ALASKA STATE LEGISLATURE
JOINT MEETING
SENATE RESOURCES STANDING COMMITTEE
HOUSE RESOURCES STANDING COMMITTEE
HOUSE SPECIAL COMMITTEE ON OIL AND GAS
August 23, 2005
9:22 a.m.

MEMBERS PRESENT

SENATE RESOURCES

Senator Thomas Wagoner, Chair
Senator Ralph Seekins, Vice Chair
Senator Kim Elton
Senator Gretchen Guess

HOUSE RESOURCES

Representative Jay Ramras, Co-Chair
Representative Ralph Samuels, Co-Chair
Representative Jim Elkins
Representative Carl Gatto
Representative Gabrielle LeDoux
Representative Kurt Olson
Representative Paul Seaton
Representative Harry Crawford
Representative Mary Kapsner

HOUSE OIL AND GAS

Representative Vic Kohring, Chair
Representative Beth Kerttula
Representative Berta Gardner
Representative Lesil McGuire
Representative Ralph Samuels

MEMBERS ABSENT

SENATE RESOURCES

Senator Ben Stevens
Senator Fred Dyson
Senator Bert Stedman

HOUSE RESOURCES

All members present

HOUSE OIL AND GAS

Representative Nancy Dahlstrom
Representative Norman Rokeberg

OTHER MEMBERS PRESENT

Senator Gene Therriault
Senator Beth Kertulla
Representative John Harris, Speaker
Representative John Coghill
Representative Bill Stoltze
Representative Mike Chenault
Representative David Guttenberg
Representative Berta Gardner

COMMITTEE CALENDAR

OVERVIEW: Update on Nenana Gas Project and the Economic Impact and Potential

WITNESS REGISTER

KEVIN BANKS, Senior Commercial Analyst
Division of Oil and Gas
Department of Natural Resources
400 Willoughby Ave.
Juneau, AK 99801-1724
POSITION STATEMENT: Commented on the Nenana Gas project.

MARIE CROSLEY
Natural Resource Specialist
Department of Natural Resources
400 Willoughby Ave.
Juneau, AK 99801-1724
POSITION STATEMENT: Commented on the Nenana Gas project.

JIM MERY
Doyon Limited
Fairbanks AK
POSITION STATEMENT: Commented on the Nenana Gas project.

BOB SWENSON
U. S. Geological Survey
Juneau AK

POSITION STATEMENT: Commented on the Nenana Gas project.

MITCH USIBELLI
Usibelli Energy
Fairbanks AK
POSITION STATEMENT: Commented on the Nenana Gas project.

CURTIS THAYER
Enstar Natural Gas
Anchorage AK
POSITION STATEMENT: Commented on the Nenana Gas project.

DAN BRITTON
Fairbanks Natural Gas
Fairbanks AK
POSITION STATEMENT: Commented on the Nenana Gas project.

KATE LAMAL, Vice President
Power Supply
Golden Valley Electricity Association (GVEA)
Fairbanks AK
POSITION STATEMENT: Commented on the Nenana Gas project's impact on utilities.

HAROLD HEINZE
Alaska Natural Gas Development Authority (ANGDA)
Fairbanks AK
POSITION STATEMENT: Commented on the ANGDA proposals.

STEVEN DENTON
Usibelli Coal, Inc.
Fairbanks AK
POSITION STATEMENT: Commented on the impacts of the Nenana Gas project on coal.

ROCKY PAVEY
Rocky's Heating Service
Fairbanks AK
POSITION STATEMENT: Commented on residential uses of gas.

ACTION NARRATIVE

^OVERVIEW – Nenana Basin Gas Project and the Economic Impact and Potential

CHAIR THOMAS WAGONER called the joint meeting of the Senate Resources Standing Committee, the House Resources Standing

Committee and the House Special Committee on Oil and Gas to order at 9:22:13 AM. Present were Senators Gretchen Guess, Ralph Seekins, Kim Elton, and Chair Thomas Wagoner; Representatives Paul Seaton, Berta Gardner, Gabrielle LeDoux, Kurt Olson, Lesil McGuire, Harry Crawford, Chair Vic Kohring and Co-Chair Jay Ramras.

CO-CHAIR JAY RAMRAS announced that Kevin Banks would present the potential for gas markets in the Alaska Interior to the committee and Marie Crosley, Natural Resource Specialist, Department of Natural Resources (DNR) would assist him.
KEVIN BANKS, Senior Commercial Analyst, Division of Oil and Gas, Department of Natural Resources (DNR), presented a slide show indicating the Alaska Natural Gas Company was delivering about 100 million cubic feet (MCF) of gas per year into the Fairbanks area and has established a substantial customer base and a fair amount of infrastructure. The demand grows about 100 MCF per year; about 46 percent of it is associated with residential uses and about 64 percent is commercial.

He said that DNR had compiled studies indicating if gas were made available to Fairbanks, demand could grow to potentially 6.5 BCF per year by 2020 assuming current penetration and growth rates. Power generation could go from 6.5 BCF in 2009 to 27 BCF in 2020. That will depend on whether Fairbanks could convert to gas and provide most of its area with a central power supply with gas-fired electricity and industrial gas use is limited only by one’s imagination.

Another source of demand, Mr. Banks explained, is in the Interior - the Fairbanks area and the Southcentral Cook Inlet Region are in a sense connected. Either gas will be supplied from the Interior into the Cook Inlet or perhaps a gas pipeline from the North Slope is connected from the North Slope through the Interior via a spur line. Studies show that potential shortfalls of gas in the Cook Inlet could be anywhere 18 BCF to as much as 91 BCF in 2020 depending on continuing demand for industrial exports and LNG for fertilizer manufacturing. Slide two illustrated growing energy demand.

In Cook Inlet, LNG and urea account for about 60 percent of the demand for gas; another 7 or 8 percent goes to field operations. Gas supply is starting to drop off and by 2009 the demand will begin to substantially exceed the supply. Removing exports from the equation could stave off shortfalls for a while, but that might cause demand to fall off, which could lead to a decline in exploration. He said:

> You want to be able to continue to add to the supply of gas in Cook Inlet by encouraging explorers to go out and look for it. At the same time in order to get through a gas shortfall, you have to pull demand off the market.... It's something of a problem for the market to deal with....

MR. BANKS explained that gas isn't delivered by nice steady averages; it is delivered mostly in winter. Cook Inlet is already in a situation where its peak demand is not met by the average supply and will be in a considerable shortfall by 2013. Producers are looking for storage to bring some kind of level supply. Agrium's response to this lower supply is to produce at less than full capacity.

MR. BANKS said a few years ago building a gas pipeline from Anchorage to Fairbanks was estimated to cost $190 million. That study was reengineered and the numbers are now as much as $240 million for a 24-inch line to Cook Inlet. The cost for gas from the North Slope into Fairbanks could be $4 to $5.50; to move gas on a spur line down to Cook Inlet would cost $1 to $1.40; their city gate price would be between $4.88 and $7. What he is trying to say is that Nenana can supply into a market as long as it can be $3.93 to $5.68. "You either buy gas from a North Slope pipeline or gas from Nenana. Nenana will have to be competitive."

If the gas line is built either through an LNG plant in Valdez or a highway project into Alberta, the Interior market in some respects will be connected to the wider Lower 48 market through the netback calculation, because 90 percent of the oil that is produced in Alaska is shipped to outside markets. He explained:

> So essentially, in spite of the fact that we live close to the source of energy and enjoy some of the benefits of a lower tariff getting fuel from the North Slope into the Interior or in the case of the other slide, even into Cook Inlet, the netback price, the price that we start with is governed or generated by what's going on in the Lower 48.

Unocal and Enstar have an imbedded price term imbedded based on the Henry Hub that is a reference for a prices all over the Lower 48. Enstar, in an interest to assure an uninterruptible supply of gas and to encourage new exploration in the Inlet, has recognized that no matter where gas comes from, including new

supplies, it will have to be matched to the supplies of gas from elsewhere in the State of Alaska, including the Nenana Basin.

