

**ALASKA STATE LEGISLATURE  
SENATE RESOURCES STANDING COMMITTEE**

February 23, 2009

3:32 p.m.

**MEMBERS PRESENT**

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

**MEMBERS ABSENT**

Senator Lesil McGuire, Co-Chair

**OTHER LEGISLATORS PRESENT**

Senator Joe Thomas

**COMMITTEE CALENDAR**

Overviews

Updated Information on the Susitna Hydro Project by Jim Hemsath,  
Deputy Director, Alaska Energy Authority

Proposed Chakachamna Hydro Project by Nick Goodman, President,  
and Eric Yould, Program Director, TDX Power

**PREVIOUS COMMITTEE ACTION**

No previous action to consider

**WITNESS REGISTER**

JIM HEMSATH, Deputy Director  
Project Development  
Alaska Energy Authority (AEA) and  
The Alaska Industrial Development and Export Authority (AIDEA)  
**POSITION STATEMENT:** Presented AEA overview.

NICK GOODMAN, President  
TDX Power

**POSITION STATEMENT:** Presented TDX Chakachamna overview.

ERIC YOULD, Program Director  
Chakachamna Hydro Power Project

**POSITION STATEMENT:**

**ACTION NARRATIVE**

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**CO-CHAIR BILL WIELECHOWSKI** called the Senate Resources Standing Committee meeting to order at 3:32 p.m. Present at the call to order were Senators Huggins, Stevens, Stedman, Wagoner, French and Wielechowski.

Overview: Updated Information on the Susitna Hydro Project  
Alaska Energy Authority

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JIM HEMSATH, Deputy Director, Project Development, Alaska Energy Authority (AEA) and the Alaska Industrial Development and Export Authority (AIDEA), said last year the legislature was interested in the possibility of a hydro electric power plant at Susitna. AIDEA and AEA were commissioned to study and update the original 1984 estimate to understand where the costs are, look for new construction technologies that might minimize the cost and perform a system study or Integrated Resource Plan (IRP) to see where Susitna would fit into the Railbelt system.

First he wanted to update the committee on the work done on the capital costs from an HDR Alaska interim report with the intent that if the costs appear to be out of line, work on the project would stop. He had provided the committee with a memo from his staff that summarized where they stand on those figures. He said his presentation focused on the physical aspects of the project so the costs associated with them could be better understood.

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His first picture showed where the Watana and Devil's Canyon dams would sit on the Susitna River. He explained that the Susitna dam, as a concept, goes back to the early 50s culminating in 1983/85 with the Alaska Power Association putting in a FERC permit for a dam that was subsequently withdrawn. That dam system has a number of variations. The two-dam concept is what was picked by the Corps of Engineers in 1984. Previously there were as many as four dams on the Susitna River.

So he looked at the 1984 FERC application on the Susitna dam as a system that includes the Watana dam, a large earthen 48-mile

long dam, and the Devil's Canyon dam, which is a thin arch concrete 26-mile long structure. He said you want to get as much power generation as you can for the capital investment.

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There are four options: a short Watana, a full Watana, a Watana/Devil's Canyon, one sequentially after the other, and a staged project with continuous construction. Any of the cases could be built in 20 years, but for the Watana and Devil's Canyon option specifically, the one dam could be built first and the second one 20 years later. The debt structure just changes the overall cost of power.

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The Watana dam is a rock-fill gravity dam, a big pile of dirt and rock 885 ft. tall and approximately 4,100 ft. wide at the top. It will basically control the flow of the Susitna River and create a 48-mile long lake that is 15-20 miles wide at its widest section. Diversion of the river will be done by two 30-foot tunnels and the design at full capacity is six 200-MW generators.

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CO-CHAIR WIELECHOWSKI asked how active the fishery is there. Do salmon go up that far?

