ALASKA STATE LEGISLATURE
HOUSE COMMUNITY AND REGIONAL AFFAIRS STANDING COMMITTEE
March 10, 2011
8:06 a.m.

MEMBERS PRESENT

Representative Cathy Engstrom Munoz, Chair
Representative Neal Foster, Vice Chair
Representative Alan Austerman
Representative Dan Saddler
Representative Sharon Cissna
Representative Berta Gardner

MEMBERS ABSENT

Representative Alan Dick

COMMITTEE CALENDAR

OVERVIEW: RAILBELT LARGE HYDRO EVALUATION PRELIMINARY DECISION DOCUMENT

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

BRYAN CAREY, Technical Engineer
Alaska Energy Authority (AEA)
Department of Commerce, Community & Economic Development (DCCED)
Anchorage, Alaska
POSITION STATEMENT: Provided an overview of the Railbelt Large Hydro Evaluation Preliminary Decision Document.

SARA FISHER-GOAD, Executive Director
Alaska Energy Authority
Department of Commerce, Community & Economic Development
Anchorage, Alaska
POSITION STATEMENT: During overview, answered questions.

ACTION NARRATIVE

8:06:03 AM

CHAIR CATHY ENGSTROM MUNOZ called the House Community and Regional Affairs Standing Committee meeting to order at 8:06 a.m. Representatives Austerman, Foster, Saddler, and Munoz were present at the call to order. Representatives Cissna and Gardner arrived as the meeting was in progress.

Overview: Railbelt Large Hydro Evaluation Preliminary Decision Document

8:06:11 AM

CHAIR MUNOZ announced that the only order of business would be an overview from the Alaska Energy Authority (AEA) regarding the Railbelt Large Hydro Evaluation Preliminary Decision Document.

8:07:04 AM

BRYAN CAREY, Technical Engineer, Alaska Energy Authority (AEA), Department of Commerce, Community & Economic Development (DCCED), reminded committee members that AEA originally began as the Alaska Power Authority back in 1976. Currently, AEA owns the Bradley Lake Hydroelectric and Alaska Intertie. Bradley Lake Hydroelectric is the largest hydroelectric project in the state and generates 120 megawatts while the Alaska Intertie connects Interior Alaska such that in times of energy shortages the energy can be switched between the Interior and Anchorage. During the winter, gas-generated electricity, which has a lower generation cost, is used and sent north. If there is an outage or power problems in Anchorage, power can come down from the Interior to Anchorage. He then highlighted the following major programs of AEA: the renewable energy fund, alternative energy and energy efficiency, and rural energy upgrades. He related that AEA has been building various energy projects in rural Alaska for the last couple of decades. In more recent times, there has been concern with regard to gas deliverability, rising fuel prices, and the need to replace the major generation and transmission projects in the Railbelt. Therefore, both the state and utilities developed an integrated resource plan to review the possible future electricity demands along the Railbelt and how that electricity will be provided.

8:09:42 AM

MR. CAREY directed attention to slide 3, which relates one possible future for the Railbelt. The chart shows a dip in the energy necessary, which he attributed to energy efficiency improvements. As the chart illustrates, no matter the situation a substantial amount of the Railbelt's energy will come from natural gas. The chart also illustrates that in 2025 a large amount of hydro comes online, which he said could be attributed to one of the two large hydroelectric projects. Although this chart doesn't show much wind, it was reviewed. Different model runs include or don't include wind. The two large hydroelectric projects that could satisfy the demand are the Susitna project at Watana or the Chakachamna project. Although there are other possible large hydroelectric projects along the Susitna River, they were discarded during the 1970s or 1980s due to fish concerns. He acknowledged that there are other possible small hydroelectric projects along the Railbelt, although some of these may not go forward due to the cost of construction and transmission. Mr. Carey informed the committee that today's overview will focus on the two large hydro projects, Watana and Chakachamna, and compares and contrasts them.