9:54:11 AM
SENATOR GENE THERRIAULT asked if his statement about converting electric generation in the Interior to gas was predicated on a complete conversion to gas or is there a coal component.

MR. BANKS replied that the switch was assumed to be entirely to gas.

SENATOR THERRIAULT asked when the department expects to get any kind of results from exploration going on in the Nenana Basin.

MR. BANKS replied that he would defer that answer to Bob Swenson.

CHAIR WAGONER asked if gas was piped to Fairbanks, what effect would that have on the cities' economy in terms of buying power for the consumer.

MR. BANKS replied that he didn't know how much of each household's budget was spent on energy, but he estimated that it represents a pretty substantial decrease in the cost of energy and would make those dollars available to the rest of the economy.

CO-CHAIR RAMRAS said he wanted to know what the percentage of energy savings would be for the average homeowner in the Interior in moving from a home heating oil economy to a natural gas economy. He estimated that they pay $2.39 a gallon for home heating oil or $700 to $800 a month during the winter.

MR. BANKS replied that it might be a 40 percent decrease in your heating budget that would be available for other items.

10:00:00 AM
BOB SWENSON, U.S. Geological Survey, began his presentation by answering Senator Therriault's question about the gas exploration timeframe saying the exploration cycle from the initial phase of data gathering to the development mode is anywhere from five to eight years. It is possible to accelerate that depending on access, timing, land ownership is and what the operator is willing to release.

He said that Alaska has a tremendous resource base. The North Slope is a world-class hydrocarbon basin – as is the Cook Inlet.

Because of that, a lot of other basins in the state have been on the back burner. He used slides to show the committee that Southern Alaska, specifically Cook Inlet, has about 2 TCF of remaining reserves and a mean estimate of 20 TCF. Central Alaska has a mean estimate of 9 TCF.

A USGS report indicates that North Alaska has over 33 TCF of gas reserves behind pipe and a tremendous amount of potential on the North Slope. It also reports that Central Alaska has 500 BCF gas to 7.3 TCF of conventionally recoverable reserves, a mean of 2.8 TCF.

MR. SWENSON cautioned that all the basins are high risk and that it's important to know the difference between negative data and lack of data. The Interior basins have a lack of data and that is where exploration efforts are being focused. Innovative programs are also a key to help mitigate the risk.

He said that the Nenana Basin is not the only gas basin in Interior Alaska; there are the Kulitna Minchumina and the Yukon Flats basins. Basins that have similar geology can be compared to each other if they have a significant amount of data. He said that all the basins are Tertiary in age. The next number of slides illustrated formations in the different areas.

10:15:00 AM – conclusion of Mr. Swenson's presentation

MITCH USIBELLI, Usibelli Energy, said there are four participants in the Nenana Basin project – Andex Resources, Doyon Limited, Usibelli Energy and Arctic Slope Regional Corporation. Andex Resources and Arctic Slope Regional Corporation have a lot of expertise in oil and gas development, but Doyon Limited really took the initiative five years ago in compiling a lot of the initial data and attracted Andex to the project. Usibelli Energy is a new company formed to diversify energy sources beyond coal in the Interior. He characterized the Nenana Basin as under-explored, but looks like a gas-prone basin of non-marine sediments.

He said that the state of Alaska instituted a new exploration program in 2003, which was another milestone in tipping the balance for attracting the three Alaskan participants. He presented a slide of gas exploration wells in the Interior and contrasted them to those in Cook Inlet.

MR. USIBELLI explained that Usibelli Energy would be drilling exploration wells in a range from 9,000 to 11,000 ft. deep.

Their exploration license on state lands was issued in 2002 for a term of seven years. The work commitment of $2.2 million has been satisfied with the seismic program that was just completed. The new development this year was the University of Alaska being allowed to select up to 90,000 acres of land within the basin. There is a total of over a half million acres of licensed area.

He explained that marine sediments are typically oil-prone and non-marine sediments tend to be gas-prone. There are two types of gas – biogenic gas or methane, which is produced by bacterial activity in a coal seam and is found generally in shallow areas - 2,500 ft. to 6,000 ft., as in Cook Inlet. Depths below that are too warm and too tight for the bacteria to survive. If gas stays in the coal seam, it's called coalbed methane. If it migrates out of the coal seam into an adjacent sandstone reservoir, it's called biogenic or shallow gas.

Thermogenic gas is created at depths of 8,000 to 12,000 ft. by the thermal conversion of coal, shales and organic material into the higher-order heavier gases. Typically, sediment migrates into an area and vegetation grows on top, subsides and then the process is repeated. This continues until a geologic event creates an uplift and buries that vegetation. Then the cycle is started over again. When the vegetation gets buried at great depths, it converts to peat, then to lignite, then to sub-bituminous coal and then to anthracite. Methane is "off-gassed" from the bacterial activity. He elaborated:

> So, if you have coal seams, you have by definition produced gas. That happens over long periods of time – millions of years. That doesn't continue forever. It normally peaks out.... Once you get past that point, you start getting into anthracite and graphite, it's overly mature and you've run out of gas. And if it hasn't found a home by then, if it hasn't migrated into a trap, then it's just been off-gassed to the surface.

MR. USIBELLI said his organization is looking for gas that has migrated and has been sealed into a reservoir by tighter formations. They have found some reservoir rock and rocks capable of seal. He explained that Cook Inlet has folds that form domes that contain accumulations. The Nenana Basin has similar-aged units and rock material, but until an exploration well is actually drilled, they won't know for sure what the formations are. A larger drill rig is required for a well in Nenana than for a well in Cook Inlet, but smaller than on the

North Slope. If they get a discovery, they would immediately try to delineate the reserves to see if it is an economically viable field. He summarized, "I guess the overall thing here is that we're just getting started on this. The lion's share of the work is ahead of us."

10:46:00 AM – conclusion of Mitch Usibelli testimony

CO-CHAIR RAMRAS said the soonest he figures Fairbanks would see gas would be in 2016.

> Some of the promise that we've discussed is, you know, that we could find gas nearby, sooner, develop it and then be able to leverage a distribution pipeline using an existing right-of-way that doesn't require Canadian permits, doesn't require us to source the world's steel supply for a year or two years, as Senator Stevens has indicated.

He asked Mr. Usibelli how the Legislature could help accelerate this process.

MR. USIBELLI responded by first thanking the Legislature for extending the timeframe for the exploration incentive credit application, which it did last session, as these projects tend to take longer than anticipated.

CO-CHAIR RAMRAS said Andex it is more aggressive and that Norm Phillips with Doyon indicated that they were ready to go at an earlier date and asked him to comment on that.

MR. USIBELLI replied that he wouldn't characterize Andex as being more aggressive.

> That was their roll as operator. Their roll as operator in our agreements was for them to propose activity going forward. And our roll as participants is to evaluate that early and for all of us then to sit down and discuss that and decide where we're going and that's what we did.

He hoped to be prepared in the very near term so that if a project doesn't get sanctioned on the North Slope and there is a rig that would work at Nenana, they could make a decision to commence drilling this winter. "So, I mean, that's still not off the table."

CO-CHAIR RAMRAS asked what the expense component of getting the next leg of the drill rig is.

An unidentified person replied that the initial well would probably cost about three times as much as the initial seismic program. That's why they want to make sure the commitment is being thoroughly evaluated in reacting to what's happening with the drill availability.

MR. USIBELLI added that they were potentially looking at putting two holes in the ground in one season and that would cost $18 million to $20 million more.

CO-CHAIR RAMRAS pointed out that the hard dollar cost is the next hurdle to overcome for a discovery. There was general agreement to that comment.

REPRESENTATIVE DAVID GUTTENBERG asked what the timeline is for setting up a drilling rig and then moving it and how many wells could be drilled in a season.

MR. USIBELLI answered the most they could drill is one or two wells in a season.

> Of course, you would want to see the results of that first well... to decide then whether you are going to drill the second well and where. So you may go in and permit several sites and then determine where you want to drill that second well, if you do it in the same season.

CHAIR WAGONER asked what would be the overall economic impact on his coal business if producible wells were brought in in Nenana.

