ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
January 24, 2011
3:31 p.m.

MEMBERS PRESENT

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

MEMBERS ABSENT

Senator Lesil McGuire

COMMITTEE CALENDAR

PRESENTATION: DANIEL SULLIVAN, COMMISSIONER, DEPARTMENT OF NATURAL RESOURCES (DNR)

- HEARD

PRESENTATION: ORMAT TECHNOLOGIES, INC. - MT. SPURR GEOTHERMAL PROJECT

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

No previous action to record

WITNESS REGISTER

COMMISSIONER DAN SULLIVAN
Department of Natural Resources (DNR)
State of Alaska
POSITION STATEMENT: Presented DNR overview.

JEAN DAVIS, Director
Division of Support Services
Department of Natural Resources (DNR)
State of Alaska

POSITION STATEMENT: Added comments to DNR presentation.

PAUL THOMSEN, Director
Policy and Business Development
Ormat Technologies, Inc.
POSITION STATEMENT: Presented update of Ormat's Mt. Spurr geothermal project.

ACTION NARRATIVE

3:31:01 PM
CO-CHAIR JOE PASKVAN called the Senate Resources Standing Committee meeting to order at 3:31 p.m. Present at the call to order were Senators Stevens, Wielechowski, French, Co-Chair Wagoner and Co-Chair Paskvan; Senator McGuire was excused.

3:33:21 PM
Presentation: Daniel Sullivan, Commissioner, Department of Natural Department of Natural Resources (DNR)

CO-CHAIR PASKVAN welcomed Department of Natural Resources (DNR) Commissioner Dan Sullivan, who introduced Jean Davis, Director, Support Services, Department of Natural Resources (DNR).

3:35:18 PM
COMMISSIONER SULLIVAN related his agenda and said he would weave DNR challenges into his presentation. He mentioned testifying in House Finance and House Resources committees and said that after seven weeks on the job he still has a lot to learn. He was worried about reaction to his testimony, but explained that if he doesn't know the answer to a question he will just tell members that. He wanted DNR's relationship with the legislature to be respectful and responsive.

3:38:23 PM
COMMISSIONER SULLIVAN started with the department's constitutional foundation, which is in Article 8, Sections 1 and 2, of the Constitution, saying the department's mission is to conserve and enhance the state's natural resources for present and future Alaskans. But, he said, besides managing its lands, DNR carries out other important functions.

3:39:46 PM
He said the department has 1,100 employees in different regional offices. The Governor's budget request is an increment of about $1 million more than last year's budget. He presented a graph of

departments and their responsibilities and then moved to the different divisions.

3:40:58 PM
COMMISSIONER SULLIVAN said the Division of Oil and Gas holds annual oil and gas lease sales, manages exploration and development activities on state lands, conducts resource evaluation, and ensures appropriate oversight and maintenance of oil and gas infrastructure and facilities, among other things.

The Division of Mining, Land and Water has the responsibility over acquiring land from the federal government to fulfill statehood entitlements and for public purposes, over defending existing state ownership interests in navigable waters and easements, managing land and mineral resources, managing water resources and issuing water rights and use permits for personal, commercial and industrial use. It has 207 full time positions.

3:42:31 PM
The Division of Forestry has the biggest chunk of the DNR budget. It provides fire protection services and related fire and aviation management activities throughout the state and manages the three state forests - Tanana Valley, Haines and Southeast State Forest - for multiple use and sustained yield of renewable resources. They are also working innovatively with the private sector on the marketing of some of those, particularly timber resources: for instance a wood pellet mill in Fairbanks that is now employing close to 20 people and has $12 million in private investment.

3:43:34 PM
The Division of Geological and Geophysical Surveys is focused on determining the potential of Alaska lands for production of minerals and examining where those deposits exist and cataloguing where they exist and works with industry. They are working on digitizing this information.

The Division of Coastal Zone and Ocean Management is focused on administering the Alaska Coastal Management Program and participates in the Coastal Impact Assistance Program which distributes funds to six outer continental shelf oil and gas producing states to help mitigate the impacts of Outer Continental Shelf (OCS) oil and gas development.

