ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON ECONOMIC DEVELOPMENT, INTERNATIONAL TRADE AND TOURISM
Anchorage, Alaska
October 28, 2003
3:15 p.m.

MEMBERS PRESENT

Representative Cheryll Heinze, Chair
Representative Lesil McGuire, Vice Chair
Representative Nancy Dahlstrom
Representative Vic Kohring (via teleconference)
Representative Sharon Cissna

MEMBERS ABSENT

Representative Pete Kott
Representative Harry Crawford

COMMITTEE CALENDAR

SUBJECT: SECURITY OF THE RAILBELT POWER GRID

- HEARD

PREVIOUS ACTION

No previous action to record

WITNESS REGISTER

JIM POSEY, General Manager
Municipal Light and Power (ML&P)
Anchorage, Alaska
POSITION STATEMENT: Gave a presentation on the state of the Railbelt power grid, its susceptibility to blackouts, and the projected demand in the next 10 years.

JOE GRIFFITH, Chief Executive Officer
Chugach Electric Association (CEA)
Anchorage, Alaska
POSITION STATEMENT: Introduced John Cooley and answered questions during the hearing on the security of the Railbelt power grid.

JOHN COOLEY, Manager of Power Control
Chugach Electric Association (CEA)
Anchorage, Alaska
POSITION STATEMENT: Gave a presentation on the state of the Railbelt power grid, its susceptibility to blackouts, and the projected demand in the next 10 years.

TUCKERMAN BABCOCK, Manager
Government/Strategic Affairs
Matanuska Electric Association (MEA)
Eagle River, Alaska
POSITION STATEMENT: Gave a presentation on the state of the Railbelt power grid, its susceptibility to blackouts, and the projected demand in the next 10 years.

HENRI DALE, Power System Manager
Golden Valley Electric Association (GVEA)
Fairbanks, Alaska
POSITION STATEMENT: Gave a presentation on the state of the Railbelt power grid, its susceptibility to blackouts, and the projected demand in the next 10 years.

ERIC YOULD, Executive Director
Alaska Power Association (APA)
Anchorage, Alaska
POSITION STATEMENT: Gave a presentation on the state of the Railbelt power grid, its susceptibility to blackouts, and the projected demand in the next 10 years.

ACTION NARRATIVE

TAPE 03-13, SIDE A
Number 0001

CHAIR CHERYLL HEINZE called the House Special Committee on Economic Development, International Trade and Tourism meeting to order at 3:15 p.m. Representatives Heinze, Dahlstrom, Cissna, McGuire, and Kohring (via teleconference) were present at the call to order.

SUBJECT: SECURITY OF THE RAILBELT POWER GRID

CHAIR HEINZE gave a speech before hearing presentations on the security of the Railbelt power grid. She stated that the September 11 [2001] attacks on New York and Washington, D.C., forced the nation's energy business and policy bodies that oversee the nation's energy establishment to reassess many old

assumptions. For the first time, a relatively small number of people who had concerned themselves with securing the nation's energy infrastructure were thrust into prominence. Energy security had entered the lexicon of all those involved in the energy industry. Soon after, policy makers, state energy officials, public utility commissioners, and emergency management officials discovered a renewed drive to cooperate with electric, gas, and petroleum companies to improve the security of systems that generate, transmit, and distribute energy.

CHAIR HEINZE said state policy makers [legislators] serve a crucial role in partnership with industry and local and federal officials in addressing energy-security vulnerabilities. Energy security refers to the resilience of energy systems. The resilient system would be capable of withstanding threats through a combination of active, direct security measures and passive or more indirect measures such as redundancy, duplication of critical equipment, diversity in fuel, other sources of energy, and reliance on less vulnerable infrastructure.

CHAIR HEINZE added that the Homeland Security Act and the USA Patriot Act define critical infrastructure as "systems and assets so vital to the United States that the incapacity or destruction of such systems and assets would have ... debilitating impact on security, national economic security, national public health or safety, or any combination of those matters." State policy makers must understand the effect that a security breach could have on the economy, public health and safety, and the environment. For example, water pumps rely on electricity to operate; electricity relies on natural gas as a fuel, which may in turn, if needed, rely on electricity to run the compressors. Telecommunications systems serve as a vital support system for the power grid, and they, too, require electricity. She said the nation's new high-tech economy demands reliable petroleum-and-electricity based energy system to meet its needs. The nation's power plants and transmission and distribution systems are among the more critical facilities that are vulnerable to a breach of security.

