

**ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE**

April 5, 2023

3:30 p.m.

MEMBERS PRESENT

Senator Click Bishop, Co-Chair
Senator Cathy Giessel, Co-Chair
Senator Bill Wielechowski, Vice Chair
Senator James Kaufman
Senator Forrest Dunbar
Senator Matt Claman

MEMBERS ABSENT

Senator Scott Kawasaki

COMMITTEE CALENDAR

PRESENTATION(S) : MODERNIZING ALASKA'S LARGEST ELECTRIC SYSTEM

- HEARD

UPDATE: INTERIOR GAS UTILITY

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

CURTIS THAYER, Executive Director
Alaska Energy Authority
Anchorage, Alaska

POSITION STATEMENT: Delivered the presentation, "Modernizing Alaska's Largest Electric System."

BRYAN CAREY, Director of Owned Assets
Alaska Energy Authority
Anchorage, Alaska

POSITION STATEMENT: Participated in the presentation, "Modernizing Alaska's Largest Electric System."

DAN BRITTON, General Manager
Interior Gas Utility
Fairbanks, Alaska

POSITION STATEMENT: Presented the Interior Gas Utility update.

ACTION NARRATIVE

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CO-CHAIR CLICK BISHOP called the Senate Resources Standing Committee meeting to order at 3:30 p.m. Present at the call to order were Senators Claman, Dunbar, Kaufman, Co-Chair Giessel, and Co-Chair Bishop. Senator Wielechowski arrived during the course of the meeting.

PRESENTATION(S): MODERNIZING ALASKA'S LARGEST ELECTRIC SYSTEM

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CO-CHAIR BISHOP announced a presentation on modernizing Alaska's largest electric system by the Alaska Energy Authority.

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CURTIS THAYER, Executive Director, Alaska Energy Authority, Anchorage, Alaska, introduced himself and Bryan Carey.

MR. THAYER began the presentation on slide 2, "About AEA."

AEA's mission is to reduce the cost of energy in Alaska. To achieve this mission, AEA strives to diversify Alaska's energy portfolio – increasing resiliency, reliability, and redundancy.

Railbelt Energy - AEA owns the Bradley Lake Hydroelectric Project, the Alaska Intertie, and the Sterling to Quartz Creek Transmission Line – all of which benefit Railbelt consumers by reducing the cost of power.

Power Cost Equalization (PCE) - PCE reduces the cost of electricity in rural Alaska for residential customers and community facilities, which helps ensure the sustainability of centralized power.

Rural Energy - AEA constructs bulk fuel tank farms, diesel powerhouses, and electrical distribution grids in rural villages. AEA supports the operation of these

facilities through circuit rider and emergency response programs.

Renewable Energy and Energy Efficiency - AEA provides funding, technical assistance, and analysis on alternative energy technologies to benefit Alaskans. These include biomass, hydro, solar, wind, and others.

Grants and Loans - AEA provides loans to local utilities, local governments, and independent power producers for the construction or upgrade of power generation and other energy facilities.

Energy Planning - In collaboration with local and regional partners, AEA provides economic and engineering analysis to plan the development of cost-effective energy infrastructure.

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MR. THAYER displayed slide 3 that shows the categories of AEA active projects and services and their locations. He advised that AEA has about 35 employees and more than 500 projects ongoing on any given day that interface throughout the state.

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MR. THAYER advanced to slide 4, "Foundation of a Dependable Transmission System." He spoke to the following:

Resiliency

Grid resiliency is defined as the ability to withstand, manage, and respond quickly to disruptions such as severe weather events, equipment failures, or cyberattacks.

Reliability

Reliability defines standards and system performance such that the system is designed to withstand sudden events.

Redundancy

An important aspect of grid resiliency and reliability, redundancy is the existence of

more than one means for performing a given function.

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MR. THAYER advanced to slide 5, "Bradley Lake Hydroelectric Project." He spoke to the following:

Owned by AEA, the Bradley Lake Hydroelectric Project was energized in 1991 and is Alaska's largest source of renewable energy.

