

April 6, 2021

The Honorable Click Bishop  
Senate Finance Committee  
State Capitol Room 516  
Juneau, AK 99801

Dear Senator Bishop,

I write to further respond to questions raised during the Senate Finance Committee's March 10, 2021 meeting on the Alaska Energy Authority's (AEA) Update on Assets, Projects, Grants and Loans. A summary of the questions and AEA's responses are provided below. AEA is also including an electronic copy of the 2020 AEA Annual Report Alaskans [here](#) and the Fiscal Year 2020 Power Cost Equalization (PCE) Statistical Report [here](#). Additionally, hard copies of the reports and this packet have been mailed to you.

**1. 9:12 a.m. Slide #9 – SSQ Transmission Line**

**Q:** Senator Hoffman – After damage from the 2019 Swan Lake Fire, how much of the \$12 million in additional costs for repairs to the Sterling Substation-Quartz Creek transmission line increased the price per kilowatt-hour (kWh) for consumers?

**A:** Railbelt Utility Impacts through December 2019 are listed below. Note: From an external analysis, each utility computes impacts internal to their respective operations.

- Chugach Electric Association (CEA): -\$3.6 million
- Golden Valley Electric Association (GVEA): -\$5.4 million
- Homer Electric Association (MEA): +\$4.8 million
- Matanuska Electric Association (MEA): -\$1.53 million
- Municipal Light & Power (ML&P): -\$0.03 million (merged with CEA)

**2. 9:17 a.m. Slide #10 – Alaska Intertie**

**Q:** Senator Hoffman – Between 2008 and 2018, the Intertie provided an average annual cost savings of \$40 million to GVEA customers. How much did the cost of energy go down for consumers, per kWh?

**A:** GVEA provided the attached spreadsheet in October 2020. GVEA customer savings per kWh attributable to the Alaska Intertie varies by year, by generation source, by customer type, with fuel cost, and based on GVEA's cost of power

reporting to the Regulatory Commission of Alaska. The savings per kWh attributed to the Alaska Intertie in 2019 was \$23.9 million divided by the total power generation of 1.1 billion kWh's or 2.2 cents/kWh. In 2018 GVEA sold 1.2 billion kWh's and saved \$40.3 million for a savings of 3.4 cents/kWh.

**3. 9:18 a.m. Slide #10 – Alaska Intertie**

**Q:** Senator Stedman – Attached please find a one-page heating energy supply comparison provided some time ago by the Alaska Industrial Development and Export Authority. It contrasts prices for natural gas, electricity, and fuel oil. Please provide a similar comparison that reflects today's costs.

**A:** Please see the attached Alaska Heating Energy Comparison chart updated by AEA.

**4. 9:27 a.m. Slide #11 – Maximizing Clean Energy for the Railbelt**

**Q:** Senator Stedman – Please provide brief synopses on the Healy Clean coal project and the University of Alaska Fairbanks (UAF) cogeneration heat and power plant. What role might they play in a Railbelt energy plan in terms of the energy they could provide and in lowering costs to consumers?

**A:** AEA does not have access to this propriety information, however, we have included contact information below for Healy Coal and UAF Coal Plant:

- Healy Coal: Susan Redlin, Executive Administrative Assistant, GVEA, [skredlin@gvea.com](mailto:skredlin@gvea.com)
- UAF Coal Plant: Matt Cooper, General Counsel, UAF, [mcooper10@alaska.edu](mailto:mcooper10@alaska.edu)

**5. 9:28 a.m. Slide #11 – Maximizing Clean Energy for the Railbelt**

**Q:** Senator Hoffman – Please break down the kWh cost for each project on this page. Which are the best at reducing energy costs for consumers? Which are more cost-effective at doing so? How much will they save energy consumers in terms of costs or savings per kWh? Please provide a construction timeline showing when each would start and end.

**A:** AEA is partnering working collaboratively with the five Railbelt utilities CEA, City of Seward, GVEA, HEA, MEA, and will prioritize the Kenai Peninsula projects to unconstrain the Bradley Lake Hydroelectric Project. Together they have identified a unique opportunity to increase the productivity of this renewable and cost-effective resources through utility investment in specific shovel-ready capital project work.

This opportunity can be funded from utility payments for essential and agreed-upon Required Project Work with no additional costs to ratepayers. The goal of these projects is to stabilize rates for consumers while providing jobs and other economic development opportunities from the Kenai to Fairbanks without any burden on the State's budget.

The schedules for completing the Railbelt transmission projects and raising the Bradley Lake spillway level will depend on funding and prioritization analysis of the current operating parameters of the interconnected transmission system. This analysis is currently underway. The project is under active discussion with Railbelt Utilities.

