four ideas of actions for the legislature to take: First would be to fund the port authority to conduct an open season. Second would be to fund a gas infrastructure for the Fairbanks North Star Borough. Third would be to work harder for compressed natural gas (CNG) vehicle use - particularly "sleet vehicle" use. He said CNG is a good energy source, which is "about a 50 cent per gallon equivalent to gasoline," and is cleaner burning. Furthermore, using CNG means being less dependent on OPEC oil, which Mr. Pierce said is good for national security. Fourth would be to fund the Susitna hydroelectric project. He added, "And as we build Susitna, that gives us the lowest cost energy, it's the cleanest burning energy, and then that allows Alaska to export for dollars our finite natural resources, like natural gas."

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#### **ADJOURNMENT**

There being no further business before the committee, the House Special Committee on Energy meeting was adjourned at 7:44 p.m.