MR. USIBELLI replied that the price of whatever gas made it to Fairbanks would be established by market conditions and that has to compete with existing diverse forms of energy supply in Fairbanks. It would have an impact.

> That not just coal; but there's oil-generated power here, there's hydropower that's wheeled up from Bradley Lake, there's Cook Inlet gas power that's wheeled up over the Intertie. So, Fairbanks already has a fairly diversified power supply from various sources and gas would have to come in and fit into that scenario and, of course, our costs for exploration and development have to come in less than

whatever market price is. There's a wide range as you saw from the earlier slides of what the price of gas could be.

10:54:00 AM
SENATOR KIM ELTON asked what kind of a role he saw for the new landowner, the University of Alaska, and how would that interact with his organization.

MR. USIBELLI replied that he hadn't had detailed discussions with the University, but his assessment is that they are simply getting a new landlord and that doesn't affect their exploration and development plans.

REPRESENTATIVE JOHN COGHILL asked why his exploration plans head to the southern part of the basin, but the deeper portion seems to be the more northern portion.

MR. USIBELLI replied that there were logistical reasons as well as technical reasons for that plan. A lot of the historic data that they are building on was located in the southern area and they are trying to mitigate some of the risk by using some of the preexisting seismic in the southern area.

REPRESENTATIVE COGHILL asked what their season is for getting in and out of the Nenana area and how they would control public access.

JIM MERY, Doyon Limited, replied that the drilling season would be in late January through the end of March with winter-only exploration, at least in the early phases. Ice bridges would have to be built across the Nenana River and access issues would get solved when break up comes. If development happens, more permanent access would have to be addressed.

CHAIR WAGONER asked if and when they were going to do any more three-dimensional work.

MR. USIBELLI replied that since they are looking at such a large area that has such sparse data, the conclusion was that 3D is not justified economically. They would probably zero in after drilling, not prior.

10:58:00 AM
CO-CHAIR RAMRAS asked, with 3 TCF of gas in the basin potentially, what is necessary to make the gas economic enough

to be able to build infrastructure so that it is not stranded in the Nenana Basin.

MR. USIBELLI replied that was a difficult question to answer because of the lack of known characterization of the reservoir and the basin. If 3 TCF were there, that would clearly be large enough to justify supplying Fairbanks and looking at the fact that Cook Inlet has consumed 7 TCF in the last 50 plus years.

CO-CHAIR RAMRAS asked Bob Swenson to comment on an article in the "Journal of Oil and Commerce" that said the Nenana Basin enjoyed the geology that would make it the fraternal twin of the Cook Inlet Basin. He also wanted Mr. Usibelli to elaborate on 250 wells that have been drilled in Cook Inlet and how that might correspond to the number of wells that will be drilled in the Nenana Basin.

11:00:59 AM
MR. SWENSON replied that one of the reasons it was called the fraternal twin of Cook Inlet is because of the geologic system that is present in both basins. They are both reservoirs and sources of gas, but the differences are in the structures. In Cook Inlet, gas was discovered early on as a by-product of oil exploration. They were drilling for deeper oil and it along with gas. Those formations were easy to find even on early 1060s seismic data. Eight TCF of gas was found in the process and that put them in a stranded gas situation.

The Nenana Basin, on the other hand, even though it has the same coal sandstone reservoir system that makes it that fraternal brother has a very different tectonic history. The way the big folds are developed is somewhat different. The Nenana system is along a major fault system; Cook Inlet has an over-all compressive system. He elaborated:

> It's very important on how complex those faults are, how complex those structures are. In the Cook Inlet you have very, very, large features with very little faulting associated with it. Faults, in most cases, turn out to be a problem, because gas leaks up those faults. In the big fields, the Kenai gas field, the North Cook Inlet field, the Beluga River gas field, the faulting within that fold is very, very, limited. That's what's going to be so important with these folks' work – is to identify what those structures really look like. With the current seismic data, clearly the structures are there, but our

understanding of those is limited. So, that's really the difference that we have there.

In the Cook Inlet, I think it's in a second phase of exploration. The big structures have all been drilled; there's clearly additional potential, but the very easy structures have been found and drilled out. So, that's in a very different phase of its exploration. I hope that answers your question.

11:04:00 AM
MR. USIBELLI concurred with his answer and added that another difference is that the Nenana Basin is smaller than the Cook Inlet and initial indications are that it is probably warmer than Cook Inlet, which is very cool. Therefore the shallow zone where the biogenic gas is created is a much wider window.

That's one of the reasons Cook Inlet is so successful. And the Nenana Basin, although it's smaller and shallower, we think it's a warmer basin and one of the advantages is that that deeper Thermogenic window would be higher and wider.

REPRESENTATIVE COGHILL asked how deep the first well would be drilled.

MR. USIBELLI replied that the units they want to identify are 10,000 ft. to 12,000 ft. down.

CO-CHAIR RAMRAS commented that his sense is if he's from the Kenai or the Cook Inlet region, he is starting to worry about where he is going to get gas from after the year 2012, but if he could be selfish and local, he is troubled with where he could get some relief for the cost of heating his home or business right now and asked for some optimistic comments.

11:07:00 AM
MR. USIBELLI responded:

If I were to characterize this, I would say that we have guarded optimism. We're very optimistic that this basin, in general, has the characteristics to potentially be commercially viable, but that's a very different thing than going out there and determining on your first drilling effort how the system works and where it is.

> There is a difference between optimism of the basin in general and optimism about whether you are going to be successful in finding the discovery on your first drilling effort out there. So, when I say I'm guardedly optimistic, I have to distinguish those two from a technical standpoint and that's where we're coming from, I think.

11:08:00 AM
MR. MERY, jumped in saying:

> I can do this a little differently.... What we're looking for is basically enough gas for Fairbanks for about 20 years, because with that comes commitment from people like Golden Valley and other folks to actually take gas and do conversions to power – those kinds of things. That puts it in maybe the 500 to 700 BCF of gas range.... I think it's doable and you could see gas here in Fairbanks in five years.

REPRESENTATIVE HUGH FATE asked if they had any plans to do 3D seismic since it is much more accurate in locating the structures.

MR. USIBELLI replied that Usibelli Energy didn't have any plans at this point for using 3D even though it is much more accurate. The problem is that the expense keeps them confined to a much smaller area to analyze. They are not at the point of identifying a target that would justify reducing their look to that one target.

CHAIR WAGONER said Cook Inlet has had the advantage of having two or three pretty large world-class gas discoveries and the chances of that happening again in the Nenana Basin or elsewhere are very slim. He asked Mr. Swenson to touch on the subject of Cook Inlet being out of - not gas - but being out of inexpensive gas.

11:10:55 AM
MR. SWENSON replied that the large fields in Cook Inlet have a number of different attributes that are unusual. Not everyone thought in the beginning that those types of reserves would be discovered. There are a number of geologic reasons for that – one of them is that Cook Inlet has stacked reservoirs. It's not like the North Slope where everything is in one reservoir and one seal holds back all the gas and oil. He explained:

> If you have a fold, it will be from 3,000 ft. down to 8,000 ft. in a bunch of different reservoirs. That similar system is active in the Nenana Basin and I think you could say it's not that those large large discoveries are unreasonable in the Nenana Basin. I think these guys will agree. I don't think they would be out spending the risk capital to be here to do that unless they have the chance of finding that. It really gets to what's the amount of data that we have, as a I pointed out, and the quality of the data and.... I don't think it's true that we can say that the Nenana Basin does not have that chance. It's just given the knowledge that we have right now - it is part of that distribution of probability that one of those big fields could exist. It's what we know, what we know about the basin right now suggests that most likely it wouldn't be, but it certainly is part in reality of that.

In reference to Co-Chair Ramras' question earlier, he said:

> I think it's important to recognize this group of explorers. This is the type of companies that are very very important to us continuing on both in the Cook Inlet as well as in the Interior Basins. It's a very risky project; it takes a lot of wherewithal to get out and do this front line wildcat data and to go out. So, I'm actually very proud of these guys if they have the wherewithal to do that.