The Division of Agriculture works on agriculture development and local producers with the revolving loan fund program and managing the plant materials center.

The Division of Parks and Outdoor Recreation manages has a significant number of employees. It oversees the outdoor recreation opportunities in Alaska state parks. Last year they had 5.39 million visitors, and 72 percent of those were Alaskans.

The Division of Support Services focuses on administrative services and works as part of the state recorder's office, which administers the statewide recording system and the UCC central file system.

3:46:03 PM
SENATOR WIELECHOWSKI asked if he has any interest in trying to expand the number of cabins available, so it's easier for Alaskans and tourists to access wilderness.

COMMISSIONER SULLIVAN replied that he has heard that question from everyone, and the answer is yes. Ben Ellis is the new director and he brings "a ton of energy and ideas that are trying to address exactly that, particularly on the area of looking at public/private partnerships to really jump-start the access issues and some other things."

COMMISSIONER SULLIVAN said the State Pipeline Coordinator's Office did a "really fantastic job" in a stressful environment with the recent pipeline shut-down. There were a lot of different directions coming from certain federal agencies on what and what not to do.

The Office of Project Management and Permitting coordinates large-scale projects in the state and is focused on Pt. Thomson.

Another important office is the AGIA Coordinator's Office, which focuses on facilitating permitting for the Alaska Natural Gas pipeline under AGIA.

The Mental Health Trust Land Office manages the real property assets of the Mental Health Trust.

In addition, Commissioner Sullivan provided a list of the many boards and commissions associated with the department, and then presented the big picture of this year's budget requests. He said he is meeting with many key stakeholders, whether they are industry or environmental groups, or Native leaders, and three themes keep popping up.

3:50:37 PM
He said the challenge that many in the state see is the need for partnerships with opportunities. The TAPS throughput issue is probably the most important of these. In 2006 the state averaged 840,000 barrels of output per day; in 2007, it averaged 734,000. Last year it averaged about 640,000 barrels per day, a loss of 200,000 barrels per day inside of four years, or a 6-7 percent per year decline trend. He said he will give an enormous amount of attention to this matter.

Related to that, the commissioner said, is the aging infrastructure in Cook Inlet, as well as TAPS, and high energy costs throughout the state, particularly in rural Alaska. The gas pipeline, because of its size, has its special challenges.

SENATOR FRENCH asked when the pipeline coordinator position will be filled.

COMMISSIONER SULLIVAN replied that he is meeting with potential candidates, but hasn't picked one yet.

CO-CHAIR PASKVAN asked for an estimate of how much longer the pipeline could have remained shut down until it would have been in a catastrophic position, and assuming that happened, what capacity or lack of capacity would be needed to heat the pipeline.

COMMISSIONER SULLIVAN responded that he wanted Alyeska to respond to that, but the day the decision and the coordination to restart it happened he flew to Fairbanks to be part of the decision. It was a wake-up call to the department as well as Alyeska to doing internal reviews of starting up a pipeline in minus 30 degree weather. The shut-down could have gone on a lot longer. And from a national perspective oil was imported from Russia to take up the slack for West Coast refineries - worsening the nation's financial deficit.

SENATOR WIELECHOWSKI asked if the maintenance repairs on the TAPS are deductible under ACES.

COMMISSIONER SULLIVAN said he didn't know the answer, but he would get back to him on that.

COMMISSIONER SULLIVAN went to permitting efficiencies and said his assistant, Ed Fogels, is coordinating an effort to look at areas of overlap. The issue of timely permitting is really

important to the state, he said, and improvements can be made that he would bring to the legislature.

SENATOR WIELECHOWSKI said he is always surprised that the Division of Oil and Gas gets the third highest amount of the DNR operating budget behind the Division of Forestry and the Division of Mining, Land and Water. Considering that oil and gas accounts for 90 percent of the state's budget, he asked if the commissioner thought it needed to be more so the permitting could be streamlined and so that the department could have a better understanding of what is really going on in the field.