MR. HEMSATH answered that the 1984 study found that the salmon didn't come that far up stream. It also found that there was minimal impact on the salmon from a little bit of turbidity coming out of Devil's Canyon. It was thought that would clear out before the hatcheries were put in place on the river.

CO-CHAIR WIELECHOWSKI asked what is in the 48 miles that will be flooded.

MR. HEMSATH replied trees, tundra and some sheep. He showed the committee pictures of what the dams would look like. He said they looked at two different options for the Watana dam; one is the low option of 700 ft. that would generate power a year earlier than the high option. It would have 297 MW of annual average output and cost \$6.9 billion to build and provide power for \$0.24/kWh based on a 50-year bond at 5 percent interest. The 50-year term would fit with the FERC license. The dam life is assumed to be 100 years. After 50 years the cost of power drops down to the \$0.03-.04/kWh.

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SENATOR FRENCH asked what a 50-year bond would go for now.

MR. HEMSATH replied they went for 5-6 percent last year; now maybe 8-9 percent. The biggest problem for bonds is getting underwriting for them.

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SENATOR FRENCH asked, for perspective, what an Anchorage consumer is paying now per kWh.

MR. HEMSATH replied \$0.13-.15 kWh.

SENATOR FRENCH asked what about Fairbanks.

MR. HEMSATH replied \$0.28 kWh based mostly on the North Pole power plant and the ability to move power up on the Intertie. The financed price of coal-fired power is \$.08 kWh, but that is not delivered.

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SENATOR STEDMAN asked the btu-equivalent of natural gas compared to the cost of electricity.

MR. HEMSATH said he didn't have that figure.

CO-CHAIR WIELECHOWSKI said he is surprised at the numbers because he sees how low the Southeast numbers are. Did it take 50 years before consumers of the Four Dam Pool in Southeast started getting low rates? What are the differences in the two projects?

MR. HEMSATH replied that Susitna is an extremely large capital project that is limited by the hydrology itself. The Watana Dam is 1,200 MW peak generation capacity for that one second in time when the lake is full and all the turbines are running. A lot of capital is being carried for a certain amount of load. He didn't have the numbers on Bradley Lake other than he heard when it first started generating at \$.07-.08 kWh, people were appalled at the cost of power; now that is looking pretty good.

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SENATOR STEDMAN said the Green Lake dam, built in the '80s in Sitka, didn't come inside the Four Dam Pool group because the group didn't want to be tied in with the rate issues around the state. The community built it with the help of a conduit instrument through the Alaska Industrial Development and Export Authority (AIDEA). It's rate was \$0.10-.11, which seems

relatively cheap now, but when the dam was built some people thought it was too expensive.

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CO-CHAIR WIELECHOWSKI agreed that information like that is helpful as they grapple with this project, because \$0.24/kWh would double people's electric rates in Anchorage, which would be a tough sell. Have you explored other ways to get rates down?

MR. HEMSATH replied that the most economical option in terms of power in these cases is building two dams one right after the other. The current analysis assumed that all the power that is generated is consumed, a fairly large assumption. The IRP is part of the next phase that would be taking place this summer. The combination of the two dams brings the cost of power down to \$0.16/kWh because the second dam takes advantage of the cost of the infrastructure, like roads and bridges that were put in place for the first one.

Secondly, while they expect to have virtually no change in the cost estimate from this perspective, this analysis is an update of the '84 numbers and a refinement of different construction techniques that were not available in 1984 that could potentially use less fill and, therefore, less time to construct as well. He didn't think \$0.16 kWh for the next 50 years was out of the question considering where gas prices would be as a typical alternative with gas-fired generation.

CO-CHAIR WIELECHOWSKI asked the total load demand in the Railbelt.

MR. HEMSATH replied 800-1000 MW.

CO-CHAIR WIELECHOWSKI said the full project would essentially be replacing that total megawatt load. Did his costs include transmission lines, dams, roads, et cetera?