11:13:00 AM
CO-CHAIR RAMRAS asked if gas is found that is more spread out, how would it be brought to the gas treatment plant. Specifically, he asked:

> Are the gas treatment plants, are they going to be sized? Can they be sized? Do they take a long time to construct? Is there a great deal of permitting that goes in to that? Do you have to analyze the gas to find out what kind of methanes and propanes are in it? Is there anything in it that offers some relief to rural Alaska?

MR. MERY replied Thermogenic gas that might be present in the Nenana Basin in all likelihood would contain propanes and his group "has identified" stripping them out and using them instate.

MR. USIBELLI followed up saying that the development and construction of gathering systems would be covered under their plan of development if a discovery were made. He would want to get gas to market as soon as possible and Usibelli would probably not wait to design, permit and build a full-capacity pipeline to Fairbanks. It would look at having facilities that would allow them to either treat and strip out certain gas components or simply to compress or liquefy the gas and barge it out to villages and truck it into Fairbanks - so they can get established in the marketplace while pursuing a pipeline.

> I agree with Jim. You don't need the full 3 TCF discovery before you justify proceeding with the project. You need something smaller than that and you don't necessarily need to wait until you build a full-sized pipeline to Fairbanks. There are ways of starting to get the product to market prior to that. And that should all accelerate the process.

SENATOR THERRIAULT asked him what kind of opposition he had experienced in the permits they have applied for or if he had experienced organized opposition to their work so far.

MR. MERY replied that one area of concern is the Minto Flats State Game Refuge, although they are not currently interested in that area. They enjoy a large well of support in both Nenana and Minto communities. He hasn't seen any red flags with respect to this project right now.

MR. USIBELLI added that when he toured the seismic program in March, some of the initial lines were already signed with trap lines and marked up with snow mobile and dog sled tracks.

11:18:00 AM
REPRESENTATIVE COGHILL said that answered a question he had on access, because they have created an avenue for people to travel on. He also wanted to know if they had run across barriers to the new exploration style that the Legislature should know about.

MR. USIBELLI replied that Usibelli Energy is in the process of submitting its first incentive credit application.

CO-CHAIR RAMRAS said any time the price of gas goes up, people want to know if it's the state's gas and oil, why they are paying such a premium for it. He asked how it would be priced

and if the increment of discovered gas was too small to justify a 50-mile 24-inch diameter pipe, what were the other means of transporting the gas and what would the tariff be. Would it be off of the Henry price or more tied into the cost of competing forms of energy, in which case that doesn't necessarily offer a cost savings for Alaskans. It just offers an alternative to the existing source of energy.

MR. MERY replied that even if you were pricing to the Henry Hub, which is $5 to $6.50 MCF, there is almost a $10 savings on 1 MCF of gas compared to fuel oil today, a huge savings.

11:22:14 AM
CO-CHAIR RAMRAS surmised that they didn't have find the full 3 TCF in order to be able to introduce larger quantities of gas to the Fairbanks market. He asked Chair Wagoner to detail the nature of how gas in Cook Inlet is delivered to a home in Kenai as opposed to the delivery mechanism Fairbanks, which is an antiquated method of trucks, sleds and vehicles.

CHAIR WAGONER replied that some wells had just been drilled around Ninilchik. That involves commercially producing a well, a pipeline to deliver, a step-down station to reduce the pressure and to odorize the gas and then delivery into the home. Anchorage has a pipeline system basically up both sides of the Inlet. For Fairbanks, the gas is first pressurized in Anchorage and then shipped and injected into Fairbanks' systems. He said that LNG is a lot better product to do that with.

CO-CHAIR RAMRAS said he wanted gas for Fairbanks and doesn't want to wait for a North Slope line to be built. He related that last year Fairbanks was dangerously close to not having any gas because an avalanche had closed the road into town. He was interested in how the cost of a project could justify the delivery of 3 TCF if gas is trucked 50 miles instead of 350.

CHAIR WAGONER related that, Ninilchik, one of the recipients of the gas, was going to install a pressurization and odorization station and a distribution system. It was estimate that it would save one of the small schools there of a minimum of $27,000. If that savings is projected into a community the size of Fairbanks, that would be a tremendous amount of money saved. Beaver Loop field is very small, but commercially viable and that oil is trucked continuously into Kenai. "So, there are other methods of doing it and doing it on an economic basis, but hopefully we get more gas than that out of the Nenana field."

MR. SWENSON added that the amount of oil found is an important point and long-term supply would attract different industries to the Fairbanks area, but if the user base is small that would affect the return on investment, also.

CO-CHAIR RAMRAS noted that the difference in the price of gas between Anchorage and Fairbanks is the tariff, which consists of the pressurization and a 350-mile truck run, "And we're going to find out how much that is!" From his Fairbanks perspective he exhorted:

> I know that home heating oil is at $2.39 a gallon right now in Fairbanks and it's too much. It's going to be a painful winter for low income, fixed income, and two-income earning families this year and if we don't figure out how to get some relief into our community long before we see a gas line that comes down from the North Slope, it is going to be very difficult to live in Fairbanks and enjoy the same quality of life that we've had for the last 10 years....

MR. BANKS responded:

> My calculation would get gas from the North Slope to Fairbanks for less than what buyers down in the Lower 48 would be paying for gas, simply because of the difference between the transportation all the way to Alberta and the Lower 48 versus the transportation cost to just Fairbanks. So, at the outset, residents of the Interior will enjoy that difference in price....
>
> But the fact remains that a pipeline all the way to Valdez or to Alberta will be carrying gas to a marketplace and that the amount of gas that can be used by Fairbanks or even Alaska in general in Cook Inlet will remain a very small portion of that. So, the economic driver that gets the pipeline built and gets the development in other gas resources in the North Slope that will eventually support the construction of such a large pipeline will be driven by Lower 48 prices. And, as I pointed out, that's precisely what we've seen over the years for the supply of crude oil in Alaska – that our refineries enjoy a lower cost of crude oil than do refineries in, say, on the West Coast. And as a result, take my word

> for it, we are paying less for gasoline here in Alaska than our neighbors in California or Washington.

REPRESENTATIVE BETH KERTTULA asked what kind of return Alaska gets at production.

MR. BANKS answered:

> Right now, I think the licenses there would convert to leases with a 12.5 percent royalty. Production taxes will depend on what kind of economic limit factor (ELF) might apply should one apply there and also the kind of incentive credits that will be permitted. But, at least, we can say that 12.5 percent of the gas at the moment will be the state's royalty.

MR. BANKS said that 12.5 percent is the statutory minimum for new leases and royalty can be reduced under very special provisions of the law.

CO-CHAIR RAMRAS noted that much of the Nenana Basin was in the University land transfer and so the royalties would accrue to it and not the state.

REPRESENTATIVE KERTTULA asked if any of the state's incentives currently require any kind of price limit to consumers.

MR. BANKS replied no. Either you have an incentive if prices are low or alternatively there could be some kind of penalty if the price of fuel oil or gasoline were too high. That begins to look like an excise tax.

SENATOR THERRIAULT commented that the difference in price for gas between Alaska and the Midwest was a FERC issue and:

> We will not have to pay the rate as if the gas were shipped all the way to the Midwest, because it is taken off in Alaska and frees up capacity. That's one of the things that FERC, I think, looked out for the state of Alaska.

He said it has been stated that the Interior communities support gas development, but the opposition often comes from outside the state and he wanted to know if they were experiencing that. He also wanted to hear about bottlenecks in the state permitting system so they could be removed.

MR. USIBELLI related that comments in opposition to development were filed during the best interest findings, but he didn't know how that would impact getting permits.

SENATOR THERRIAULT asked Chair Wagoner what part of his constituency is served with natural gas.

CHAIR WAGONER guessed about 75 percent.

SENATOR THERRIAULT said that a lot of his constituents are rural so they don't even get cable TV, but in a town like Anchorage a mile of pipe could serve 100 homes. Getting the gas into homes changes the dynamics of the tariff.

CHAIR WAGONER said that's why the other percentage of people in his district didn't have gas.