8:12:19 AM

MR. CAREY, moved on to the slide entitled "Susitna Watershed," which illustrates the salmon spawning areas. The map doesn't show the Chinook salmon. Although a 1980s investigation of the Watana area found no salmon for several years, in 2003 juvenile Chinook salmon were found above Watana. However, most of the salmon are below the dam site and tend to go to the spawning areas highlighted on the map. Although the map illustrates that the salmon do enter the Susitna River, those tend to be not as productive as some of the tributary streams. Many salmon make their way up other rivers, such as the Yentna River, the Talkeetna River, and others to spawn. He related that although there is very little salmon at the Watana site, there would have to be modifications to the operations of the reservoir/project in order to ensure salmon downstream aren't impacted. Mr. Carey then turned to the slide entitled "Chakachamna Watershed" and informed the committee that Chakachamna is located about 85 miles west of Anchorage. To the west of Chakachamna is the Lake Clark National Park and Preserve. The Chakachatna River, which comes out of the lake, goes through the Trading Bay State Game Refuge. The Chakachamna is a glacier-dammed lake and thus the glacier is acting like a dam to hold the water. The proposal is to construct a 10-12 mile tunnel through the mountain range and empty the water into the McArthur River Basin. However, with

the Chakachamna there is the need to reduce the water flow through the Chakachatna River to gain energy, which may result in adult and juvenile salmon not being able to make it up. In fact, the salmon may only be able to reach the Cook Inlet through the power house tunnel. Furthermore, reducing the water flow may result in the wetlands drying and changing the character of the wetlands to perhaps a moose browse type of area. He then directed attention to the red areas on the slide that illustrate the known or suspected spawning areas of salmon, per the 1980s studies. During the [1980s] there were at least 40,000 red/sockeye salmon that passed through [the areas in red]. He reminded the committee that the adjacent national park and the resource agencies have mandatory conditioning ability, and thus they can institute standards in the hydropower license including flow and when flow would occur. Those flows would be the environmental flows to maintain the fisheries or other wildlife. He then pointed out that the boundary line of the Lake Clark National Park and Preserve passes through Kenibuna Lake. The national park has already sent a letter to FERC expressing its concern that Kenibuna Lake and Chakachamna Lake would be hydrologically connected. If the aforementioned is the case, then any change in the water level with Chakachamna Lake would impact Kenibuna Lake and the park. The FERC can't license a hydropower project if the aforementioned occurs. The only way to license such a project would be through a direct act of Congress. He then mentioned that at the head of the Blockade Glacier is the volcano Mt. Spur, which is a bit active.

8:18:15 AM

MR. CAREY specified that this type of project is important because of the diversion from one river system to another and the need to maintain flows in the existing river system for the salmon or other aquatic life. He then moved on to slide 7, which reviews the environmental aspects of the two projects. For the Susitna/Watana project the reservoir would be about 39 miles in length with a maximum width of 2 miles. He noted that most of the reservoir has a width that's narrower than two miles. Since the 2003 study found juvenile salmon, the project is about 30 miles above significant salmon. The Alaska Department of Fish & Game (ADF&G) will perform more studies, which will be part of the daily data set to determine how many salmon make it up the [Susitna River]. From the earlier studies, the belief is that it's only several hundred Chinook salmon. He noted that there would be some loss of wildlife habitat because of the inundation of water. Although there will be more studies, he opined that there will be a minimal

fisheries impact. The impacts will be downstream and there will be both positive and negative impacts. Due to the conditions on the license by the resource agencies, any fisheries impacts will be compensated through mitigation or other measures.

MR. CAREY then turned to the Chakachamna Project, which has significant salmon populations that travel through the lake to the Lake Clark National Park and Preserve. It's also believed that salmon spawn in the lake along with lake trout, dolly varden, and white fish. He mentioned that drawing the lake down in the winter could result in some of the spawning bed areas freezing. Furthermore, the diversion of the water and change of habitat in the Trading Bay State Game Refuge is of concern. There is also concern with regard to adult false attraction, which causes the fish to go up the McArthur River Valley to the powerhouse location. The question then becomes how to get the fish back into the lake. Even if all the adults could be trucked up to the lake, the smelt tend to follow the most current and when a power house is operated the most current will be going down the power tunnel. Therefore, he questioned how to ensure the juveniles make it back to the sea without any impacts. As mentioned earlier the Chakachamna Project may not be able to be licensed under FERC.