- **Location** - The project is located 27-air miles northeast of Homer on the Kenai Peninsula.
- **Benefits** - Provides low cost energy to 550,000+ members of Chugach Electric Association, Golden Valley Electric Association, Homer Electric Association, Matanuska Electric Association, and the City of Seward.
- **Annual Energy Production** - ~10% of Railbelt electricity at 4.5 cents/kWh (or ~54,400 homes/year) and over \$16 million in savings per year to Railbelt utilities from Bradley Lake versus natural gas.
- **Status** - In 2020, AEA completed the West Fork Upper Battle Creek Diversion project, which increased Bradley Lake's annual energy production by about 10%.

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CO-CHAIR BISHOP asked what year the \$400 million project was completed.

MR. THAYER replied that the project was completed approximately 35 years ago and the bonds were defeased about two years ago. Since then, AEA has been able to address some upgrades. He described the Required Project Work provision that allows AEA to use the \$166 million that previously went to pay down the bonds to start building out the transmission lines and installing a battery system to benefit Bradley Lake. This revenue will cover about one-third of the total cost. He also reminded members that the bonds did impose additional costs on the ratepayers or the state treasury.

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SENATOR CLAMAN asked what AEA's participation has been in the Electric Reliability Organization (ERO) whose goal was to improve transmission economies and efficiencies.

MR. THAYER answered that the ERO is in the process of being stood up, and AEA is a voting member and active participant. That process is lengthy and AEA decided to move forward with its upgrades.

SENATOR CLAMAN said he wasn't criticizing the AEA decision; he was frustrated that it's taken so long for the ERO to get going. He encouraged Mr. Thayer to do what he could to get the Regulatory Commission of Alaska and the ERO to move more quickly toward approval.

MR. THAYER said AEA shares the frustration.

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MR. THAYER turned to slide 6 to describe the Bradley Lake Project Management Committee (BPMC).

The Bradley Lake Hydroelectric Project is owned by AEA and managed by the Bradley Lake Project Management Committee (BPMC), which is comprised of a member from each of the five participating Railbelt utilities:

- Chugach Electric Association,
- Golden Valley Electric Association,
- Homer Electric Association,
- Matanuska Electric Association, and
- City of Seward.

He pointed to the graphic that shows the allocations for each utility. Financial decisions require agreement from 50 percent of the water rights and at least two utilities. As the owner, AEA has veto power.

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MR. THAYER turned to slide 7, "Dixon Diversion Project." The aerial view shows that it is in the footprint of Bradley Lake. He spoke to the following:

The proposed Dixon Diversion Project would increase energy from Bradley Lake Hydroelectric Project by potentially up to 50%.

- **Location** - The Dixon Diversion Project is located five miles southwest of Bradley Lake
- **Components** -
 - Diversion dam and intake below Dixon Glacier
 - Five mile tunnel to Bradley Lake

- Raise dam elevation to store more water for critical periods
- **Benefits** - Could provide annual electric energy for up to 28,000 homes on the Railbelt. (Bradley Lake Hydroelectric Project: 54,000 homes)
- **Status** - Feasibility (verifying energy and cost)

He noted the \$5 million general fund request in the governor's budget to help with the Dixon Diversion Project.

MR. THAYER directed attention to the bar chart on slide 8, "LCOE of Dixon Economic Evaluations Compared to Possible Chugach Short-Run Avoided Costs." He spoke to the following points:

Possible Economic Feasibility

- The Dixon Diversion economic evaluations indicate a levelized cost of energy (LCOE) that is competitive with some of the possible future Chugach short-run avoided cost 50-year LCOEs, depending upon the future cost of natural gas.
- This indicates that further feasibility assessment is warranted to refine the projected cost and energy production estimates until or unless a determination is made that the project is not economically viable.

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SENATOR DUNBAR said he supports the project and appreciates the power from Bradley Lake, but he wonders about the environmental impacts that might result. He mentioned fish stocks as an example.

MR. THAYER conveyed that this was an amendment to the FERC license for Bradley Lake. Glacier water will be diverted to Bradley and the existing powerhouse will be used. Fish won't be an issue at the lake, but salmon studies will have to be done at the lower end. He opined that the environmental impact would be minimal. He deferred to Bryan Carey to comment further.

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BRYAN CAREY, Director of Owned Assets, Alaska Energy Authority, Anchorage, Alaska, stated that the Martin River itself is silty, but salmon use the lower part of the river to get between clear water sloughs. The feasibility studies will include fishery work to determine the specific fisheries and the potential impacts.