CHAIR HEINZE continued, saying each part of the electricity system has different characteristics and should be seen on its own merits. The network of electricity transmission infrastructure is an asset of the systems, but that network can sometimes come cascading down. Power lines could be a target for terrorists. Transmission lines are almost impossible to

physically protect. Because the electric power system is interlinked, a failure on a single important power lines can quickly cascade through the transmission system, causing wide electrical outages. Electrical substations are a crucial part of any power delivery systems. The threat that results from a loss of a substation is primarily economic. Transformers are the largest and most expensive components of a substation, with each one costing in the vicinity of $2 million, and can take nine to eighteen months to build and deliver. The nation's energy system of power plants, power lines, gas pipelines, and power facilities is exposed to terrorists' threats. The scope of the threat is great, but lawmakers can take steps to reduce the risks.

CHAIR HEINZE noted that the bulk of the nation's energy infrastructure has some level of risk. The question that legislators and the industry need to address is: What risks are unacceptable? The vast majority of power lines fall into the category of an acceptable risk. Where multiple paths are sustainable if one power line went down, power could be shipped over other lines while that one was being repaired. Unfortunately, multiple paths are not the characteristic of the Railbelt system. Attacks on some other facilities such as large power generators, major pipelines, transmission lines, and fuel storage facilities may qualify as unacceptable risks.

CHAIR HEINZE pointed out that at least 20 states have proposed legislation that addresses the issue of open records. The bills look at keeping secret any evacuation plans, emergency response plans, security measures, or emergency health procedures. Some states have proposed exemptions from public record infrastructure such as utility plants, bridges, water lines, and transportation systems. Across the country there is discussion at the local level about what should be included in the public records. She mentioned the review of statues governing freedom-of-information laws and said there are regulations that provide exemptions for security-related information.

Number 0050

JIM POSEY, General Manager, Municipal Light and Power (ML&P), informing members on the current state and future of the Railbelt power line, stated that ML&P generates, transmits, and distributes electricity to 30,000 customer accounts in a 20-square-mile radius. Municipal Light and Power has four physical plants and one natural gas field. Power purchased in 2002 equaled 968,3776,278 kWh, and economy energy sales to other

utilities totaled 79,625,000 kWh, with total assets equaling $368,460,050.

MR. POSEY indicated future challenges in three groups. Long-term, challenges include development of a robust grid, implementing an integrated resources plan, developing a reliable source of natural gas, developing wind power, and green pricing. The three-year horizon involves replacing the aging infrastructure, maintaining competitive rates, military privatization, maintaining value of interest in Bradley Lake, and replacing the aging workforce. Immediate challenges are to acquire property for Plant III and working with the governor's energy task force.

Number 0165

MR. POSEY then went on to point out that Alaska's infrastructure is old: 30 percent of thermal generating capacity in the Railbelt is more than 30 years old and 50 percent is 20-30 years old. This makes them both more expensive and more difficult to run. The Anchorage-to-Eklutna transmission line is 50-plus years old.

MR. POSEY stressed the need to upgrade the Eklutna line for many reasons. It is critical to the transmission network and would provide an alternate connection linking the ML&P and CEA transmission systems. Also important was the fact that it would be a more reliable and redundant power source from Palmer to Anchorage, upgrading a vulnerable system. The legislature appropriated $19.3 million to complete this upgrade, which ML&P is managing.

Number 0203

MR. POSEY discussed ML&P's Integrated Resources Plan (IRP) that compares new technology to "repowering" existing generation assets as well as the future of Plant I, dual fuel capacity, and supervisory control and data acquisition (SCADA) needs. Due to the IRP, several recommendations are being made and implemented involving investments in new generation; the closure of Plant I; elimination of dual fuel capacity; postponement of SCADA enhancements; and replacement of aging underground, overhead, and substation infrastructure.

MR. POSEY next went on to outline various plans for upgrading and improving ML&P's ability to provide cheap, reliable electricity to its customers. These plans included new

generation, military privatization, use of the Beluga River Unit gas field and re-evaluation of current gas contracts. Also mentioned was the Southern Intertie project and its importance to ML&P.

Number 0288

REPRESENTATIVE CISSNA asked if there was a prioritizing of vulnerability.