MR. HEMSATH answered yes; the costs also include transmission lines and substations that didn't existing in 1984.

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SENATOR THOMAS asked if he anticipates building a schematic showing the potential for gas and hydro power generation with the IRP.

MR. HEMSATH replied that looking at and comparing all the power generations options available in the Railbelt is the intent of the IRP.

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SENATOR WAGONER asked what electricity cost in 1984.

MR. HEMSATH replied the 1984 report said it was three to four times higher than fossil generation.

SENATOR WAGONER asked what the difference in cost would be of using three or four dams on the river instead of two.

MR. HEMSATH answered that the two-dam combination was the most cost effective to generate power from the Susitna River.

SENATOR STEDMAN asked if he ran 100 percent debt with the 50-year bonds at 5 percent.

MR. HEMSATH answered yes.

SENATOR STEDMAN asked for an analysis of impacts that any equity positions would provide.

MR. HEMSATH replied that is their plan; to refine the capital costs and the financing options as well as looking at what kind of financing options exist worldwide.

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MR. HEMSATH said the Devil's Canyon Dam is an arched concrete dam approximately 646 ft. tall and it would be done after the Watana Dam, which in all cases is used to control the river. The costs for doing the Devil's Canyon by itself would be upwards of \$5 billion, and while the cost of power is on an averaged basis, this dam by itself is subject to seasonal variations. The peak generation would be during the summer and virtually very little in the winter (maybe 100 MW). A combination of both dams would provide the optimal flow.

Their study will continue to look at the geology, earthquake and seismology for the area that wasn't known in 1984, he said. The estimate includes improvements to 21 miles of existing roads and 81 miles of new roads, a 1,600 ft. suspension bridge across the Susitna River by Devil's Canyon, heavy equipment to move the turbines, a rail header up to the road system, a number of air strips and permanent camps. The project is very large, large enough to compete with other large projects in the area.

Logistics and local material suitability are different things that could impact this particular project.

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The financing of this project is going to be very expensive and they have to understand how private sector financing, private/public partnerships, and equity positions would change its economics. The IRP will also help them understand what it means to use this dam system at its maximum capacity all the time. It will help them see opportunities 20 years down the road when the power comes on line; and it will help them understand carbon costs.

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CO-CHAIR WIELECHOWSKI asked how this compares to other dams in the U.S.

MR. HEMSATH replied it's not quite as big as the Hoover Dam, but these are world-class dams.

CO-CHAIR WIELECHOWSKI asked when the final report would be ready.

MR. HEMSATH answered this summer; the IRP would be completed in September.

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SENATOR FRENCH said it says something about the world when it takes longer to build a dam than to build a pipeline from one country to another.

MR. HEMSATH said this is a much bigger project than the pipeline project in terms of the logistical effort in moving material and earth.

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SENATOR THOMAS asked how they arrived at 100 years of useful life for purposes of calculating the power.

MR. HEMSATH answered they used 50 years for the cost comparison because that is the typical time period FERC would issue a license; the license could be renewed at the end of 50 years as well. It is assumed a hydro project has a 100-year life span in terms of its equipment and some of the structural aspects.

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SENATOR THOMAS said some of the dams in Southeastern were started with the mining industries; so some of them are over 100 years old and they were not particularly technically sophisticated. How long does a dam really last and how will that affect financing? He also asked the reason behind the road from the Denali Highway. Is it potentially a better route to bring in materials or does it go through some potential resource the state might develop in the future?

MR. HEMSATH replied there is no good answer for a dam's length of life. The Hoover Dam is pushing 70-plus years and no one is looking at a 30-year retirement. The consultants and engineers they talked to just don't like to say anything bigger than 100 years. He assured them that the IRP would look at fuel costs in terms of expected life. He reminded them that carbon cost issues is a whole other aspect of this project that has to be considered.