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MR. THAYER continued to slide 9, "Energy Generation Comparison."

<u>Project</u>	<u>MWh/yr</u>
Bradley Lake Hydro	~400,000 MWh/yr
Dixon Diversion	~160,000 MWh/yr
Fire Island Wind	~49,000 MWh/yr
Battle Creek Diversion	~37,000 MWh/yr
Net Metered Solar	~3,500 MWh/yr

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MR. THAYER directed attention to the chart on the right side of the slide that has the modeled annual water flows for the Dixon Diversion. The flows are greater in summer months than winter, but the model shows the peaks and valleys based on what AEA believes the daily acre feet of water would be.

CO-CHAIR BISHOP commented that not all of the water flows could be retained in the lake during the peak flows in the summer. He asked Mr. Carey if he had any comment on improving technologies and the potential for battery storage that's generated with thermal.

MR. CAREY responded that AEA would probably raise the height of the dam so the excess water could be stored and used into the winter months. He described large hydro projects like Bradley Lake as a giant battery that costs a fraction of conventional backup batteries. He cited Homer Electric's \$50 million 42 megawatt battery that has the capacity to provide power for two hours, and compared it to the more than 200 thousand megawatt hours stored in Bradley Lake.

SENATOR DUNBAR asked how much of the adjacent land would be covered if the lake were to rise.

MR. CAREY said that several hundred acres of flat land at the head of the lake would be covered, but it wouldn't make much difference in the area that is surrounded by steep cliffs. This would be a FERC-regulated project so mitigation would be required. AEA would probably acquire commensurate acreage in the Homer or Kachemak Bay vicinity and do conservation work to mitigate wildlife impacts.

CHAIR CLAMAN asked whether the net metered solar data that's identified on the slide was referring to commercial solar

projects in the MatSu Valley, home solar projects, or a combination.

MR. THAYER answered that it was net metering in the Chugach system; it does not include the Houston and Willow solar projects that MEA is purchasing power from. He noted that AEA helped make those projects viable with power project loans totaling \$5.5 million.

SENATOR CLAMAN requested confirmation that the 3,500 MWh/year net solar metering referred to businesses and homes with solar panels in Anchorage.

MR. THAYER said that's correct.

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MR. THAYER reviewed the required project work for Bradley Lake, starting on slide 11, "Sterling to Quartz (SSQ) Transmission Line." He spoke to the following:

In 2020, AEA acquired the SSQ Transmission Line a critical component of the interconnected Railbelt transmission system located on the Kenai Peninsula, as part of the Bradley Lake Hydroelectric Project.

- **Location** - 39.4 miles of 115 kilovolt (kV) transmission and out of use 69 kV transmission from Sterling to Quartz substation (Kenai Lake)
- **Benefits** - AEA ownership ensures better cost alignment, increased reliability, and more timely repairs and upgrades.
- **Status** - Removal of decommissioned 69 kV line on SSQ. Engineers are designing the upgrade of the existing 115 kV line to 230 kV to reduce line losses, increase line reliability and system resiliency.
- **Cost** - Estimated cost to upgrade line to 230 kV standards is \$62 million.

CO-CHAIR BISHOP asked whether the cable in the kV line was being recycled if it had any copper.

MR. CAREY said he wasn't sure that the cable was copper, but the contractor would surely look at recycling.

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MR. THAYER continued to slide 12, "Required Project Work Summary." He described four project segments, the scope of the work, and the projected timelines.

Bradley to Soldotna - The transmission line between the Bradley and Soldotna substations will be upgraded with an additional 115 kV line or converted to 230kV. Homer Electric owns this line and the original timeline was by 2033.

Soldotna to Sterling - The transmission line between the Soldotna and Sterling substations will be upgraded from 115 kV to 230 kV. AEA owns this line and the original timeline was by 2030.

Sterling to Quartz Creek - The transmission line between the Sterling and Quartz Creek substations will be upgraded from 115 kV to 230 kV. The original timeline was by 2028.