3:59:14 PM
COMMISSIONER SULLIVAN answered that a lot of the permitting goes through the Division of Mining, Land and Water; they now have fairly significant budget requests to fill vacancies and for capital-related projects that help with regard to the IT infrastructure that can help streamlining. He welcomed suggestions from the legislature. In the House Finance Committee it was mentioned that slow DNR permitting essentially drove a company out of the state.

CO-CHAIR PASKVAN said the gas pipeline is a major topic to many Alaskans and asked where he is heading on that at the moment.

COMMISSIONER SULLIVAN replied his view is that significant progress has been made under AGIA. The focus is now on precedent agreements and commercial alignment that is taking some time. TransCanada mentioned a certain self-imposed deadline that has come and gone, but the negotiations are immensely complicated and take time. He urged patience.

4:03:34 PM
COMMISSIONER SULLIVAN went to specific DNR challenges and solutions to them. He said the department has a permitting backlog of over 2,000 permits.

CO-CHAIR PASKVAN asked how long it would take to process those without anything new being added.

COMMISSIONER SULLIVAN replied he didn't know, but it's a big backlog.

SENATOR WIELECHOWSKI asked if he is talking about months or years and what kinds of permits are backlogged.

COMMISSIONER SULLIVAN replied he would provide more granularity on that, but he didn't have the direct answers now.

4:06:44 PM
SENATOR STEDMAN joined the committee.

COMMISSIONER SULLIVAN said the second challenge listed was federal land conveyances where good progress is being made. The state still needs to receive about 5 million acres under the Statehood Entitlement Act. The smaller numbers get more challenging because of competing interests with other land holders. Their budget request for this is almost $700,000.

The third challenge relates to the concern about the steady uptick in environmental challenges to the department's permitting process, itself, which creates delay and uncertainty, which is what they are trying to reduce.

COMMISSIONER SULLIVAN added that the department is requesting an increment of $400,000 for maintaining existing forest access roads and investments in reforestation and commercial thinning. The Governor also introduced a bill doubling the size of the state forest in Southeast Alaska. Unlocking resources and publicizing resources are the last two items, but there are creative ways to do that without costing a lot of money.

COMMISSIONER SULLIVAN said a specific challenge related to management issues, and the challenge is, in general, managing the entire department. That is because of the importance of the Division of Oil and Gas and the gravitational pull they exert on other issues. It is so huge that other resources could be ignored inadvertently. Retention and recruitment are big issues, he said, and there are too many vacancies. It is important to recruit the best and the brightest, and this is an area that is getting more attention.

COMMISSIONER SULLIVAN wrapped up saying Alaska has opportunities; it is an energy storehouse. The North Slope basin remains world class and those enormous USGS numbers don't even include massive quantities of "unconventionals" (heavy oil, viscous or shale).

4:12:08 PM
CO-CHAIR PASKVAN asked if the 43 million barrels is on federal or state land or a combination.

COMMISSIONER SULLIVAN answered its 1 billion barrels and it's on federal and state land.

CO-CHAIR PASKVAN asked what the ratio is.

COMMISSIONER SULLIVAN replied that a lot of it is on federal land and includes the OCS. The numbers in the Alaska Arctic in particular are very big.

COMMISSIONER SULLIVAN said in minerals - gold, zinc, silver - that Alaska is among the top 10 countries in the world in every category.

4:13:29 PM
SENATOR STEVENS asked how he considers renewable resources versus non-renewable resources in relation to areas that have both - like with the Pebble Mine.

COMMISSIONER SULLIVAN said there is no easy answer. The governor said the state doesn't want to trade one resource for another. The goal is "to responsibly develop our resources in a way where you are not having to make that choice." The state has done that well on the North Slope.

4:15:23 PM
New players are coming to Alaska and see it as a place of opportunity. There is a sense of ongoing innovation among both home grown companies and companies coming from out of state given Alaska's harsh climate and remote location.