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SENATOR STEDMAN explained that some hydro work was done in the Southeast during the gold rush, and the next hydro work was done for the cold storages to get the fishing fleet off of glacier ice. Then hydro capacity was installed for the pulp mills in Ketchikan and Sitka. The Sitka dam is now raising the spill height to its design level to add more generation capacity. It's roughly 50 years old now and they are expecting it to be around a lot longer than 50 more years.

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SENATOR HUGGINS asked if the infrastructure breakout was for both dams.

MR. HEMSATH replied both projects. He also addressed Senator Thomas' previous question about a road saying his understanding from the '84 report is that the road was put in from a logistics aspect for moving material long distances.

SENATOR HUGGINS said he assumed they had done staffing in different departments to look at the project.

MR. HEMSATH replied no. They are treating this as just a first phase engineering study of capital costs using some assumptions that the permitting and other aspects of the '84 FERC permit were correct enough.

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CO-CHAIR WIELECHOWSKI said the seismicity in zone 4 is great and asked if a dam like this could sustain a magnitude 7 earthquake - because you have to assume there will be one in a 100-year life span.

MR. HEMSATH answered yes it could sustain an earthquake of that magnitude.

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CO-CHAIR WIELECHOWSKI asked how many jobs this project would create.

MR. HEMSATH answered thousands for construction, and maybe 50-75 full time people at both dams.

CO-CHAIR WIELECHOWSKI asked how many years of actual construction it would take to complete the project.

MR. HEMSATH replied 15 years for both dams and approximately 7 of those years would be for permitting activities. They hadn't gotten into the details of sequencing the permitting with roads and facilities yet.

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CO-CHAIR WIELECHOWSKI announced an at ease at 4:21 p.m.

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CO-CHAIR WIELECHOWSKI called the meeting back to order at 4:21 p.m.

#### Chakachamna Hydro Power Project

NICK GOODMAN, President, TDX Power, said he is often asked if his project is mutually exclusive of or competitive with the Susitna project, but he believes not. They think the projects could be developed sequentially so they are anxious to see how the Susitna one proceeds.

ERIC YOULD, Program Director, Chakachamna Hydro Power Project said he wanted to put it into context first. He said Susitna needs to be looked at in the framework of what it was at the time. For instance, inflation was running about 20 percent and the cost of revenue bonds was about 10 percent. Here they are talking about revenue bonds in the neighborhood of 5 percent.

He said he was the program manager for the Susitna project when it was looked at by the Corps of Engineers and later he became

the executive director of the Alaska Power Authority for five years. It was an exciting project, but it died when a similar economic downturn took place as is happening today. When the project started the price of oil was going for \$34/barrel and by the time the project "cratered," it was down to less than \$9/barrel. The state essentially didn't have the disposable cash for its equity investment, but the economics of the project were eroded as well.

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To put the project into perspective he wanted to talk a little bit about statewide hydro resources. People think of Susitna as a gigantic project, but it is really quite a small project in comparison to some of the other resources the state has. He said the Chakachamna project, was shelved in the 70s and 80s because it looked like it was actually competing with Susitna for market at the time. The Bradley Lake project was brought forward, but Chakachamna was shelved. They feel that Chakachamna, Susitna and projects like Mt. Spurr are not mutually exclusive, but rather give the state a tremendous opportunity that people in the Lower 48 just don't have.

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MR. YOULD said Cook Inlet is running out of gas and today it's at a low of \$7.50/mmmbtu. They started off with 2 tcf of natural gas and they are down to less than 2 cf. So, unless they bring LNG in, find more natural gas in Cook Inlet or bring something down from the North Slope, Alaskans will be paying a premium for their natural gas in the future.

Cook Inlet has a tremendous amount of coal resource from Healy, the Pacific Rim and Beluga. The cost of that is relatively inexpensive compared to natural gas at only \$2/mmmbtu, but the economic consequences of coal are high because of the capital cost it takes to develop coal-fired generation. Those would be the two primary options if the state doesn't develop its hydro power. That is not to say that we don't have other renewable resources. We have wind, but that will generally be an augmenter of our generation, not a primary component of it; Mt. Spurr has geothermal potential, and tidal power is expensive and has its impacts. Solar is a great technology, but "when the sun don't shine, you've got problems."