Grid Stabilization - To ensure grid stabilization, the existing Battery Energy Storage System (BESS) will be upgraded in Homer and new BESS systems will be added in the Central and Northern regions. Balancing is required when renewables are added. The original timeline was by 2025.

MR. THAYER advised that the timelines were uncertain because of worldwide supply chain interruptions. He reported that the total budget was about \$379 million, although that too was subject to supply chain logistics and permitting. To date, \$166 million has been bonded for the project.

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MR. THAYER advanced to the map on slide 13, "BPMC Required Project Work." He conveyed that the area in yellow reflects the Homer system; purple reflects the Chugach system; orange reflects the MEA system; the dark bluish purple reflects the Fairbanks system; and the aqua reflects Glennallen. The majority of AEA's lines, which are shown in red, go north from Willow to Healy. He deferred to Mr. Carey to discuss the specifics of each of the projects.

MR. CAREY spoke to slide 14, "Upgrade Transmission Line from Bradley Lake to Soldotna."

Upgrade Transmission Line from Bradley Lake to Soldotna

- **Scope** - This project will allow for increased power flow from the Bradley Project through the upgrade of this 67.8 mile segment to 230 kilovolt (kV) or a second 115 kV transmission line from the Bradley Lake power plant to the Soldotna Substation. This transmission line will become part of the Bradley Lake Hydroelectric Project.
- **Schedule** - Estimated completion date is 2033
- **Budget** - Estimated cost is \$96 million
- **Benefits** - Reduce energy losses and increase resiliency to unplanned events

CO-CHAIR BISHOP commented that expansion is built into the new line.

MR. CAREY agreed.

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MR. CAREY continued to slide 15, "Upgrade Transmission Line from Soldotna to Sterling."

Upgrade Transmission Line from Soldotna to Sterling

- **Scope** - This project will allow for increased power flow and reduced line losses from the Bradley Project through the construction of an upgrade of the transmission line from 115 kilovolt (kV) to 230 kV from the Soldotna Substation to the Sterling Substation. The SSQ Line (as well as the transmission line between the Sterling Substation and Quartz Creek Substation) are the sections of the Bradley Project to Anchorage interconnection that incur the most significant energy losses. This additional transmission capacity will become part of the Bradley Project.
- **Schedule** - Estimated completion date is 2030
- **Budget** - Estimated cost is \$27 million
- **Benefits** - Reduce energy losses and increase resiliency to unplanned events

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MR. CAREY spoke to slide 16, "Upgrade Transmission Line from Sterling to Quartz Creek."

Upgrade Transmission Line from Sterling to Quartz Creek

- **Scope** - This project involves the upgrade of the 39 miles of transmission line between the Sterling Substation and Quartz Creek Substation (SSQ Line) from 115 kilovolt (kV) to 230 kV. The SSQ Line is part of the Bradley Project. All property rights and obligations in the SSQ Line were purchased by AEA in 2020 and made part of the Bradley Project. Bradley Lake output is significantly reduced as it transitions these line sections.
- **Schedule** - Estimated completion date by 2028
- **Budget** - Estimated cost is \$62 million
- **Benefits** - Reduce energy losses and increase resiliency to unplanned events

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MR. CAREY spoke to slide 17, "Battery Energy Storage Systems for Grid Stabilization."

Battery Energy Storage Systems for Grid Stabilization

- **Scope** - The BESS projects consist of an upgrade to the existing BESS system in the North, and also new BESS systems in the Southern, and Central regions of the grid. The Northern BESS is located at Fairbanks, the Southern BESS is located in Kenai, and the Central Region BESS will be located at Anchorage. BESS will be needed to fully realize the benefits of a 230 kV bulk power supply system, regulate energy from various generation, and increase resilience.
- **Schedule** - Estimated completion date is 2025
- **Budget** - Estimated cost is up to \$194 million (depending on technology choices and capacity)

- **Benefits** - Increase system resilience, transfer capability, more efficient use of system and lowering impediments to additional renewable generation development

CO-CHAIR BISHOP asked what type of batteries were and will be used in the BESS projects.

MR. CAREY answered that the batteries for Anchorage and Soldotna are lithium and Golden Valley is talking with Westinghouse about what might be appropriate in the Fairbanks area.