4:16:21 PM
The importance of partnership - whether it's with different industries, environmental groups, the executive branch or the legislature - is key to getting many resource development opportunities moving, Commissioner Sullivan said. One partner can't be missing. And one of the key elements missing here is the federal government. As Attorney General, he said he saw many problems with permitting, for instance with critical habitat designations, 404(c) under the Clean Water Act. "The list is long and it's growing." He said he would focus on redoubling efforts with the federal government explaining how important they are to Alaskans and to the nation.

In conclusion, Commissioner Sullivan revealed a scenario sequencing resource development opportunities that could come on line in the next 5-10 years. It was juxtaposed with a bleaker future without getting cooperation. An Anchorage Daily News

article reported the Arctic Slope Regional Corporation (ASRC) said that the lack of cooperation is hurting people on the North Slope and the rest of the country.

4:20:22 PM
CO-CHAIR PASKVAN referenced a DOR January 18, 2011 report about DOR information that the DNR can't process or use and asked him to comment.

COMMISSIONER SULLIVAN replied that he has good examples of getting concrete data from energy companies. Recently the department got detailed and confidential information with regard to the economic aspects of two projects. DNR has been able to use that data and make good investment decisions.

CO-CHAIR WAGONER asked him what a production forest is versus just managing a forest, and why his department needs 280 employees versus the Division of Oil and Gas that needs 105.

COMMISSIONER SULLIVAN replied that three-quarters of the Division of Forestry's numbers are focused on its firefighting responsibility, but he would get back to him with more specifics.

4:24:56 PM
JEAN DAVIS, Director, Support Services, Department of Natural Resources (DNR), answered 133 employees are permanent-seasonal with the fire preparedness component; some manage their aviation, helicopter and retardant contracts. Firefighters are not included; emergency firefighting crews are additional.

4:26:37 PM
CO-CHAIR PASKVAN called an at ease from 4:26-4:33 p.m.

4:33:28 PM
Presentation: Ormat Technologies, Inc. - Mt. Spurr Geothermal Project

CO-CHAIR PASKVAN invited Paul Thomsen to give his presentation on Ormat's Mt. Spurr geothermal project.

PAUL THOMSEN, Director, Policy and Business Development, Ormat Technologies, Inc., said Ormat is a publicly traded company. It is the leader in geothermal development today. Their equipment is responsible for over 1 GW of generation around the world, and they own and operate over 500 MW of geothermal projects worldwide. They are unique in that they are vertically

integrated. They design and manufacture equipment; they own and operate projects and do the drilling and exploration, and negotiate the contracts of development projects. They can bring their own capital to a project, which allows them to develop projects when sometimes-high interest rates in other financial models wouldn't be viable.

Ormat employs about 470 people in the United States and over 10,000 worldwide; and it has a presence in 71 countries. For recovered energy generation projects they use the heat from exhaust pipes to heat a working fluid instead of the heat from the earth. Electricity is produced with no new emissions helping turn the nation's natural gas pipeline infrastructure into a source of clean reliable energy on compression stations.

Designing remote power units is how Ormat kicked off their business in Alaska and the United States. In 1975 they sold over 100 remote power units to the TAPS to control the remote gate valves should issues occur. Those units are fossil fueled and very reliable. That equipment is still there, and that allowed Ormat to move their corporate headquarters from the Northeast to Reno, Nevada, which is their corporate global headquarters today.

MR. THOMSEN said Ormat then focused on geothermal development and tested one of the first geothermal units in Alaska in 1979 at the University of Alaska Fairbanks at Manly Hot Springs. Today they have put almost $5 million into developing what they hope will be the first commercially viable large scale geothermal project in the state.

4:38:02 PM
He recapped that Ormat looks for areas that have heat, permeability, and water, all needed to create a geothermal reservoir to transfer the heat to make electricity. The Mt. Spurr project is a volcanic resource, so they know there is good heat, but they still need to prove permeability and availability of water to transfer that heat to the surface.