CO-CHAIR RAMRAS remarked that the two senators were illustrating the correlation he'd like to draw between Fairbanks and Anchorage. Anchorage is a large community with gas pipe available. Fairbanks natural gas would have to have the rationale and the economic justification to fund a gas grid. It would be easy to beat the price of trucking gas 350 miles versus 50 miles, but not so easy to replicate the infrastructure that Cook Inlet already has. The idea is to get cheaper energy to Interior and rural Alaska.

CHAIR WAGONER stated that some people have hydro-generated electric heat as a backup to oil or gas.

11:51:00 AM – Lunch Break –

CO-CHAIR RAMRAS reconvened the meeting.

CURTIS THAYER, Enstar Natural Gas, opened his comments saying that Enstar was established in 1961 shortly after discovery of natural gas in Cook Inlet and it currently serves over 330,000 Alaskans. It has 121,000 meters spinning at homes and businesses. It owns and operates 3,000 miles of distribution mains and high-pressure gas transmission lines and about 2,600 distribution mains. Its direct impact on Alaska's economy is approximately $170 million. He said their expertise is in the compression plant, engineering and construction, pipeline engineering, environmental permitting and construction management. Its most recent project was the Kenai Kachemak Bay pipeline, a 33-mile pipeline that brought in the new fields south of Ninilchik that cost $540,000 per mile.

For perspective, he said Chugach Electric, the second largest utility in the state, has 69,000 meters and Golden Valley Electric has about 40,000. His slides indicated that the LNG plant uses 39 percent of the gas in Cook Inlet; Agrium uses about 27 percent; Enstar uses about 18 percent; and Anchorage Light and Power and Chugach Electric uses about 16 percent.

MR. THAYER said that Enstar's delivered cost to the Fairbanks consumer at the burner tip is $5.11. Fuel oil was $13.28. His slide compared that to propane and electric companies as recently as this spring. He explained:

> If the consumers in Southcentral Alaska switched to fuel oil, it would jump from $140 million per year that the consumers pay in Southcentral for natural gas, the next lowest cost is fuel oil at $553 million. So, right now there is over a $300 million difference. That's why we are so concerned and we are looking to Fairbanks, the Nenana Basin and the North Slope gas to help keep natural gas flowing in Southcentral and in the Fairbanks homes.

Enstar's rates are adjusted every December and more than half of their contracts are based against the 36-month trailing average of Henry Hub prices. He anticipated that the price of gas would go up 17 percent this next year.

CO-CHAIR RAMRAS commented that his figures were the crux of this discussion – how to replace the energy source, provide the same amount of BTUs in their homes and yet inject more disposable income into the local economy without government doing anything except facilitating.

MR. THAYER said when this slide was produced on June 21, he took the Henry Hub price of $7.80 - and for the tariff used what Enstar charges its customers, about $1.12 per MCF – and converting the amount of fuel oils to MCF, came up with a $15 million difference. "It was a snapshot in time."

CO-CHAIR RAMRAS remarked that this followed along with the savings Chair Wagoner was mentioning earlier.

SENATOR THERRIAULT said he thought Mr. Thayer's graph overstated the savings somewhat, because a lot of the population is so sparse.

MR. THAYER agreed, but added that customers who get access to the natural gas would be cutting their bill by 40 percent. He said that Kenai and Mat-Su have developed mechanisms that allow the system to expand. For instance, the borough lends money to neighborhoods to convert into user districts.

He explained the next slide, which graphed gas supply and demand using Department of Energy 2004 figures and those lines intersect in 2012. The gas and electric utilities don't have access to a good portion of the gas because it's dedicated to the Agrium Plant or the LNG plant. He hoped to have some gas under contract within the next three to six months, but he couldn't contract it for five years at a time. "We're putting it together a little bit at a time with various producers."

MR. THAYER said the real reason they are here today is to see how North Slope or Nenana Basin gas can come to Cook Inlet via the Parks Highway. Initially, they estimated the spur line could cost up to $500 million, but that's truly debatable depending on the price of steel, which is the biggest unknown. Enstar engineers have said a 24-inch line would be needed to continue a supply of about 1 BCF per day into Cook Inlet and estimate there is plenty of gas both on the North Slope and in Cook Inlet to supply Southcentral Alaska and Fairbanks.

He said that the Alaska Natural Gas Development Authority (ANGDA) is also looking at the Richardson Highway as a possible route into Southcentral Alaska. The advantage to the Parks Highway route is the fact that gas is along the proposed route in the Nenana Basin. He noted that Enstar has a 10-inch line under Turnagain Arm that was built in 1960 that is still in service today. To meet demand, another 20-inch line was built under Turnagain Arm in the 1980s and any future spur line would be a long-term gas line.

Enstar asked the question, "Do you support a spur line?" on a poll and 85 percent of its respondents including people in Ketchikan and Juneau said they do. Enstar, Arctic Slope Regional Corporation and Michael Baker Engineering will soon commence a $3 million conceptual study of a Parks Highway route. A recently passed highway bill made an additional $2 million available for this study that should be done within the next 12 to 18 months. Some of the routing issues are environmental and permitting, potential resource development, right-of-way ownership and the social and economic impact analysis.

CO-CHAIR RAMRAS asked how much gas would be needed in the Nenana Basin to economically justify building a pipe along the Parks Highway from Nenana up to Fairbanks or down to the spur.

MR. THAYER responded, “We like the 3-5 TCF number.” He added that the study would consider both North Slope and Nenana Basin gas.

CO-CHAIR RAMRAS asked if the line could be incremental and could the Cook Inlet line be retrofitted to connect to the North Slope line once it is on-line.

MR. THAYER replied yes and his next slide was an overview of the various lines, but he said, “By no means are we picking sides until the studies are done. It just happens that somebody has to be primary and somebody has to be secondary on a map.” The next slide was a timeline of 2009 – 2010 if a spur line proves to be possible. The two biggest unknowns were permitting and RCA review, both government functions.

CO-CHAIR RAMRAS said the other two factors that would be integrated with Enstar’s timeline would be the discovery of gas by Doyon and Usibelli and the third component would be creating the pipe to get to the demand that would exist in Fairbanks.

MR. THAYER replied that was right. He summarized that Enstar has partnered with the Department of Energy, Municipal Light and Power, Chugiak, Artic Slope Energy, Michael Baker, and the Alaska Natural Gas Development Authority and all concerned parties in working together on how to bring gas to Southcentral Alaska and Fairbanks.

SENATOR THERRIAULT said he thought storage challenges in Fairbanks would be even greater than in Southcentral.

MR. THAYER agreed.

REPRESENTATIVE PAUL SEATON related that Cook Inlet has very dry gas (Biogenic) and that Nenana gas might be very wet (Thermogenic), but Mr. Thayer’s slide showed the wet portion being more expensive than fuel oil. He asked if he anticipated propane coming out of Nenana Basin would be higher than fuel oil.

MR. THAYER replied that he wanted to defer that answer to Harold Heinze, because Enstar is not in the propane business. He said the slide did not take wet or dry gas into account.

SENATOR RALPH SEEKINS remarked no matter what route was used there would be similar challenges in terms of danger to threatened species, geological formations, et cetera.

MR. THAYER agreed and said the idea of the study is not to recreate information that exists, but to try to pull all the old information from the last 10 or 15 years together and compare the differences. "We're going to get a rough estimate...." The Parks Highway has three possible corridors – the Highway corridor, the Railroad corridor and the Intertie corridor. A gas pipeline could come through any of them or a combination thereof.

CO-CHAIR RAMRAS said the next presenter would be Dan Britton from Fairbanks Natural Gas and asked him to, along with his presentation, keep in mind the issues of creating of the sourcing of energy, Enstar's desire to build a pipe with an adequate supply of hydrocarbons and connecting the demand with the pipe.