MR. POSEY responded, noting that it was a tough question:

> Our vulnerability is something we look at as a group but also through our APA [Alaska Power Association] organization and individually for us because of the security concepts that we as a city consider our vulnerabilities. We have so many diverse forms of generation of power, from Bradley to Eklutna, to Plant I to Plant II. There is no one huge plant here in Anchorage other than Plant II that one could say is vulnerable, but even that is backed up by what we can get from other sources-fairly difficult to knock out but not impossible. Our tie lines connecting the city to our two hydro powers. Some of our lines are fairly remote and might be easy to do some activity that could knock them out. But, once again, you have these other diverse pieces, so to knock out the whole city in power distribution or to knock out the whole Railbelt is difficult, and the keys to doing that are not readily available to anyone, but they could do damage to the system. And that is what we work at; making sure we can depend on each other and that we have crews that can repair those are the kinds of things that we do.
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> We do not run our control systems, especially between Chugach [CEA] and ourselves, on a web-based program. Ours is SCADA based and not connected to the web. So we've done a lot of things and kept things separated to keep the kind of things that they talk about in the Lower 48 from being reality here-nothing like in Northern California and Southern Washington last week where someone was taking bolts out of the transmission towers. You will find that that kind of damage is possible anywhere. But, once again, you have a diverse flow of energy and a diverse generation capacity from many different places. The one-punch

knockout becomes more difficult for one to use as a symbol, I suppose, and that we work on very seriously up and down the Railbelt.

Number 0403

JOE GRIFFITH, Chief Executive Officer, Chugach Electric, introduced John Cooley as the person who will give a presentation on the current state and future of the Railbelt.

JOHN COOLEY, Manager of Power Control, Chugach Electric Association, began by giving an explanation of basic electric terms and processes.

TAPE 03-13 SIDE B

MR. COOLEY then discussed the four types of fuel and the percentage of total power that each generates for the Railbelt, namely, natural gas, 63 percent; fuel oil, 14 percent; hydroelectric, 14 percent; and coal, 9 percent. Also mentioned was the fact that all the generating areas must keep their loads in balance or the whole system will fail. This is why partial blackouts occur. When a generator goes off-line, some load must be shed to keep the frequency at a usable level.

Number 0042

MR. COOLEY also pointed out that the control area dispatch centers at GVEA, ML&P, and CEA are used to schedule the power among them to make sure the load matches the need in any given area. The control areas are staffed 24 hours a day, 365 days a year. The systems are also monitored for secure operation.

MR. COOLEY next addressed the question of how susceptible the Railbelt power grid was to blackout. He stated that transmission infrastructure hasn't kept up with load growth or market changes and that the system is operated under different conditions than what it was designed for. The underlying problems behind these issues were too many people in areas without power plants due to the NIMBY [not in my backyard] effect and the fact that security monitors are unable to see the level of detail needed to know whose load a failure is associated with.

Number 0234

MR. COOLEY then described the recent Northeast blackout. The exact cause has yet to be determined but the sequential loss of several 345 Kilovolt transmission lines in Ohio may have overloaded others, or perhaps poor vegetation management could be the reason. Operators were unable to adjust power flows over other lines before the system became unstable.

MR. COOLEY explained how the Railbelt system was different from the power grid in the Lower 48. The Railbelt is much smaller. All Railbelt [utilities] are nonprofit, valuing reliability over profitability. Their spinning reserves also allow a quicker restoration, and the utilities control from generation to load making the system easier to manage. Even so, [a blackout] could still happen here. In July 1996 Anchorage and much of the Railbelt blacked out. This happened because one of CEA's three generators was taken off-line for maintenance. One of the remaining two generator's lines sagged into a tree and went off-line as well. The third generator was unable to cope with the load and tripped, causing the blackout. When the Kenai line tried to pick up the load, it tripped as well.

MR. COOLEY wrapped up his presentation by outlining the projected demand on the Railbelt power grid in the next 10 years. From the current usage of 4.5 billion kWh, use will increase to around 5.5 billion kWh in the next 10 years. Mr. Cooley then indicated that both he and Mr. Griffin were available to answer questions

Number 0345

REPRESENTATIVE DAHLSTROM asked whether or not there were any industry prohibitions to keep new companies from producing gas.

MR. GRIFFITH responded that there were no barriers to drilling for gas, outside of the state permitting process.

REPRESENTATIVE HEINZE asked whether or not CEA participated in demand-side management.