Prior to 1985, Mr. Thomsen explained that most geothermal projects used steam turbines and that limited the geothermal development in the United States. Ormat came in with its own financing and brought with it the idea of a binary system. Previous to that you drilled a well, water came up out of pressure, turned into steam and then turned a steam turbine. Ormat decided to use hot water instead of steam to heat a secondary working fluid, which happens in a vaporizer which is a

big vessel in the middle of the ground. The secondary working fluid vaporizes and builds pressure; the pressure wants to relieve itself across a fan blade; that thermal energy is converted to mechanical energy that produces electricity. This technology proved to be very viable in places where there are water-dominated heat resources, and today's it's the most prevalent technology in the United States. In the last 10 years Ormat has been responsible for 90 percent of the deployed geothermal projects in the United States.

4:39:23 PM
What is so good about geothermal energy? Mr. Thomsen said utilities with this technology run 24/7-days a week, 52-weeks a year making it very suitable for base load generation. Therefore, it is easily incorporated into an integrated resource plan, and while being very cost competitive as well.

He said Ormat has developed projects in the Lower 48 for $4-6 million per KW (in Alaska it is closer to $5-6 million per MW). This is a staggering number, but it incorporates a life-time supply of free fuel. These projects are highly reliable, and they have a greater than 95-percent availability factor. Their design is very low entropy without a lot of extreme pressure or heat. Once the reservoir is designed correctly they sit there and "purr away."

MR. THOMSEN said Ormat offers a fixed price over a 20-year period; they typically enter into a power purchase agreement (PPA) and lock in a fixed price with some type of O&M escalator. The closed loop system is great because it doesn't consume any water; it has zero emissions and it has minimal surface disturbance for how much electricity they actually produce. A typical 30 MGW power plant takes up a five-acre pad. A 20-year contract and a 20-year project could create long-term high quality jobs for the State of Alaska.

4:42:04 PM
He stated that finding the resource (which Alaska has), a high upfront CAPEX, and the risk required in order to develop these resources are the main development inhibitors. But, Ormat has the unique position of being able to invest their own capital in their projects if they know they can get a contract to move the electricity to market.

He recapped that Ormat deploys over 11,000 MW of geothermal nationwide. States and nations that have been aggressive in developing geothermal resources have created policies to

encourage that, whether it's tax incentives or something else. The policies are needed to jump-start utilities out of their comfort zone in typical fossil fuel development and into recognizing the intrinsic attributes of the resource, and then the quality of the energy production cost speaks for itself.

4:43:20 PM
MR. THOMSEN said the Mt. Spurr project is located 75 miles west of Anchorage in the west Cook Inlet. They want to have their initial 50-MW project on line by 2016. He said a power purchase agreement is crucial to them moving forward and they haven't entered into that phase.

He said Ormat leased 36,000 acres for $3 million from the state of Alaska. In 2010 they drilled two exploration core holes to 1,000 ft. The core drilling began last summer and showed a prolific geothermal resource of shallow water and good heat despite being under a glacier. There was evidence of multiple geologic faults that are good for this type of development and the geochemistry further indicated that the water molecules had reached a very high temperature at some point in their lifetime. This is something their geochemists can look at and start to really try to delineate this reservoir.

SENATOR WIELECHOWSKI asked if he saw any problems with putting this project at the base of an active volcano.

MR. THOMSEN answered that most of their expenditure is finding the resource, and "what happens on the surface inherently isn't that important." He said Ormat operates large geothermal projects on the Big Island of Hawaii and in Indonesia where they have active lava flows. Once they have defined where the resource is and drilled at depth to find it, should there and be eruption safety measures are in place for employees to get out of the way. They can put in GPS applications and come back to a site after a lava flow has occurred, and still find those target areas from a resource perspective. From a business development perspective, they take out insurance on those projects so active volcanoes aren't a show stopper.

SENATOR WIELECHOWSKI said he was more concerned with the placement of their project in relation to an electrical generation facility that could be impacted by a volcanic eruption.

MR. THOMSEN answered they will put it in a safe place the first time. Defining the resource is the most expensive component, not

the physical facility itself. If they have to replace it, it pales in cost to developing the initial resources, and further "to date no geothermal plant has been wiped out by a volcanic eruption." Seismic activity enhances geothermal energy development, because it creates better permeability and water flow.