DAN BRITTON, Fairbanks Natural Gas (FNG), said the company was started in 1997 and the idea was to bring a natural gas alternative to the Fairbanks community. The desire was to stay competitive with the other energy sources. He explained that Northern Eclipse buys its gas at the Cook Inlet and Beluga fields; Enstar transports it on Fairbanks Natural Gas' behalf to a facility located near the Little Susitna Recreational Area. The facility liquefies the gas to a cryogenic temperature to –260F for storage. He said that natural gas will not turn to a liquid as a result of compression alone; it needs to be cooled also. One-gallon of LNG will expand 600 times and propane stays liquid at ambient pressures and temperatures.

Once the gas is liquefied it is transported in trucks to Fairbanks where it is stored in large vessels until consumers are ready to use it. Then it is reheated back to a gas and distributed.

CO-CHAIR RAMRAS asked what it would cost to replicate the Pt. McKenzie LNG compression plant to transport gas from Nenana to Fairbanks if there was not enough of it in the Nenana Basin to warrant a pipe.

MR. BRITTON replied that Fairbanks Natural Gas has estimated that a liquification plant right now would cost $6 million to

$10 million. This didn't include the trucks or storage once it reaches Fairbanks.

CO-CHAIR RAMRAS noted that trucks are available since they are being used now for the longer distance from Anchorage.

MR. BRITTON replied that their trucking expense would go down by 30 percent. The trucking component adds approximately $1.50 per MCF, not including the cost of the LNG trailers, themselves.

SENATOR THERRIAULT pointed out that people would not be able to have an LNG bottle outside their homes as they do currently for propane just because of its storage requirements.

MR. BRITTON agreed and said that natural gas can be distributed through a pipe distribution system as compressed gas or LNG. Compressed gas is not very efficient because the space required to get enough energy to serve a home would require a very large tank with very high pressures. LNG requires very capital-intensive equipment and therefore, for a residence, it's not economic.

CHAIR WAGONER asked what the cryogenic process adds to the cost.

MR. BRITTON replied that it depends on the capital cost of the storage facility, but operation-wise it probably adds $.50 to $1.00 per MCF.

CO-CHAIR RAMRAS asked how many MCF would a residence burn in a month during the winter.

MR. BRITTON replied that FNG uses an average of 190 MCF per year for its modeling, but that can vary widely. The monthly peak is usually 2.5 times the average in Fairbanks.

CO-CHAIR RAMRAS recapped that their best estimate in savings would be $1 from shortening the haul from Anchorage to Fairbanks to Nenana to Fairbanks, and the additional savings of approximately $1 that Chair Wagoner mentioned of regasification in Fairbanks.

MR. BRITTON agreed and said that it takes 1.2 MCF of gas to liquefy 1 MCF of gas so there is a loss in efficiency converting LNG to begin with. This doesn't take into account the capital component of the facility, the trucking, the trailers or the storage and the vaporization. "Those are the components that are different than a conventional pipeline source."

CO-CHAIR RAMRAS asked if it is cheaper to heat the same size home on heating oil or natural gas with his present delivery system.

MR. BRITTON answered that he has a slide that compares the historical and current pricing of gas versus oil. Today their gas to a residential customer is a little below $1.60 per gallon. The current price of fuel oil to a residential customer is $2.39 or so.

CO-CHAIR RAMRAS speculated that the liquification, regasification and transportation would cost about 20 percent of the gross volume to Anchorage and Fairbanks would be paying a component to regasify it again and the tariff is around $2.50 per MCF.

> So if, in fact, you were able to back out of those costs and you had just a straight pipe and whatever the tariff would be, Curtis Thayer and Enstar, whoever the pipeline builder would be, the savings would actually stair-step down from the $1.60 per gallon equivalent to somewhat less than that. Is that correct?

MR. BRITTON replied yes, but he pointed out that he would not have the advantage of having long-term contracts. Their distribution tariff would be slightly higher than Enstar's given the facts that their customer base is smaller and their investments are newer so the depreciation is higher. "We would be closer to Enstar, although we'd still be slightly higher than Enstar."

CO-CHAIR RAMRAS supposed that the efficient market for natural gas would be to discover a sufficient amount of gas in the Nenana Basin to warrant the construction of a 50-mile pipe and delivery right to customers. He remarked:

> And every time that we back away from that, we get less efficient and we loose a volume of product and we add steps.... Even with all of those things, you're saying that the cost to heat Chair Wagoner's gas home is two-thirds of the cost of what it is to heat my home on home heating oil presently.

MR. BRITTON replied yes - based on prices today. He presented a series of slides showing where the company started with its

distribution system and how it might continue to evolve. He said that Fairbanks has such extremes in temperatures that everything that gets built has to get built for that peak day. That includes the distribution system, LNG production and storage. "So, utilization of your capital is very difficult. If your peak day is two and half times what your average is, it becomes a very difficult thing to deal with."

CO-CHAIR RAMRAS asked how close Fairbanks was to running out of natural gas when the avalanches occurred last winter.

MR. BRITTON replied that after the avalanche, their delivery trucks were rerouted through Glennallen.

REPRESENTATIVE BILL STOLTZE, asked a question about permitting.

MR. BRITTON replied that FNG has good relations with the RCA [Regulatory Commission of Alaska], the city and borough government and DOTPF in obtaining their rights-of-way and, to date, its investors have borne the cost of all their distribution expansion, not their customers. He thought that Enstar would allow customers to pay into its capital cost.

MR. THAYER added that in communities where it's not cost effective to serve people with natural gas, the boroughs have allowed residents to form assessment districts. They petition themselves and by a super majority vote to assess themselves for bringing a natural gas line into an area. Once the line is extended into an area, the homeowners reimburse the borough with a $20 service charge and a per household tariff.

He related that the RCA operates under a cost causer/cost payer process. As the cost causer, the RCA would need to pay those costs. One of the biggest reasons Ninilchik could not afford to have gas is because the regulating station would cost about $225,000 and the homeowners would have to absorb that cost. However, he reminded them that homeowners are given a credit based on an estimate of how much gas their home or business would be allowed to use. The estimated cost to extend a line into an area is based on Enstar's construction costs from the previous year. This year, it was estimated to cost about $8.81 per foot to bring a main line in.

CO-CHAIR RAMRAS clarified that Fairbanks Natural Gas does in Fairbanks what Enstar does in Anchorage. But Enstar's role is different in building a pipe from Nenana to Fairbanks than the present capacity Anchorage enjoys.

MR. THAYER added that Alaska Pipeline Company is the subsidiary that operates their 450 miles of transmission lines.

CO-CHAIR RAMRAS asked what the cost per mile is to lay down residential pipe.

MR. BRITTON replied that FNG uses $100,000 per mile as an average.

MR. THAYER replied that Enstar uses $8.81 per foot.

MR. BRITTON speculated that Enstar could be blending costs because they are doing a lot of new construction and those costs are significantly lower than putting infrastructure in existing roadways like FNG is doing.

CO-CHAIR RAMRAS asked Mr. Thayer if he thought the economic growth of Fairbanks is inhibited by high-energy costs.

MR. THAYER replied that Fairbanks would boom if it could lower the cost of its energy by 40 percent.

CO-CHAIR RAMRAS asked Mr. Britton if FNG focuses on getting lines out to the large industrial users because there is no guarantee homeowners would convert to gas.

MR. THAYER replied yes. Enstar has a limited amount of capital and it looks at the best use of that capital in any given year.

CO-CHAIR RAMRAS thanked both gentlemen for their presentation and announced that Kate Lamal would testify next.

KATE LAMAL, Vice President, Power Supply, Golden Valley Electricity Association (GVEA), explained that their lines go north to Fox on the Steese Highway and down to Delta where there is a lot of growth. She wanted to make three basic points. One is about mining and economic development in the Interior and how energy prices can be stabilized, as well as affordable. Another point was that GVEA has the ability to add generation as needed to serve new loads for large mines that are under development. And lastly, she wanted to show how natural gas could play into their future and what they feel is natural gas’s competition.

She said that GVEA currently serves two large gold mines, Fort Knox and Pogo, and showed the committee a map of possible connections to other utilities and industry. She said that

Golden Valley is fuel diverse and that's one of the best ways to keep power cost stable and relatively low. They use coal, oil, hydro, natural gas and are currently building a power plant that will be fueled on naphtha. A couple of low-cost long-term contracts with Chugach and ML&P are expiring and they are talking about what happens when these utilities run out of their cheap natural gas.