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MR. THAYER continued to slides 18 and 19 and spoke to the following:

Alaska Intertie

Constructed in the mid-1980s with \$124 million in State of Alaska appropriations, there is no debt associated with the Alaska Intertie.

- AEA owns the **170-mile Alaska Intertie transmission line that runs between Willow and Healy**. The line operates at 138 kV (it was designed to operate at 345 kV) and includes 850 structures.
- A **vital section of the Railbelt transmission system**, the Intertie is the only link for transferring power between northern and southern utilities.
- The Intertie transmits power north into the Golden Valley Electric Association (GVEA) system and provides Interior customers with low-cost, reliable power – between 2008 and 2021, the Intertie **saved GVEA customers an average of \$37 million annually**.
- The Intertie provides benefits to Southcentral customers as well through **cost savings and resilience to unexpected events**.

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MR. THAYER advanced to slide 20 which shows a color-coded schematic of the transmission lines and service areas in the Alaska Intertie. The MEA service area is shown in pink and

Fairbanks is shown in green. AEA owns the heavy black transmission line that primarily runs north from Willow.

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MR. THAYER mentioned slide 21, "Modernizing the Railbelt Grid," and spoke to slide 22, "Railbelt Transmission System Urgently Needs Modernization," and the unique opportunity the revenue from the [Infrastructure Investment and Jobs Act (IIJA)] provided. He briefly described the competitive grants.

Railbelt Transmission System Urgently Needs Modernization

The majority of the Railbelt transmission system was constructed more than 40 years ago. A resilient, reliable, and redundant Railbelt transmission system is not only achievable but also necessary to create the needed capacity to integrate additional renewable energy in the future.

Grid Forming

A grid with alternate paths will increase reliability, resiliency, and fuel diversification

Fuel Savings

Upgrades and alternate paths will reduce line losses.

Energy Security

Natural or other events can isolate cities or regions from energy

Generation Changes

New renewable energy projects are not located in existing cities. New transmission to connect new renewable projects to existing transmission paid for by projects. However, existing transmission must be upgraded to transmit energy to and between the Railbelt regions.

MR. THAYER deferred to Mr. Carey to describe the specifics of the competitive grants.

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MR. CAREY spoke to slide 23, "Infrastructure Investment and Jobs Act (IIJA) Railbelt Transmission Funding Opportunities."

AEA and the Railbelt utilities submitted for the following IIJA: Grid Resilience and Innovation Partnerships (GRIP) competitive grants:

- **GRIP Application Topic 1** - Application for upgrading existing transmission Bradley Lake to Susitna Valley. Request: \$100 million; Required Match: \$100 million
- **GRIP Application Topic 2** - Application for Battery Energy Storage System/High Voltage Direct Current coordinated control system. Would coordinate actions of batteries in the South (Kenai), Central (Anchorage, and North (Fairbanks). Request: \$15 million; Required Match: \$15 million
- **GRIP Application Topic 3** - Application for transmission upgrades to connect Kenai (new submersible line), northern (Susitna Valley Line), and Copper Valley with central and northern. Request: \$299 million; Required Match: \$299 million

MR. CAREY continued to the graphic on slide 24, "Modernization Work Phases."

Upgrades to Railbelt transmission line are needed to increase resiliency, reliability, and redundancy, and decrease line losses.

Work Phase 1 - Upgrade existing southern transmission backbone first which will reduce losses from Bradley Lake and allow new Renewable Energy Projects.

Work Phase 2 - - New lines to add reliability, resilience, and redundancy. Additional time for upfront activities required.

Battery Energy Storage System (BESS)/High Voltage

Direct Current Controls

(HDVC) - Increase resilience, transfer capability, and efficient use of electrical system.

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CO-CHAIR BISHOP asked Mr. Thayer if all three GRIP applications get to the Roadbelt Intertie that's been discussed previously.

MR. THAYER said that would be a viable option.

SENATOR DUNBAR asked where the required match would come from and if the authority itself could potentially raise the funds.

MR. THAYER said one option is for the state to provide the match, but there are also conversations about what the utilities might be able to contribute, and pass to ratepayers, and whether the existing \$166 million in bonding, which is state money, could be leveraged as the match. He noted that \$10.5 billion was available in the different buckets and AEA was looking at what the state might possibly qualify for.