4:48:30 PM
CO-CHAIR WAGONER remarked that his people said that water had been much hotter than it was when they sampled it and asked if that was because it was deeper.

MR. THOMSEN answered yes, and a full-scale production well will help confirm the results from the preliminary well.

CO-CHAIR WAGONER asked if they would know more about their ultimate output by 2013.

MR. THOMSEN answered yes. Ormat got funding through the Alaska Energy Authority (AEA) and they are matching that to drill an additional deeper 4,000 ft. core hole to look at any anomalies in water temperature and permeability to see if it can support a full-sized commercial geothermal project. The next step would be to drill a full-sized production well, which they hope to do in 2012. Two more full-sized production wells would be needed to create the flow needed to get the true measurement for how many megawatts this reservoir can support.

4:50:31 PM
On infrastructure needs, Mr. Thomsen said this project is about 40 miles from the T-line at Chugach Electric's Beluga plant. Preliminary studies per an HGR report have said that 40 miles of transmission line and 25 miles of permanent road access would range from $70-80 million. The question here is should these infrastructure costs be borne by the project, the state or the rate payers in paying for a higher power price after the development of this project?

CO-CHAIR WAGONER wanted to see an overlay of this area showing Ormat's project and proposed transportation route, Chuitna Coal's project and proposed transportation route, and the CIRI coal gasification project and their proposed transportation route. Why build three roads when one road could provide a transportation corridor for all three projects or a portion of them?

MR. THOMSEN responded that was an excellent idea. They hired a third-party report to come up with double proposals looking at different routing as a base number to start with. He would give it to staff. Chugach should receive $600,000 for a detailed routing study from the legislature through the AEA round 4 to look at this area and come up with their best impression. So, there should be ample data on those routes.

SENATOR FRENCH said in the same vein it strikes him that they are right at the base of Lake Chakachamna, too, where folks have a proposed a hydro-electric project.

MR. THOMSEN replied that the HGR report indicated that different routes have significantly different costs, but Chakachamna could benefit from the transmission and infrastructure.

He said the expected amount of power from this project initially would be 50 MW, and using an incremental approach they would then look at developing the project further to a 100 MW potential with 95 percent availability factor.

4:54:28 PM
He repeated that there is practically no technology risk with this project; Ormat has built dozens of plants worldwide. Preliminary geological analysis is encouraging. However significant exploration is needed to prove the resource. Business wise they are running into issues of getting power to the market and how to get a PPA with a utility, all eight utilities or with the state - some guarantee of a fixed price over time to help Ormat pay off this project should they be able to bring it to market. They are getting to the point where it is hard to put more private capital into the project without knowing what the power price is going to be.

MR. THOMSEN said he has nothing but positive things to say in terms of permitting roadblocks. ADC, AOGCC, and USFWS have all been good to work with. No major challenges have been identified and they are kind of trail blazing in this regard.

He said he has worked aggressively to work with all the potential impacted parties, and has met with every Railbelt utility CEO, the new ARCTEC group, and ML&P, and they think it is the best viable project in the near term to offset some of the gas issues coming up. The communities have supported development of this project and the environmental and renewable energy communities have been there. The issue with the utilities

is price. They want it really cheap; there is difference in price of 3 cents.

SENATOR WIELECHOWSKI said this is closed loop and asked if they wouldn't be pulling water out of any lakes or rivers.

MR. THOMSEN replied absolutely not. Even the "geothermal brine" is reinjected into the reservoir to be reheated. The facility is planning to be air cooled, so the working fluid they use turns into a vapor; it gets cooled with the cool Alaska air and it recondenses into a liquid - zero emissions, zero water consumption.