8:21:18 AM

MR. CAREY, in response to Representative Gardner, clarified that a hydropower project may not be licensed under FERC if it impacts a national park. Therefore, for the Chakachamna Project the concern is whether Kenibuna Lake is hydrologically connected to Chakachamna, which would impact the Lake Clark National Park and Preserve. The letter from the U.S. National Parks Services relates that it wants the aforementioned investigated prior to any other investigations.

8:22:10 AM

MR. CAREY, continuing his overview, directed attention to slide 8. He informed the committee that the installed capacity for the Susitna Project would be approximately 600 megawatts and average energy in the amount of about 2,600 gigawatts an hour per year, which is close to 50 percent of the Railbelt's annual energy. He reminded the committee that the hydro energy is dependent upon the rain and snow melt each year; any year the energy produced could be plus or minus 10-15 percent. In the case of the Chakachamna Project, the installed capacity in the preliminary permit application was 300 megawatts. With the

environmental flows, the average energy for the Chakachamna Project amounts to about 860-1,100 gigawatts an hour annually, which would amount to about 20 percent of the Railbelt's annual energy. He noted that the average energy figures won't be known until five years or more are spent to better understand the fisheries and wildlife. Mr. Carey then directed attention to the slide with entitled "Railbelt Demand." The graph on the slide relates the Railbelt's approximate energy [needs] on a monthly basis. The peak [of energy needs] is generally in the winter months whereas [the Railbelt's energy needs] are lower in the summer.] The importance of the hydro projects, particularly the Bradley Lake Hydro Project, is that such projects can produce a lot of energy in the winter months when there is less ability of gas wells to deliver the gas. The graph illustrates that during the months of July and August [the average monthly power] peaks because a large amount of water flow needs to be let in order to have the normal river flow. Therefore, all the summer time flow isn't being held back. In the case of Susitna, all the summer time flow will pass through the powerhouse, which results in a large amount of energy. Chakachamna will also have large summer time flows. The winter separates the projects, he stated. For instance, with Chakachamna there is limited storage because there would be no dam construction at that outlet of the lake. Therefore, energy production decreases to less than 50 megawatts in the winter, which doesn't help the gas situation. However, the Susitna [would generate] more than 200 megawatts, which is a substantial portion of the Railbelt's generation requirements in the winter. Mr. Carey then pointed out that the amount of energy produced by the projects would be less than what the Railbelt currently uses. Therefore, it would tend to replace existing power generation projects of the 1970s and 1980s and the increment of energy and power can still be absorbed by the utilities. Regardless of construction of a hydro project, utilities and the state will have to spend billions in the coming decades to replace aging infrastructure.

8:26:11 AM

MR. CAREY directed the committee's attention to the slide entitled "Bradley Lake Hydroelectric," which is a photograph of the Bradley Lake Hydroelectric Project as an example of an embankment dam. An embankment dam is one way to construct Watana. He pointed out that there is no fish ladder at the Bradley Lake Project because there are no fish. However, there is water flowing from the bottom of the dam, which is for the environmental/fish flows for where the salmon are down next to the inlet. Those who were involved with the Bradley Lake

Project prior to the construction of the dam generally believe there have been positive fisheries impacts on the salmon located at the bottom of the dam by the inlet because there are more salmon than prior to the construction of the dam. Mr. Carey told the committee that most hydroelectric projects aren't going to have the cheapest power in the first 10 years of existence, which is why half of the initial funding for the Bradley Lake Project was from the state while the other half was financed by bonds to be paid by the utilities. Even when the utilities have paid the bonds, they will continue to make payments and those payments go to the state to help repay for its investment in the Bradley Lake Project. Bradley's cost of power is substantially less than much of the power generation on the Railbelt. On the basis of the generation cost being less alone, Railbelt consumers are saving close to $10 million per year in terms of what it would have to generate by other means. Moreover, Bradley Lake Hydroelectric's ability to provide power in the winter is critical for Southcentral, which would otherwise face a much greater gas problem.