MS. LAMAL also noted that Fort Knox would be closing in the next couple of years and one of the ways Golden Valley will try to meet low growth in the future is by building a new power plant fueled with naphtha, a lower value product with very good value in the existing quality bank. The new units are dual fuel and can easily be switched to natural gas if it becomes available. Also, Golden Valley owns the 2.3-mile pipeline that brings oil from the TAPS into the refineries. If natural gas does come from the North Slope, GVEA has an existing right-of-way, an existing pipeline and the expertise to operate it to bring it into the North Pole facilities. She explained another efficiency of using naphtha is that the exhaust gas from it will go through a once-through steam generator that runs a steam turbine – and, she emphasized, for just the price of the gas turbine and the once-through steam generator, GVEA's output will double. It can go from a 60-megawatt unit to 120-megawatt unit in a very short time.

She said that Nenana gas would be very attractive to GVEA, but it would be competing with other fuels from the perspective of the electric utility. She explained:

> First of all, there is abundant coal in the Interior. We currently have a coal-fired power plant in Healy. That plant is running extremely well. It's breaking all of its old records; it's 37 plus years old. It's been retro fit with emission controls and it is very cheap, particularly with the escalating oil prices that we're seeing right now. That's going to be the competition of natural gas – is going to be against coal, for one thing.
>
> Natural gas is also going to be competing against products that refineries may want to sell to the utilities in the state at a lower price if they see the competition coming forward. And lastly, and being very realistic when I say natural gas is going to be competing with wind, wind or alternative energies will never replace our fossil fuel. However, when the

> utilities have to make capital investments and they have to do that particularly the investments where there's no growth to support those investments. If they can offset higher cost fuel, wind becomes more attractive. So, that's what happening here – is that throughout the country wind is becoming more attractive as we have these escalating fuel prices.

CO-CHAIR RAMRAS thanked her very much for her presentation. He announced that BILL BOYCOTT, Agrium, was not able to attend and that Harold Heinze would be the next presenter. He noted that power cost equalization is an important issue and he would go over gas and propane as a rural energy mix. He asked him specifically to put on his 20-year hat to consider how they may better serve rural Alaska.

HAROLD HEINZE, Alaska Natural Gas Development Authority (ANGDA), explained that he is a state employee who lives in Anchorage where the committee has just established that energy is cheap and they have a little bit of a supply problem and he is sitting in Fairbanks where energy is expensive and he is going talk about where energy is really much more expensive than in Fairbanks.

He presented a chart of benefits the ANGDA made up when it first started in 2003. He emphasized that he has consistently found that all Alaskans want to know how they can get cheaper energy. It seemed so logical that when the pipe crossed the Yukon River, why wouldn't something be done at that point to move the energy up and down it. He believes that Fairbanks will get gas going through their town somewhere. Getting gas to tidewater opens up other kinds of things that can be done with coastal communities.

ANGDA just finished a propane study revealing that the logistics of energy distribution in Alaska needs to be improved. He said that flying around 100 tanks of propane in planes is not very efficient, but if you want to get more efficient, you could deliver propane in a system of tanks much like people use for filling up propane tanks for their grills. Take your empty propane tank into your hardware store and pick up one that's full in return. Everywhere barges went and everywhere containers were delivered, propane could be delivered in those kinds of tanks. These kinds of systems dramatically improve efficiency.

The other part of improving the cost effectiveness of the system is how things get financed. Wyoming has a natural gas development authority and all it does is provide the financing

for pipelines. It estimates is has made the state of Wyoming about a half a billion dollars a year. It acts as the broker between those people who explore for gas who need a pipeline and those people who build pipelines, but need gas discoveries. As the honest broker, they close the deal. “Those opportunities exist throughout Alaska....”

A PND study looked at the logistical problems associated with marine delivery of propane to 10 coastal communities. It found that one of the biggest factors affecting cost was having a limited period of time to get supplies into a port and that would have associated large storage costs to store a whole year’s supply. A lot of things were found to improve logistical systems other than building pipelines, like establishing a couple of distribution centers from which people could barge gas to their communities.

MR. HEINZE showed slides comparing energy prices and said he found that propane could help some individual homes reduce their energy costs by being used for cooking and water heating. For power generation he found only a few examples where he would consider even using propane to make electric power. The study indicated that it would be very easy to make 40,000 to 50,000 barrels a day of propane in Alaska and the current rate is under 2,000 barrels a day. The study suggested that using 10,000 barrels of propane a day would be a reasonable growth number for the longer term in Alaska.

The next couple of slides presented facts about a possible spur line from Delta Junction to Glennallen and Palmer. He said, “What is obvious to us, at least, is that this is a very feasible out. We’ve done enough work to feel very comfortable with it.” One of the advantages of this route is that half of it can be put in the TAPS right-of-way and that would cut down on construction time, in particular. This project could be used as a prebuild into a big project if the big pipeline moves forward. Producers have indicated they would take the first five to seven years to deal with design and permitting and all the logistics that it takes. ANGDA estimates that a spur line could be built in five to seven years. He emphasized how important it was to have a couple of commercial customers to make a spur line economically viable and ANGDA has looked at how to make sure the industrial customers are there and how best to fit them into paying the bills.

CHAIR WAGONER said someone talked to the Senate Resources Committee about barging gas into some of the Southeastern

communities and asked if he had any interaction with those folks.

MR. HEINZE replied that the gentleman's name was Frank Havasack and his company holds certificates of utility type service to a number of communities up and down the coastal area. His concept was to bring propane into the area and have a piped distribution system in the communities. But at this point, ANGDA has not worried very much about how to distribute gas within the communities, but rather about getting it to a distribution center on the beach and unloaded. Private entrepreneurs would figure out what to do with it from there.

> The advantage of propane is that it is so transportable in so many different ways in smaller quantities. Again, that's why when we looked at the Yukon River first. It just seemed a natural to want to be able to use something there in terms of propane.

REPRESENTATIVE GABRIELLE LEDOUX asked if he was working with the Denali Commission, which has bulk fuel storage tanks in many of the rural areas.

MR. HEINZE replied no, they are not working together, but he is aware of what the commission is doing and he has done his best to make it aware of what he is doing. He hoped some of the things ANGDA is doing would help them make some decisions because the Denali Commission has been dealing with some very bad bulk storage problems.

SENATOR SEEKINS asked if the study showed that propane would not necessarily reduce the cost of electric production in rural communities.

MR. HEINZE replied that the study showed that at a household level, if there was plenty of propane and an efficient distribution system for it, you could probably help lower some portion of the energy cost of every household in Alaska.

CO-CHAIR RAMRAS thanked him for his presentation and announced that Steven Denton would make his presentation next on the economic impact of gas on coal in Fairbanks.

STEVEN DENTON, Usibelli Coal Mine, said some people think that coal is just going to go away when gas comes to Fairbanks, but both resources are there in such abundance that they should be

looked at as being complementary parts of an economic engine, not as one excluding the other.

He focused his presentation on production of electricity. He said that stability is necessary, as Ms. Lamal stated, but for big mining projects it's imperative to have low-cost energy also. Coal prices have been very stable over the long haul and there is every reason to expect they will continue to be stable in the future. But where gas prices are going is anybody's guess. One graph indicated that states with the higher percentage of coal in their mix enjoy lower electricity rates.

Most of his information came from Energy Information Administration (EIA) data that is available on a huge website. It says that coal will stay stable and that natural gas is $6 MBTU for electrical and industrial utilization, very close to the Henry Hub price. It's now peaking out at around $9.

R. W. Beck, an engineering firm that has a lot of experience in the energy industry, was commissioned by the Railbelt Energy Utilities to perform a study in 2004. It recommended building new coal-fired 150-megawatt power plant at both ends of the rail belt for cost saving purposes and for diversification. It also recommended going to much larger units than are being used now.