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CO-CHAIR BISHOP commented on the possibility of a future overview to show how the different buckets of money might be applied.

MR. THAYER mentioned an outstanding GRIP 3 application that looks at microgrids in small communities in rural Alaska, particularly borderline communities that can transform on to more renewables. Previously, even with the REF program, these small grids were too small to qualify for grants or federal loans, but grid resilience allows for that.

CO-CHAIR BISHOP identified REF as the Renewable Energy Fund.

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MR. THAYER continued to slide 25, "Statewide Grid Resilience and Reliability IIJA Formula Grant Program, 40101(d)." He spoke to the following:

Per IIJA section 40101(a)(1),⁸ a disruptive event is defined as "an event in which operations of the electric grid are disrupted, preventively shut off, or cannot operate safely due to extreme weather, wildfire, or a natural disaster."

- These federal formula grant funds will provide **\$60 million** to Alaska over five years, including **\$22.2 Million** for the first two years allocation, to catalyze projects that **increase grid resilience against disruptive events**.
- Resilience measures include but are not limited to:
 - Relocating or reconductoring powerlines
 - Improvements to make the grid resistant to extreme weather
 - Increasing fire resistant components
 - Integrating distributed energy resources like microgrids and energy storage
- Formula-based funding requires a **15% state match** and a **33% small utility match**.

MR. THAYER turned the discussion to the Susitna-Watana Hydro Electric Project, noting that the state had been talking about this since the 1950s. He reviewed the data on slide 27, "Susitna-Watana At-A-Glance."

The proposed Susitna-Watana Hydroelectric Project is a large hydro project that would provide long-term stable power for generations of Alaskans. The project would result in approximately 70% of the power generated in the Railbelt originating from renewable sources, up from the current 15% – a nearly four-fold increase.

- Dam Height - 705 feet
- Dam Elevation - 2,065 Feet
- Reservoir Length - ~42 miles
- Reservoir Width - ~1.25 miles
- Installed Capacity - 618 MW
- Annual Energy - 2,800,000 MWh
- Cost - ~\$5.6 billion (2014\$)

MR. THAYER reminded members that the state had already spent \$200 million for permitting and another \$100 million would bring a FERC license. He noted that Mr. Carey was the project manager.

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MR. CAREY continued to slide 28, "Why Susitna-Watana?" and spoke to the following:

50 percent of the estimated supply of current Railbelt energy demand

100+ years is the project life providing long-term, stable rates

\$11.2 billion is the estimated energy cost savings (\$2014) over the first 50 years

The reduction of carbon dioxide emissions from displaced coal and natural gas-fired generation would amount to 1.3 million tons a year, which equates to removing approximately 250,000 cars from the road.

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MR. CAREY advanced to slide 29, "Susitna-Watana History." It shows the following timeline along a rendition of the Susitna River.

- 1950s** - The Bureau of Reclamation recognized the location and conducted the first studies. The area was set aside as a power reserve.
- 1980s** - The state studied the project using revenue from oil production, but interest waned due to cheap gas in Cook Inlet. Projects such as Bradley Lake went forward.
- 2010** - The legislature passed the goal to achieve 50 percent renewable energy by 2025.
- 2011** - The legislature unanimously authorized the Alaska Energy Authority (AEA) to pursue the Susitna-Watana hydroelectric project.
- 2012** - Studies on the Susitna River and surrounding areas began.
- 2017** - The license was put in abeyance.
- 2019** - The abeyance was rescinded.

CO-CHAIR BISHOP commented on putting a drill bit in a reservoir and the gift that keeps on giving.

MR. CAREY responded that many of the studies that were done years ago are still accurate and useful.

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SENATOR WIELECHOWSKI joined the committee.

MR. CAREY briefly discussed slide 30, "Susitna-Watana Employment Opportunities." The employment impact prior to and during construction will last about 15 years. The lower rates that will be realized will also have economic impacts.

MR. CAREY continued to slide 31, "Susitna-Watana Timeline." He relayed that the pre-application phase would include due diligence to understand any changes since the studies were done and additional geotechnical work to get to the final design. Once the application is submitted, FERC review and determination would take two years. The project execution phase includes financing and power sales agreements, and the current estimate for the construction phase is 15 years.