MR. GRIFFITH replied that they participated in demand-side management to an extent. Demand side works best with big industrial loads. In effect, it means that they can buy back energy when they need power. On occasion they have to use [demand-side management], usually in an emergency situation. They initiate this by calling up a sector and asking them to reduce power usage to lighten the load on the grid. They had one case a few years ago when they had to ask the Agrium

facility and the liquefied natural gas (LNG) facility to back down when one of the compressors failed on the steelhead platform out in the inlet, so they were unable to supply enough gas to meet demand. Chugach Electric Association was forced to ask the major producers on the Kenai to reduce its use of gas.

Number 0460

TUCKERMAN BABCOCK, Manager, Government and Strategic Affairs, Matanuska Electric Association (MEA), gave a presentation on the current state and future of the Railbelt.

MR. BABCOCK gave an overview of MEA, emphasizing his company's rapid growth in miles of power line, new services, and customers served. Conversely, it has scaled back its workforce from 149 in 1994 to 121 in 2002. This allows MEA to lower its rates when most Alaskan utilities are increasing their rates.

MR. BABCOCK then went on to outline MEA's relationship with CEA. Matanuska Electric Association gets all of their power needs from CEA, purchasing 25 percent of all of CEA's output. Chugach Electric Association manages MEA's shares in the Eklutna and Bradley Lake hydroelectric plants. The contract between CEA and MEA was started in 1989 and ends in 2014. Mr. Babcock also said that relationships between his company and CEA had been strained. He stated that CEA attempted to acquire MEA in 1994 and 1995 and that MEA attempted to take over CEA in 1998. He also stated that he believed that CEA's rates are contract violations and are too high.

Number 0530

MR. BABCOCK then outlined the differences between his company and CEA. Differences in rates, miles of distribution line, and number of consumers were discussed. Mr. Babcock also talked about the Regulatory Commission of Alaska's (RCA's) order for CEA to cut MEA's rates by 12 percent and refund millions of dollars. Chugach Electric Association took the matter to court, where it is currently being decided.

MR. BABCOCK went on to explain the governor's energy policy task force, which is made up of nine people. Matanuska Electric Association's general manager, Wayne Carmony, was appointed to the board. The task force's goal is to develop a long-term energy plan for Alaska. The deadline for a Railbelt energy plan is December 31, 2003. A non-Railbelt energy plan has a March 31, 2004, deadline.

TAPE 03-14, SIDE A
Number 0001

MR. BABCOCK outlined what he thought a comprehensive energy plan should include. The plan should provide interconnected electric utility service to regions that don't have it and should lower the costs for regions that do have it. Mr. Babcock also proposed that all electric utilities share proportionally in the benefits of state and federal subsidies. Also, existing generation and transmission facilities should be grandfathered in. Power pooling was also offered as a capital plan to improve electricity generation in Alaska. The Edison Electric Institute defines power pooling as two or more interconnected electric systems planned and operated to supply power in the most reliable and economical manner for their combined load requirements and maintenance, he reported.

Number 0194

REPRESENTATIVE DAHLSTROM asked whether MEA has had any preliminary discussions with any of the other utilities that have been mentioned or with the RCA to see if they would be amenable to this idea.

MR. BABCOCK replied that MEA had been making presentations. They presented to RCA on Friday and to other groups as well. Matanuska Electric Association plans on continuing to present its idea until a solution is found.

CHAIR HEINZE asked if, along with his presentation of his pooling idea, Mr. Babcock would be addressing the questions that this committee asked him to address in the invitation.

MR. BABCOCK replied that MEA felt that pooling would improve the reliability and security of the Railbelt power line. He allowed that the other utilities are better equipped to tell the committee about where the Railbelt is today whereas, MEA is trying to show where the Railbelt should go in the future.

Number 0235

HENRI DALE, Power System Manager, Golden Valley Electric Association (GVEA), gave a presentation on the current state and the future of the Railbelt.

MR. DALE explained that the Railbelt is constructed of aging components. Most of these are 25-plus years old. He also stressed that redundancy is the key to security and that although there are exceptions, most of the Railbelt system is a radial system. Also, the sheer distance the lines pass through public right-of-way makes it almost impossible to guard every section of power line.

MR. DALE mentioned that the most sensitive parts of the power transmission system are protected, both by secure buildings and by SCADA systems. As much as they are able, GVEA has protected itself from attacks on its system.