Another slide showed two prices that were conservative on the coal side, but optimistic on the gas side - $5 MBTU for gas and $1.50 for coal delivered from Healy into the Southcentral Basin. Electric generation cost about $47 per megawatt hour for coal and about $52 per megawatt hour for natural gas. Another slide showed a savings of $10 million per year using a coal-fired power plant while a gas one was being built. Paying off the debt on a coal plant would save over $1 billion in present value for Railbelt energy consumers with a 150 to 200 megawatt power plant. "That's not an insignificant savings and it's something I don't think that we can afford to ignore in our planning going forward."

MR. DENTON said that Usibelli Coal has 350 to 400 direct jobs, depending on how they are categorized. Putting in the new coal burning units would probably generate around 200 more jobs in the state. He reiterated that they need to look for diversity in energy creation and the challenge is to use those resources in an appropriate and prudent fashion.

He wanted to address the notion that coal is a dirty fuel saying:

> I think that’s probably an accurate statement if you have somebody with an old potbelly stove with no controls on it sitting in one house and a guy with a gas burner in the other. That’s a valid statement and for those kind of things, that’s another reason why I would not expect coal to become the fuel of choice for people to heat their house and cook their eggs in the morning and that sort of thing, but coal is subject for electric power generation to exactly the same regulations that all other fuels are. You have to meet the same regulations and even for a power plant, any fuel burned in a power plant, burned improperly is going to be a big polluter....

SENATOR SEEKINS asked how many years would the Healy coal source be able to supply electric generation.

MR. DENTON replied about 200 years at current consumption based on their current leases.

SENATOR SEEKINS asked where Usibelli’s coalbed methane plans are in terms of exploration.

MR. DENTON replied that they are behind the Nenana Basin project and he had just been mailed the draft best interest finding from the state. Usibelli had applied for leases under the old shallow gas-leasing program and it is now going through the exploration license process and is several months away from having that license in place - and about two years away from doing anything meaningful out there – simply because their attention is really focused on the Nenana Basin right now.

SENATOR SEEKINS asked the status of the clean coal project in Healy.

MR. DENTON replied that Golden Valley Electric and AIDEA were negotiating the separation of the plant and he was not involved in those negotiations.

REPRESENTATIVE JEANETTE JAMES asked him to comment on the gasification of coal and its potential as an energy source.

MR. DENTON answered that natural gas could be made from coal, but it should be utilized as feedstock for things like petrochemical industries and hydro-production. He thought that was where the future of gasification lies. The process produces

hydrogen and carbon monoxide and those can be reformed to make any number of things, like diesel fuel.

> So, if you can take $1.00 to $1.50 coal and even tripling the cost of converting those BTUs to liquid, you're still way ahead of the ballgame.

SENATOR THERRIAULT asked if the coal-fired plant in Mat-Su had progressed at all.

MR. DENTON replied that he couldn't speak specifically for Mat-Su Electric, but their engineers trade data back and forth to see whether it is the best thing to do in the long run. He hadn't heard any announcement.

SENATOR THERRIAULT asked if anything had happened with Anchorage area generators.

MR. DENTON replied that it was very quiet.

CO-CHAIR RAMRAS thanked him for his presentation and said that Rocky Pavey would be the next presenter on conversion of home heating oil to natural gas.

ROCKY PAVEY, Rocky's Heating Service, started by assuming they've got gas in the Nenana Basin. Homeowners and small business owners are excited about natural gas for four reasons in Fairbanks. Number one is because it's clean; number two is it's convenient; number three is it offers an amazing array of choices; and number four is it's cost effective.

MR. PAVEY explained that by clean he means when he services a furnace, he gets his brushes out and cleans away the soot and it's nasty – even if it has been burning clean all year. If natural gas is set up properly, you can come back five or six years later and the heat exchanger still looks brand new. That means the homeowner is getting the full use of his heating BTU. If you have a line to your house, you don't have to worry about delivery because of a heavy snow load or running out of fuel. He said that one of his largest overtime call outs is due to "out-of-fuels" even when customers are on automatic delivery.

He explained that fuel oil uses the basic oil burner and that's it, but an array of equipment is available for use with natural gas. Materials other than cast iron can be used for the heating appliances, which can achieve efficiencies of up to 99 percent. With oil the best you can do is 85 to 86 percent. His last

natural gas delivery cost him $1.10 per 100,000 BTUs compared to oil that was $1.61 per BTU.

MR. PAVEY advised that people who are thinking about converting an oil-fired system that is more than five years old should get a whole new heating unit, because soot deposits and leaky gaskets in older systems let combustion escape. But it would cost $1,800 to $2,200 to convert an existing oil-fired appliance over to a gas-fired appliance if the heating unit does not have to be replaced. New units are comparable for gas and oil. Fairbanks does not allow residents to vent a gas-fired chimney through an outside masonry chimney, because exhaust gases coming in from gas-fired equipment is so much cooler they will condense outside creating sulfuric acid that will eat the mortar and the chimney will collapse. Other considerations would come into play based on individual applications. He explained that switching from an oil fired-boiler to a gas fired boiler would cost a little more because domestic hot water supply would require a different set up with gas.

CO-CHAIR RAMRAS asked in what other residential districts had Mr. Britton built besides Doyon Estates in Fairbanks.

MR. BRITTON replied that his primary concentration for residential is in the south Fairbanks area.

CO-CHAIR RAMRAS asked what percentage of homeowners he has passed have opted to convert to natural gas.

MR. BRITTON replied that each area is quite different ranging from 75 percent down to 10 percent. Their distribution system was in place before Doyon was developed. One hundred percent of new construction will be gas for both residential and commercial construction if it is available. Ten percent gas usage would be in neighborhoods that didn't have the discretionary income available for a conversion.

CO-CHAIR RAMRAS surmised that the people who would most benefit from the energy savings with natural gas would be the least likely to convert because of the cost component.

MR. PAVEY agreed saying those areas would have the older equipment as well and they are looking at not just converting, but swapping out the entire system and he personally balks at converting older equipment because of liability issues.

SENATOR SEEKINS asked who the shareholders are in Northern Eclipse.

MR. BRITTON replied that currently its shareholders are based out of Dallas and are primarily managed by a company called Rosewood Resources.

CO-CHAIR RAMRAS asked Mr. Pavey if there would be enough technicians to bring in a large number of gas boiler systems if a large amount of gas was discovered and brought to Fairbanks.

MR. PAVEY replied:

> No, not even close. You talk to any service company out there right now. They can't keep up right now with the load that they have currently serving just doing annual tune-ups and the odd boiler swap out – oil to oil – I was serious when I said get in touch with Hutchinson Career Center and start a program there, because they could absorb 50 techs a year there in this community and not even blink – especially if we have a main line tapped right here. You're going to have contractors flooding from the Lower 48, quite frankly is what I envision – because you are not going to have the capability to do this in-house, to do this right here. Every heating contractor in the Lower 48 is going to see a mini-boom in this economy and they're going to come start beating on the door here and trying to do business with this town.... I'm telling you right now, Fairbanks does not have enough techs to put in massive swap outs. You would literally be going seven days a week, 24 hours a day.

CO-CHAIR RAMRAS asked Representative Stoltze how conversion from home heating oil to gas was accomplished.

REPRESENTATIVE STOLTZE replied that when his family in Chugiak converted in the early 80s, it was a tough pill to swallow because the entry price was pretty steep and converting required cascading so the first guy really had to bite the bullet. It had a lot of success, however, as the area grew and in the newer subdivisions.

CHAIR WAGONER said he just put $12,000 into his house going to a much more efficient system, but you have to have the money to do it. "I have saved equal to what the increase is in natural gas

over the last two years have been and that's a lot. It's a little over 20 percent."

MR. PAVEY agreed saying:

> "You're right, if you can go to munchkin style and the condensing modulating boilers, which is what I'm putting in my shop here in Fairbanks, you can save a tremendous amount of money – gobs!"

CO-CHAIR RAMRAS said:

> We will conclude that building a pipeline in the Nenana gas basin would save the community of Fairbanks gobs and I thank you for summarizing a whole day's worth of testimony, Rocky, I appreciate that.

The meeting was adjourned at approximately 4:30 p.m.