CO-CHAIR BISHOP asked whether the license has a shelf life once it's approved.

MR. THAYER said it's about 10 years. Acknowledging that it was a policy call, he continued to advocate for moving the project forward with third-party support.

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SENATOR DUNBAR asked for the approximate end cost of the project and the amount the third party investors would contribute.

MR. THAYER answered that in 2014 the cost was \$5.6 billion, which would provide power for about 6 cents per kilowatt. He acknowledged that the cost estimate would have to be updated to 2023 dollars. Following that stage gate, serious conversations with the people who would like to build the project or invest in it would follow. He mentioned private equity firms, pension funds, and international firms that have expressed interest in an 8 percent return on investment for 50 years.

MR. THAYER thanked the committee for the opportunity to deliver the presentation on the Railbelt.

SENATOR KAUFMAN asked about having the right program in place to ensure that the right technology solutions are selected.

MR. THAYER responded that decisions about which technology to employ are policy calls by the individual utilities. They are member-owned co-ops with individual boards of directors. If the state were to invest in battery technology, it would be the base

level and the utilities could pay the difference for newer technologies like Tesla and Westinghouse offer.

MR. CAREY added that the utilities have electrical engineers who are very knowledgeable about battery technologies and what works for their individual utilities.

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SENATOR KAUFMAN asked what he knew about carbon polymer transmission lines.

MR. CAREY responded that the new technologies aren't available for the smaller transmission lines at this point; they're for lines that carry more than 1000 megawatts.

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At ease

PRESENTATION: INTERIOR GAS UTILITY UPDATE

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CO-CHAIR BISHOP reconvened the meeting and announced an update from the Interior Gas Utility.

DAN BRITTON, General Manager, Interior Gas Utility, Fairbanks, Alaska, Introduced himself.

ELENA SUDDUTH, Director, Public Relations, and Customer Service, Interior Gas Utility, Fairbanks, Alaska, introduced herself.

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MR. BRITTON began the presentation by explaining that IGU is a public corporation owned by the Fairbanks North Star Borough. It has a seven-member board, four of which are elected at large and three of which are appointed.

MR. BRITTON advanced to slide 3 to discuss the construction of new service lines, adding new customers, and the expansion of the distribution system through targeted main line extensions. He spoke to the following:

2022 Construction Season

- 635 new service lines
- Nearly 500 of those already turned on
- More than 3 miles of main line extensions

2023 Construction Season

- 600 new service lines
- 330 approved for construction
- More than \$1MM in main line extensions (proposed)

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MR. BRITTON advanced to the chart on slide 4, "Community savings analysis." It illustrates the potential savings by expanding the availability of natural gas. The net savings in FY2022 by shifting from heating oil to natural gas would have been \$7.3 million. Those savings stay in the community and drive additional economic development. Anticipated savings in FY2023, based on the last 12 month average oil prices, would be close to \$14 million.

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SENATOR WIELECHOWSKI noted that natural gas in the Lower 48 sells for \$2-3/Mcf and this chart shows \$2.16/Ccf, which is 10 times the cost in the Lower 48.

MR. BRITTON responded that the comparison to the Lower 48 probably was the cost at the hub, not the price the utility charges. He acknowledged that Fairbanks pricing is probably in the range of 30-100 percent higher than other utilities given that the gas is liquefied, transported, and stored as opposed to coming directly from a pipeline.

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MR. BRITTON advanced to slide 5, "Current Status," and spoke to the following:

Feed Gas

IGU has a feed gas contract with Hilcorp in the Cook Inlet that could meet the utility's current customer needs until 2032.

Liquefaction

IGU operates an LNG liquefaction facility (Titan) located in the Cook Inlet that has the capacity to produce 50,000 gallons of LNG per day. The LNG is then transported to Fairbanks and North Pole via truck on the Parks Highway.

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SENATOR WIELECHOWSKI asked why the LNG wasn't shipped on the Alaska Railroad.

MR. BRITTON responded that the primary reason has been scale and economics. He explained that the liquefaction facility is not adjacent to a rail line so the gas would have to be put in an ISO container and trucked to a rail spur. Then it would be put on a rail car to Fairbanks, unloaded and put on another truck, transported to the storage facility, and offloaded. The increased handling eats the economies generally associated with rail transport.