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The state has tremendous amounts of hydropower; the Corps found 256 sites alone that if developed could provide 192 billion kWh

of electricity; the Railbelt consumes 5 billion kWh. It is roughly 40 percent of the untapped U.S. hydro power potential.

Rampart Dam would be the biggest project on the Yukon River and could produce 34 billion kWh. But it would require a reservoir roughly the size of Lake Erie that would take 17 years to fill. It would have enough water to inundate the entire state of Texas with 7 ft. of water.

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The Copper River project has 20 billion kWh. His favorite project is Yukon/Taiya that has very little flow required because of the tremendous head associated with the project. Little Susitna at 6.5 kWh and Chakachamna has 1.6 billion kWh, or 35 percent of the energy needed in the Railbelt today.

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The state has 40 projects statewide, most of them quite small, but they will be there for a long time.

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He said the total cost of power in 1985 dollars was \$5.3 billion for the Susitna dams not including interest during construction. The Watana would have 62 million yards of fill and Devil's Canyon would have 1 million yards of concrete.

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SENATOR FRENCH asked for a clear idea of what the Susitna project would cost compared to Chakachamna.

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MR. YOULD replied in today's dollars Chakachamna would cost \$1.7 billion; the two dams for the Susitna project would cost \$5.3 billion.

SENATOR FRENCH said the two are estimated at \$11.6 billion.

MR. YOULD said that is what he has been guessing.

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CO-CHAIR WIELECHOWSKI how do one figures how much that is per kwh.

MR. YOULD replied it depends on the cost of money.

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MR. GOODMAN said they can use the same numbers Mr. Yould used for Susitna and be well below \$0.10 kWh. But who knows how it's going to be financed; and the way it's financed is very important to what the cost of power would be.

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MR. YOULD explained when they looked at Susitna, they looked at 13 different dam sites along the upper Susitna River. At each site they looked at different heights and in different combinations. Ultimately they concluded that the Devil's Canyon/High Watana scheme was the most economically and environmentally acceptable way to develop the upper Susitna River.

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In looking at Susitna they found five other hydro power projects they felt could be good fits for the Railbelt - the Johnson project, Chakachamna, Snow, Keetna and Browne. Of those, Chakachamna, because of its proximity and the environmental impact, if Susitna was not in the picture, would be the project they would be pursuing. He said TDX Power has the exclusive FERC permit to actually assess the project at the present time.

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CO-CHAIR WIELECHOWSKI asked him to tell them a little more about TDX Power.

MR. GOODMAN said TDX Power is a wholly-owned subsidiary of the TDX Corporation, a village corporation from St. Paul Island. It was formed in 1990 and is essentially a utility-holding company that owns and operates utilities around the state from small remote locations, like St. Paul Island and Adak, all the way up to Prudhoe Bay, their largest holding.

They are technology neutral and generate with natural gas and diesel; they specialize in integrating renewable with fossil fuels. They have one of the state's first wind/diesel projects; they are developing a small geothermal project in Manly and a small hydro project in Adak. They are very familiar with the benefits of renewables. In response to Senator French's question regarding the comparison of renewable hydro to a gas pipeline, the upfront costs and the effort it takes to bring renewables on line is always significantly higher, but then, of course, there is no fuel. So often the benefit is very long whereas fossil generation is shorter.

The Chakachamna project was first conceived in the late 1990s in looking at the Railbelt issues. They saw the shortage of natural gas in Cook Inlet, they had interest in Mt. Spurr in the early days. But when they found Chakachamna it became clear that this project was sized properly and was not mutually exclusive of other projects. Economically, it had a great fit within the Railbelt profile in general.