8:28:29 AM

REPRESENTATIVE GARDNER related her understanding that over time all dams will silt up. She asked if that is happening with Bradley Lake, and if so she inquired as to how long it will continue to function.

MR. CAREY clarified that although that's true, the time period would be fairly long. He said that he hasn't seen the time scale with Bradley Lake Hydroelectric, but he estimated that it would likely be hundreds of years before it would silt up. In the case of a dam at Watana, the estimate for the full Watana height of 885 feet during the 1980s was that it would be greater than 1,000 years before there would be enough silt to impact the operations. Since a lower height dam is being considered, the time period in which silt would impact the operation would be shortened. Still, it would be hundreds of years before silt would impact the dam.

8:29:39 AM

REPRESENTATIVE SADDLER asked if any of the water in Bradley Lake is of glacial origin.

MR. CAREY replied yes, and specified that a third of Bradley Lake's water is from each of the following: rain, snow, and

existing glacial melt. The Kachemak and Nuka Glaciers are both providing water to Bradley Lake, and therefore it's "silty."

REPRESENTATIVE SADDLER recalled concerns from Talkeetna regarding whether glacial silt or any rocky matter would cause damage to turbines. He inquired as to the service life of the turbines at Bradley Lake. He also inquired as to whether there has been any damage to the turbines from glacial silt.

MR. CAREY informed the committee that in the Andes Mountains there have been hydroelectric facilities that are closer to the run of the river where there are large particle sizes that tend to wear down the turbines. He noted that there have been similar problems at King Cove Hydro. In the case of Bradley Lake there hasn't been any wear at this point, which he attributed to the large size of the reservoir that allows the heavy particles to settle in the lake. Therefore, the matter that passes through the turbines is more of a flour consistency, which isn't that abrasive and doesn't wear on the turbines. Bradley Lake Hydroelectric has been operating for 20 years with no problems, in terms of the turbines or the silt.

8:31:42 AM

REPRESENTATIVE SADDLER inquired as to estimates of the origin of the water in Watana Lake.

MR. CAREY informed the committee that Watana Lake was studied in the 1980s and at that time the Alaska Range valleys were producing 50 percent of the water going into Watana Lake. He indicated that more studies would be needed to answer the question. The FERC licensing process is very extensive and AEA will update all the studies for water sources. He noted that climate change will also have to be studied as well in terms of changes to the glaciers in the area and future projections.

8:33:32 AM

REPRESENTATIVE AUSTERMAN asked if the area where the water is coming out of the bottom of the dam is the location of the power house.

MR. CAREY clarified that the water coming out of the bottom of the dam is the fish water releases. The power house for the Bradley Lake dam is located 3.5 miles away. The intake is approximately 150 feet down below the lake level and it passes through a power tunnel that is 3.5 miles in length down to tide

water. With the power house being located at tide water, the difference in the lake and tide water is about 1,100 feet. The 1,100 difference places the water under a tremendous amount of pressure.

8:34:27 AM

REPRESENTATIVE AUSTERMAN inquired as to the span of the dam at Watana and the location of the power house in relation to the dam.

MR. CAREY informed the committee that the elevation of the Bradley Lake dam is 125 feet while the Watana Lake dam elevation is 700 feet with approximately 125 feet being located below ground in order to reach the bedrock. Therefore, the area above the tail water at the Watana Lake dam would be about 550 feet. In the 1980s the proposed location of the Watana Lake dam power house was an underground power house off to the side of the dam and located down river. If the dam was constructed using roller compacted concrete, the power house would be located closer to the base of the dam and would likely not be underground. He explained that the power house would likely not be placed directly on the dam because doing so would constrain the size of the dam in the future. For instance, the ability to raise the height of the dam would be lost if the power house was located right next to the dam. Therefore, the location of the power house needs to be far enough away from the dam to be able to increase the size of the dam in the future.