MR. DALE answered the question of how susceptible they were to a blackout by saying that they probably have more blackouts due to the fact that they are on the end of a radial line. Twenty years ago a few blackouts a year was not uncommon, but now it's roughly once every two years. He said GVEA is currently testing a battery backup system, and also has spinning reserves.

MR. DALE pointed out that their demand is projected to grow 2 percent per year. In the near term, there is a 25 percent growth possibility due to the missile defense system, Alyeska's interest in electrifying some of its pump stations, and a new gold mine.

Number 0409

REPRESENTATIVE HEINZE asked whether or not a cascading failure would affect Fort Greely and whether or not Fort Greely would be too much of a burden on GVEA's lines.

MR. DALE responded that no, it wouldn't overload GVEA's grid because GVEA, and all utilities build more generation capacity to meet their load needs as well as keep their spinning reserves. Mr. Dale also pointed out that GVEA treats all of its companies the same, so they wouldn't necessarily look at Fort Greeley any differently than any other section. Mr. Dale said he didn't see where Fort Greely would be any worse off or better off than any other customer. The bottom line is that Mr. Dale believes GVEA can reliably serve Fort Greely

Number 0489

ERIC YOULD Executive Director, Alaska Power Association (APA), gave a presentation on the current state and future of the Railbelt.

MR. YOULD introduced himself and his organization, noting that the APA represents every electrical utility in the Railbelt except for MEA, which dropped out several years back. Mr. Yould also mentioned that the heads of the various utilities cooperated extremely well together compared with a few years ago, when getting them all in the same room would have been impossible.

MR. YOULD noted that Mr. Babcock and MEA have taken an adversarial stance. Mr. Yould pointed out that MEA is not a member of the integrated resource planning that all the other utilities are participating in.

MR. YOULD explained that the Anchorage-to-Fairbanks intertie is a weak, radial system that is extremely different from anything in the Lower 48. Another reason the Railbelt is weak is because there is a 20-mile stretch of transmission line that goes from Fairbanks to Anchorage that is owned by MEA. The utilities have been trying to work with MEA to try to upgrade that line or at least to get MEA to allow them to upgrade it for MEA. Mr. Yould stated that MEA was not cooperative and the other utilities had to go to the legislature and say they needed to build around MEA system. Without MEA's 20-mile segment, the Railbelt won't be able to transmit electricity north and south. Just this year MEA served notice to the ADA that it is not going to re-up its contract to allow utilities to use that transmission segment to run power north and south. This is why it is imperative to build around MEA's line.

TAPE 03-14, SIDE B

REPRESENTATIVE HEINZE asked whether or not there is any way to prevent one of the utilities in the Railbelt from closing down its section whenever it wants.

MR. YOULD responded that there are avenues and venues where these problems will be addressed. For example, the opening of the Anchorage-Fairbanks intertie when the contract expires in 2004 will probably be addressed by the RCA. In addition, one can always go to court.

REPRESENTATIVE DAHLSTROM invited Mr. Babcock back to the table to respond to Mr. Yould's remarks.

MR. BABCOCK remarked that he could see that when a utility decides not to stay a member of Mr. Yould's trade group, there

are some prices to pay. He also stated that two years ago, when the legislature tried to solve that problem, the highway was too narrow; it didn't have enough traffic. The legislature decided to increase the size of that highway so that more power could be sent north. There was $10 million appropriated to build a frontage road. Then-Governor Knowles vetoed the appropriation, leaving MEA responsible for paying for the upgrade and to hold its members harmless.

MR. BABCOCK said he also thought that another reason is that for the last 15 years the ratio of the tariff, or the wheeling rate paid, is such that MEA pays 15 times to use the line and others pay 1/15 to use MEA's line. Mr. Yould also suggested that the desire of the other utilities to work together stems from their desire to see that the $20 million appropriated to upgrade the Anchorage-to-Fairbanks intertie, the $19 million for the Eklutna project and the $40 million left over from the southern intertie gets spent on something.

Number 0644

CHAIR HEINZE declared her intention to form a Digital Development, Information, Infrastructure, and Management subcommittee. The subcommittee will be charged with investigating Alaska's transition to a digital economy, and asked to make recommendations back to the House Special Committee on Economic Development, International Trade and Tourism regarding actions [the legislature] can take to cultivate this important sector of the Alaskan economy.

ADJOURNMENT

There being no further business before the committee, the House Special Committee on Economic Development, International Trade and Tourism meeting was adjourned at 6:44 p.m.