Ormat plans to use its own equity in this project if they can secure the PPA; they have been awarded $2 million from the AEA in the renewable energy grant round 3 to do the initial 2010/11 exploration work. They have been recommended for an additional $2 million in round 4, which will hopefully be approved by the legislature soon. That comes with a match from Ormat of about $3.7 million as well. He said they typically refinance the project using term debt at the completion of the project. This sets them apart from other developers because they are not paying high interest rates project financing during the exploration phase. They bring a project on line, prove its viability under contract and then they look for term debt at a much better rate than one would get during the exploration and risk phase of these projects.

4:59:00 PM
MR. THOMSEN said today they would need 12-13c/kWh (2011) to make this project viable with a 1.5 percent negotiated escalation. In that power price they convey all of the green (carbon) attributes to the off-taker or utility.

SENATOR FRENCH asked if the price is exclusive of a road.

MR. THOMSEN replied yes.

SENATOR WIELECHOWSKI asked if that is the wholesale price they hope to sell it for.

MR. THOMSEN answered yes.

SENATOR WIELECHOWSKI asked what Chugach's average mark up would be.

MR. THOMSEN answered that he didn't know. In other states the utilities' rate of return is fixed by the RCA or a PEC, and they tend to get the maximum allowable under the law.

He said last legislative session they were able to pass SB 243 and modified geothermal royalties lower to the national average. As a result they were able to cut the price they would need by 1 cent - from 13-14 cents to 12-13 cents. The utilities want 10 cents and the project is at 13 cents, so they are brainstorming on how to make up the 3 cent difference. He said tax incentives would be one way to do it, and a 30-percent refundable tax credit would lower the price by about 2.5 cents. The policy question is if the state wants to reduce the impact to ratepayers or do they feel the ratepayers should bear the higher number. Ormat is willing to put mechanisms in place that guarantee the incentives are passed through to the ratepayer since they are dealing with a fixed market.

SENATOR WIELECHOWSKI asked what the fiscal impact of a 30 percent renewable tax credit would be to the state.

MR. THOMSEN said he didn't know, but it could be calculated.

SENATOR WIELECHOWSKI asked how much the 30 percent would lower the cost.

MR. THOMSEN answered for their project, 2.5 cents. He said Ormat is open to ideas on how to deal with transmission infrastructure, but cautioned them to keep in mind that the PPA price dictates how much support will be needed on the drilling side. With a 15 percent PPA, they could justify the transmission and road themselves (both worth about 2 cents to the kWh price that is not included). That would raise the price up to 16 cents.

CO-CHAIR PASKVAN said that road and lines are 2.0 cents and asked what the 2.5 cents related to.

5:04:21 PM
MR. THOMSEN replied if the 30 percent refundable tax credit became law that equates to about 2.5 cents in the price. It is an option to consider in making up the 3 cent difference early on. AEA came out with a model of what they thought the avoided cost of electricity was across the Railbelt, which is the lowest cost energy they can get today. So, the question is how you develop renewable resources when you're comparing it against the

lowest cost and how do you equate that over a 20-year life cycle. If you invest now you could save more in the future.

CO-CHAIR WAGONER remembered heated debates on the Peninsula over Bradley Lake, a hydro project that cost $328 million: $16 million was for financing; $175 million was a direct grant from the state; $137 million came from utilities. He said that Bradley Lake produces 50-60 MW, and the state has already established a precedent of participating in these projects.

SENATOR FRENCH said it sounds like they are confident of getting 50 MW and probably getting 100 MW. He asked what the total daily electrical grid usage is for South-central.

SENATOR WIELECHOWSKI answered 300 MW in the summer with a peak of 900 MW in the winter. He asked Mr. Thomsen what jobs would be created during the construction phase and then full-time afterwards.

MR. THOMSEN answered they try to use the trades from the local market. A large number of jobs come through the construction of the facility and the ancillary infrastructure. Ormat looked at how Chugach modeled Beluga and estimated needing no more than 40 full-time employees at the facility once it was up and operating. And during construction phase it could range between 200-400 construction employees.

SENATOR WIELECHOWSKI asked how long the construction phase would be.

MR. THOMSEN replied 16-20 months.

5:10:48 PM
CO-CHAIR PSKVAN thanked everyone for their comments and adjourned the meeting at 5:10 p.m.