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MR. BRITTON spoke to slide 6, "Future Needs:"

Liquefaction

In order to support its projected growth and to continue fulfilling its mission, IGU needs additional liquefaction capacity as soon as 2024.

Feed Gas

Hilcorp informed all utilities sourcing natural gas in the Cook Inlet that they should not rely on contractual renewals moving forward.

MR. BRITTON continued to slide 7, "Gas Supply Expansion Options." He spoke to the following options and noted that the North Slope appeared to be the most viable:

Titan 2 or No Action

Expansion of the Titan facility as evaluated in 2019 (improbable) or no action

Pt. McKenzie Incremental Expansion

Installation of a modular, temporary plant next to Titan

Canadian LNG Import

Purchasing LNG from Canadian producers

North Slope LNG Supply

Contractual agreement with a third party LNG produce

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MR. BRITTON advanced to slide 8, "North Slope LNG - Parties." He said the focus on the North Slope led IGU to negotiate two agreements. One is a gas sale and purchase agreement with Hilcorp and the other is an LNG manufacturing service agreement with Harvest Midstream.

MR. BRITTON continued to slide 9, "Major Terms.," He spoke to the following to describe the terms for the two contracts.

Contract Term - Both contracts have 20 year terms with the options to extend for two additional five-year agreements.

Capacity - The capacity of the liquefaction facility will be 150,000 gallons/day.

Commitments - As the priority customer, IGU has the right to 100 percent of the capacity.

Schedule - The targeted start date for deliveries from the facility is October, 2024. IGU won't need full capacity in the early years, so the plant will shut down in the summer.

Trucking - The options for trucking are being evaluated, but it's likely to follow the historical approach. In that process, IGU has maintained the LNG trailer and contracted the trucking and drivers to a third party that specializes in that work.

Right Of First Refusal (ROFR) - IGU has the right of first refusal in the event that Harvest decides to sell the LNG facility. This secures the supply of LNG for IGU's customers into the future.

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MR. BRITTON advanced to slide 10, "Historic Moment," and paraphrased to the following:

This will be the first time natural gas from the North Slope has been commercialized outside of the North Slope.

MR. BRITTON advanced to slide 11, "Fort Wainwright EIS." He noted that the environmental impact statement is in final form but the record of decision has not been released. The preferred alternative speaks to the following:

Current Status

The Combined Heat and Power Plant at Fort Wainwright, completed in 1955, is one of the oldest operational coal-fired power plants in the United States, and is operating approximately 30 years beyond the average design life of similar facilities

Next Steps

- Demolition of the existing power plant
- Installation of distributed natural gas boilers
- Purchase of electricity from the local electric utility
- Targeted completion date: 2026
- Estimated natural gas load: 1.5 BCF

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MR. BRITTON advanced to slide 12, "IGU Priorities." He discussed IGU's legislative priorities.

Storage Tax Credits - IGU was granted a certificate for an LNG storage tax credit of \$15 million for the facility that was built in Fairbanks in 2019. IGA is last on the list of entities that have eligible tax credits so it is a priority to see the state fully fund and pay its outstanding obligations.

Capital Budget Request - This is a request for the Fairbanks North Star Borough to continue the oil to gas conversion program. It provides up to \$7,500 to customers to offset the cost of converting their appliances from oil to natural gas. FNSB also contributes to that program.

SENATOR DUNBAR asked two questions. The first question was whether FNSB was last on the list to apply for the tax credits or last to receive the credits. He also asked how much FNSB would receive of the 10s of millions of dollars in the House operating budget if it were to pass as currently drafted.

MR. BRITTON answered that FNSB is last on the list because it was the last to qualify for the tax credits, and payments are based on that timing. To the budget question he said he understands that the House is proposing far less than what the governor proposed and what is needed to discharge the state's obligations. In any event, FNSB is due \$15 million.

MR. BRITTON thanked the committee for the opportunity to provide an update.

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CO-CHAIR BISHOP thanked the presenters and the committee members.

[4:50:13 PM](#)

There being no further business to come before the committee, Co-Chair Bishop adjourned the Senate Resources Standing Committee meeting at 4:50 p.m.