8:36:28 AM

REPRESENTATIVE AUSTERMAN related that for the Kodiak hydroelectric project two turbines were installed with a slot for a third turbine. He asked if such expansion possibilities are being considered with the Watana project.

MR. CAREY responded that the original design of Watana was an embankment dam with an underground power house. The notion was that the underground cavern would be made large enough to add more turbines in the future. However, an external power house makes it easier for expansion, although there would still be changes necessary. The Watana dam would be designed such that more turbines could be added in the future.

8:37:59 AM

MR. CAREY, returning to his overview, directed the committee's attention to slide 11 entitled "Timeline." He clarified that the timeline he'll present is the one that will occur once the formal FERC process is reached, which has not yet been reached. For Watana, the final application for license could be prepared and filed in 3.5 years. Therefore, after 6.5 years the project could move forward into the construction phase. The first power would be generated in approximately 11 years. Mr. Carey told the committee that it's believed that more time will be required at the start for Chakachamna because it has had very little [documentation] for it. Furthermore, Chakachamna is a more complicated system because of the diversion of water and the impacts it would have on the Lake Clark National Park and Preserve, the Trading Bay State Game Refuge, and the nearby river systems. The aforementioned will require more studies and time at FERC. The construction time period for Chakachamna will also likely take more time because drilling a tunnel 10-12 miles long will take a substantial amount of time. Moreover, for both projects access to the location needs to be obtained first and then there will be a couple of years of construction for access. He related that the first power at Chakachamna will likely be generated in about 14 years.

8:39:57 AM

SARA FISHER-GOAD, Executive Director, Alaska Energy Authority, Department of Commerce, Community & Economic Development, related her understanding from legislators who attended the Energy Conference that FERC has a somewhat more optimistic licensing schedule of 2-3 years. Therefore, AEA plans to have conversations with FERC regarding a more aggressive timeline. Although AEA isn't prepared to update its proposed timeline, the aforementioned information was encouraging.

8:41:04 AM

REPRESENTATIVE FOSTER mentioned that he and Representative Saddler were part of the team that spoke with FERC from which the aforementioned sentiment was heard. He recalled the discussion relating that more of the issues might lay with the agencies and departments.

8:41:40 AM

MR. CAREY, referring to the slide entitled "Watana vs. Chakachamna," informed the committee that Watana will produce more energy, perhaps 2.5 times more energy, at a lower cost per

unit and with fewer geologic risks. He noted that both Watana and Chakachamna have some seismic activity, but dams can be designed around seismic concerns as is the case in California and elsewhere. However, the glacial lake at Chakachamna is of concern because it's inherently unstable as it's unknown when it will release. At some point the aforementioned could significantly impact how much water is in storage. Furthermore, how Mt. Spur will impact the operation of [Chakachamna] in the future is also unknown. He highlighted that Watana doesn't have river diversions and has less of a fisheries impact, although there are some salmon at the site. He acknowledged that there are also salmon down river on the Susitna River, but the Susitna River tends to be used as a salmon highway. He noted the presence of salmon will be reviewed with the resource agencies in order to determine how best to address them. Mr. Carey reiterated that it's likely Watana will go through licensing quicker than Chakachamna. In fact, it's likely that Chakachamna may require Congressional action prior to licensure. Watana has the ability for expansion for future growth and demand, whereas that's not the case for Chakachamna. Moreover, Watana has the ability to provide significant amounts of winter energy, whereas Chakachamna can't. Therefore, the [electric energy from Watana] can displace the gas necessary in the winter for generation and thus can be used for home heating, etcetera. Furthermore, Watana is necessary to achieve the state's 50 percent renewable goal. It's extremely unlikely that without a large hydro project, the state would achieve the 50 percent renewable goal, he opined. A large hydroelectric project is necessary to provide dispatchable energy, stabilize the system, and to reach the state's renewable energy goal.