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MR. YOULD said basically there would be no dam on Chakachamna; rather they "blow a hole" in the bottom of an existing reservoir/lake and take the water 12 miles to an underground power house in the McArthur River drainage basin. It's very similar to the Tye Hydro Project, a project built in the '80s. The control is at the lake outlet; the power tunnel, itself, would be 24 ft. in diameter and would be drilled with a tunnel-boring machine. The project could put out roughly a third of the electricity of what the Railbelt consumes today at a cost in today's dollars of \$1.7 billion. The nice thing about it is that it is only 40 miles from the Chugach Transmission line at Beluga Substation. So it would cost \$90 million to bring power to the Railbelt system that could, then, bring power both up to Fairbanks and down to Homer, as well.

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SENATOR FRENCH asked him to describe the seasonal flow into and out of that lake.

MR. YOULD replied the reservoir is drawn down during the period of the least in-flow in the winter. When spring comes, it fills up again. Every year the lake will go down about 42 ft. and fill back up to full in the spring and stay full throughout the course of the summer and into the fall.

SENATOR FRENCH asked him to talk a little bit about the impacts of taking it out of what is normally the out-flow of the Chakachamna River and putting into the McArthur River.

MR. YOULD replied that is a concern because they are basically taking water that would go down the Chakachamna River and putting it into another drainage basin; this is called an "inter-basin transfer of water." They have to make sure they release enough water down the Chakachamna River to sustain the existing habitat and fisheries that use that stretch of the river. This will be the biggest challenge they have. Estimates have been made of how much water that is, but they haven't pinned it down yet. It's a challenging proposition, but

essentially 80 percent of the water will be diverted to the McArthur drainage basin and 20 percent will be reserved for downstream flow to sustain existing fisheries.

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SENATOR WAGONER said the river will be dry at the low level.

MR. YOULD replied yes, but they have designed a low-level outlet to make sure they would always have water going downstream. The land status there consists of state, federal, borough, tribal and other designations. The majority of the land was selected by the State of Alaska because of the Chakachamna project. The federal government, however, does own some land there and the Lake Clark National Park and Monument goes up through it, but the project doesn't impact it.

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Five species of salmon use the basin; sockeye is the main one that actually goes into the lake area itself. During the 1982 investigations, they found roughly 40,000 fish went into the Chakachamna Lake area. A total of 78,000 fish go into both of the drainage basins; the Kenai River has 2.4 million sockeye, the Kasilof has 1.2 million and the Susitna River has .5 million. It's not a gigantic fishery, but they are committed to preserving it and perhaps enhancing it.

MR. YOULD said there are 56 species of birds; the normal wildlife includes no endangered species, but the Beluga Whale is now a species that can't be impacted. Seismic is the main geotechnical consideration, and Castle Mountain Fault runs very close to the power house. Mt. Spurr is very close to the Cook Inlet, and there are many glaciers, any one of which could cause their own concern if they decided to advance or decline.

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CO-CHAIR WIELECHOWSKI asked if the U.S. went to the Kyoto Treaty what would CO2 would cost per ton.

MR. YOULD replied \$20/ton, but he didn't know for sure. He said that hydro actually goes down because it is the recipient of some of those credits.

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MR. GOODMAN said they are two years into the preliminary permit investigations of a 36-month period. They expect FERC licensing to take 18-36 months; the real driver becomes the EIS and the agencies involvement in that. The majority of their focus over

the last 12 months has been to work with the agencies to pull as much out of them as possible in terms of what they would like to see addressed in the upfront work/study plans. The more successful they are at that, the closer they are to 18-month FERC licensing as opposed to 36 months. He said project construction is anywhere from 48-54 months with power coming on line at the end of 2017/18.