8:45:18 AM

MR. CAREY related that during the public workshops, the desire to review other potential sources of energy was expressed. Although the preliminary decision document didn't cover other potential sources of energy, such as wind, geothermal, and nuclear, they were covered in the integrated resource plan. The integrated resource plan included wind, geothermal, gas generation, coal generation, nuclear, and energy efficiencies. Depending upon whether there's a carbon tax and the growth rate estimates of the Railbelt, the mix of energy sources differs. Unless there is a large hydroelectric energy source, most of the energy will be from gas with some wind and energy efficiency upgrades. With regard to questions about the cost of energy, Mr. Carey informed the committee that AEA is currently working with a financial firm to obtain better numbers. He opined that

the cost of energy [from a hydroelectric project] would not result in a rate shock. He further opined that if the cost of the energy from the hydroelectric project is substantially more than gas or otherwise, the utilities wouldn't be interested in receiving energy from such a project. With regard to the seismic concerns, those are fairly well understood by engineers and dams have been constructed in seismic active areas. Furthermore, there's no record of a modern dam failing due to a seismic event, although it can be damaged.

8:48:12 AM

CHAIR MUNOZ inquired as to the point in the process when the commitments from the utilities are determined and information is available to the legislature.

MR. CAREY said that in the coming years there will be many discussions with utilities regarding power sales agreements. In terms of the price to utilities, that will be a give and take in relation to the amount of state participation.

MS. FISHER-GOAD acknowledged that much activity is necessary for a project of this size, and thus there will be a variety of conversations. There will be an engineering and licensing process once the preliminary permit application is filed with FERC. The aforementioned will help AEA refine the timeline, cost, and schedule. During that time, conversations with the utilities regarding purchase commitments will begin. She informed the committee that AEA has already engaged its financial advising firm to help calculate some numbers and develop information sooner than anticipated. These discussions have resulted in one example using the Bradley Lake Hydroelectric model in terms of the potential power cost. This example has resulted in many questions, which she interpreted to mean there is a need to refine the numbers and obtain more scenarios to reach the potential wholesale power cost. At this point, the power cost to the retail ratepayers if [Susitna] is built is unknown. Even with the Bradley Lake Hydroelectric project, the rate that Fairbanks residents pay is different than that paid by Anchorage residents through their utility. Ms. Fisher-Goad stated that AEA owes the legislature additional information regarding the cost, although some of it won't be available this session.

8:51:53 AM

REPRESENTATIVE CISSNA inquired as to the impacts and costs of these two different projects. She further inquired as to the impacts of these projects in the long-term and the possibilities a dam would afford these communities. She mentioned that a dam could impact other resources beyond energy resources, such as agriculture.

MR. CAREY informed the committee that along with the FERC studies required for licensing there will also be economic studies in regard to the potential impacts, such as jobs, a dam would have on the surrounding communities. With regard to fisheries and siltation issues, those issues would be studied as part of the licensing process. Mr. Carey pointed out that the resource agencies have the mission to protect the fisheries and the wildlife, and therefore they can place conditions on the license to ensure that the fisheries are protected for fishermen. If the resource agencies believe there would be any negative impact, portions of the license include provisions such that the licensee would pay for enhancement or mitigation. For instance, more wetlands could be purchased, funding could be utilized for enhancement projects, or a fish hatchery could be done. Therefore, a variety of methods could be utilized.

8:56:14 AM

REPRESENTATIVE CISSNA turned to the matter of oversight, and expressed the need to relay information in a format that's understandable for new legislators as there's often changing players in the legislature and the administration. She also expressed the need to work [on these projects] in terms of providing long-term understanding in order that oversight actually does happen.