He summarized that they believe there is significant hydro power potential in the Railbelt grid, both with Susitna and Chakachamna and some other smaller projects that are just beginning to be looked at. They are pursuing Chakachamna because they feel it has a very good place in the queue. This project would require the support of the utilities, which they think they have in concept right now. The utilities want to know the cost of the power and the answers to some other questions like is there going to be a bullet line and what will the cost of gas be. And are they really shutting down the pursuit of coal for generation.

MR. GOODMAN said one year ago TDX Power was proposing this as a 100 percent private project from which they would try to sell power directly to the utilities. A couple of things have changed since then that suggest state involvement or partnership with the project could be very beneficial to the end-use consumer and they now want to know the state's level of interest in taking a role in this project.

He said that private money is still out there, but the risk profile associated with a project like this today is considered higher than it was 12 months ago. It's quite clear to them, he said, that the cost of power would be cheaper with state involvement. The private sector is looking for a minimum 15 percent return and in reality probably closer to 20 percent. This is for a number of reasons that aren't critical of Alaska or utilities.

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TDX has seven utilities of varying sizes from the south of the Kenai all the way up to Fairbanks, from municipalities to coops, and they all have different financial structures right now. This makes it difficult for financial investors to see how the creditor or the purchaser of the power as a unit will be able to stand behind the financing of this project.

MR. GOODMAN said the other issue that has come up, which is potentially very beneficial to the project, is the REGA study.

Will there be some kind of combined structure in the Railbelt grid? Will the utilities be bulked together at least for transmission? What role will generation play? This is a double-edged sword, because in many ways their goal in this project is to stay neutral to all of the various utility interests and to try to provide power to the entire Railbelt, perhaps on a Bradley Lake-like model where all of the utilities share in the power output. At the same time, discussions of things like REGA and consolidation within the Railbelt only serve to raise question to potential investors. What will that structure be? Who will be purchasing the power? What is their financial capability to stand behind the power purchase?

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One question for the state is does it have interest in a partnership with TDX Power on this project. He sees two possibilities there: the first would be where TDX Power continues developing this project privately with partners. They have a budget of \$30 million to get it to construction which includes all of the permitting, licensing and design. Or if the state wanted to play some sort of a role in the project finance in the form of guarantees or bonds, that would lower the end cost of power considerably because it would remove some of the risk.

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SENATOR WAGONER asked if \$30 million takes them to the second phase of the FERC process.

MR. GOODMAN answered it takes them up to commencement of construction.

CO-CHAIR WIELECHOWSKI asked if rates are regulated by FERC.

MR. GOODMAN answered that rates for a project like this are likely to be regulated by the RCA.

CO-CHAIR WIELECHOWSKI said if his investors wanted a 20 percent rate of return.

MR. GOODMAN interrupted to say this is a concern. On one hand putting \$30 million at risk for 5-6 years is unheard of in the state regulated utility industry. It would warrant a higher return. At the same time, that's a higher return than the RCA typically allows. The driver would be the end cost of the power and if it is lower than the avoided fuel costs of the natural gas or

coal alternative. This question adds further to the consternation of private investors.

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He said the second structure would be for TDX Power to partner directly with the state of Alaska and to share in some of the development risk in the remaining \$25 million budget to get to construction. This scenario would deliver the lowest cost of power.

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SENATOR HUGGINS asked if there was concern about the glacier lakes.

MR. YOULD replied if Kenibuna Lake, which has a Lake Clark boundary going through, becomes the same elevation as Chakachamna it would be impacted on the fluctuations of Chakachamna Lake as well. He didn't know what kind of impact that would have on Lake Clark National Park.

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SENATOR WAGONER said that he knows for salt water that the feds authority only goes to mean high water and he thought they should check on whether that rule applies to fresh water lakes, too.

MR. YOULD said the one agency that has been most concerned has been the National Park Service, but it's the one resource that will probably be least impacted by the project.

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CO-CHAIR WIELECHOWSKI thanked everyone for their presentations and adjourned the meeting at 5:02 p.m.