8:57:06 AM

REPRESENTATIVE AUSTERMAN related his support for the Watana Dam and the concept of generating more hydro power. He mentioned the life span of a hydro project, which is 150-200 years less the time necessary to change the turbines. Representative Austerman also expressed concern with regard to fisheries mitigation and water for agriculture. [A good example] is the Columbia River system where the dams were built knowing they were going to have to mitigate and destroy salmon. Those dams were built to draw water for agriculture and create an industry that's dependent on those dams. Therefore, he cautioned the [state] to be careful in terms of what it asks for as there may be a lot of opposition to hydro power. He then recalled that

the governor's budget includes $52 million, and asked if that provides enough funds to get started.

MS. FISHER-GOAD clarified that the capital appropriation request in the governor's budget is approximately $65.7 million, which is the estimated unobligated balance of the Railbelt Energy Fund. Although the aforementioned isn't enough funding to complete the full licensing and design process, it's a start. The current estimate is approximately $20 million per year for the environmental and design work. However, those numbers will be refined as the project proceeds. Ms. Fisher-Goad clarified that this is a multi-year request.

REPRESENTATIVE AUSTERMAN inquired as to when AEA will be able to come to the legislature with the specific construction cost, amount of wholesale power that will be sold, and whether there will be mitigation so that the legislature can make the final decision.

MS. FISHER-GOAD answered that she would expect there would be an opportunity every session to provide the legislature additional information. Once the preliminary permit application was filed, the agency would know when it could provide better information.

MR. CAREY interjected that currently data gap analysis is being performed on aquatics and wildlife to determine what information will be needed to determine the potential impacts. Once the aforementioned analysis is finished, AEA will meet with the resource agencies regarding what additional studies are necessary. He said that AEA would have more information in a couple of months in terms of what the resource agencies want.

9:02:08 AM

REPRESENTATIVE SADDLER recalled questions of reservoir induced seismicity (RIS) that were raised in the House Special Committee on Energy meeting on the Watana project. He asked if the preliminary decision document considers the seismic conditions of the area to be developed. He also asked if there is such a thing as RIS.

MR. CAREY said that most of the seismic activity occurring when there is a new reservoir is the earth adjusting to a new weight and the earthquakes tend to be small, of a magnitude 1 or 2. Therefore, most people wouldn't even notice an earthquake that small, even if he/she were standing on top of the dam. The control earthquake, design earthquake, for these projects would

be earthquakes located within 10 miles of the site. In the case of Watana, the control earthquake would be a magnitude 8 with less than a 10 mile proximity to the reservoir. The control earthquakes tend to be close earthquakes that are very large. Therefore, the reservoir seismicity tends to be less than what a control earthquake would be.

9:04:15 AM

REPRESENTATIVE SADDLER opined, "I fear that much the same way that an endangered species or critical habitat is discovered near every development project, I'm afraid that RIS would ... generate a seismic risk where one might not really exist." He then inquired as to whether there are hydrologic or geodetic studies regarding where and how fast the water would go if there was a leak in the dam. The concern, he specified, is for Talkeetna downstream.

MR. CAREY responded that if there is to be water coming out of the dam, that's studied as part of the FERC licensing process in order to provide estimates in terms of time and amount of water that would flow down. He pointed out that Talkeetna is 90 miles downriver, and thus the water flow will be constrained as it passes through Devil Canyon. Work was performed in the 1980s regarding how fast the water would travel down and which areas would flood. Although the aforementioned would be required under new licensing, FERC normally doesn't review catastrophic failure of a dam because it just doesn't occur. However, he acknowledged that there can be some release of a dam from a smaller failure, which is what's considered a more likely occurrence and reviewed.

REPRESENTATIVE SADDLER remarked that although he is intrigued by the possibilities with these projects, he does hold concerns that he believes should be addressed.

9:06:03 AM

CHAIR MUNOZ thanked everyone for their participation.

9:06:14 AM

ADJOURNMENT

There being no further business before the committee, the House Community and Regional Affairs Standing Committee meeting was adjourned at 9:06 a.m.