Each of these projects will take two to four years from design to commissioning. The benefits associated with these projects are not just economic, they include reliability, redundancy, lower line losses, and the potential to integrate more renewable energy projects within the Railbelt. We anticipate currently estimate the immediate cost estimate to be \$220 million.

As these projects are transmission and will result in differing percentages of power going to the respective end-users of the five Railbelt utilities, the kWh cost associated with the individual Projects is extremely difficult to predict with any degree of specificity.

A rule of thumb for transmission projects would be to attribute a maximum power flow capability on a particular line segment, along with the all-in cost of constructing the infrastructure to ascertain its \$/kWh however, there are attributions that this simple method does not account for. The rate-making methodology for utilities is complex and involve several factors such as debt service on their "plant" (generation facilities, transmission facilities, distribution facilities) along with administrative costs and variable costs such as the cost of the feedstock (natural gas, wind, hydro, solar, etc.).

Below are snapshots of; 2018 and 2019 utility asset values and utilities long term debt for 2018 and 2019 which make up a small part of what goes into the rates that utilities ultimately charge their end-use customers:

**Railbelt Electric Utilities - 2019 Reported Asset Values**

Utility Plant Category	CEA	GVEA	HEA/AEEC	MEA	ML&P
Intangible	\$ 6,148,200	\$ -	\$ 913,132	\$ -	\$ 30,307,071
Generation	\$ 423,589,672	\$ 575,711,856	\$ 240,565,516	\$ 339,628,375	\$ 561,203,140
Transmission	\$ 298,211,033	\$ 147,416,178	\$ 69,863,834	\$ 75,370,456	\$ 72,971,246
Distribution	\$ 333,594,738	\$ 266,568,096	\$ 249,977,726	\$ 320,375,863	\$ 244,166,275
General	\$ 58,614,421	\$ 79,922,753	\$ 33,196,433	\$ 28,639,340	\$ 42,466,443
Unclassified electric plant in service	\$ 71,941,610	\$ -	\$ -	\$ 1,629,985	\$ -
Experimental plant unclassified	\$ -	\$ -	\$ -	\$ -	\$ -
Less Electric Plant Sold	\$ -	\$ -	\$ (45,719)	\$ -	\$ -
Beluga River Natural Gas Field	\$ 48,595,009	\$ -	\$ -	\$ -	\$ -
Plant Acquisition and adjustment	\$ -	\$ 22,698,956	\$ -	\$ -	\$ -
Other	\$ 1,828,409	\$ -	\$ -	\$ -	\$ -
Construction Work in Progress (CWIP)	\$ 16,966,608	\$ 14,062,797	\$ 6,003,906	\$ 13,659,608	\$ 29,967,785
Plant Held for Future Use	\$ -	\$ -	\$ 1,141,626	\$ 252,657	\$ -
<b>Total Utility Plant</b>	<b>\$ 1,259,489,700</b>	<b>\$ 1,106,380,636</b>	<b>\$ 601,616,454</b>	<b>\$ 779,556,284</b>	<b>\$ 981,081,960</b>

Source: 2018 & 2019 Railbelt Utility Regulatory Commission of Alaska (RCA) Annual Report Filings

**Railbelt Electric Utilities - 2018 Reported Asset Values**

Utility Plant Category	CEA	GVEA	HEA/AEEC	MEA	ML&P
Intangible	\$ 5,455,371	\$ -	\$ 913,132	\$ -	\$ 30,176,232
Generation	\$ 423,569,934	\$ 508,381,102	\$ 236,019,386	\$ 339,210,411	\$ 560,168,947
Transmission	\$ 298,767,612	\$ 144,330,754	\$ 70,336,563	\$ 75,365,062	\$ 72,413,357
Distribution	\$ 328,766,590	\$ 256,700,384	\$ 241,472,875	\$ 316,833,492	\$ 238,051,330
General	\$ 55,308,981	\$ 78,775,261	\$ 33,047,916	\$ 32,090,255	\$ 43,766,903
Unclassified electric plant in service	\$ 54,877,480	\$ -	\$ 4,518,851	\$ 2,063,301	\$ -
Experimental plant unclassified	\$ -	\$ -	\$ -	\$ -	\$ -
Less Electric Plant Sold	\$ -	\$ -	\$ -	\$ -	\$ -
Beluga River Natural Gas Field	\$ 48,088,715	\$ -	\$ -	\$ -	\$ -
Plant Acquisition and adjustment	\$ -	\$ 22,698,956	\$ -	\$ -	\$ -
Other	\$ 1,828,409	\$ -	\$ -	\$ -	\$ -
Construction Work in Progress (CWIP)	\$ 17,272,307	\$ 78,058,270	\$ 6,808,924	\$ 4,638,462	\$ 14,902,259
Plant Held for Future Use	\$ -	\$ -	\$ 1,166,067	\$ 252,657	\$ -
<b>Total Utility Plant</b>	<b>\$ 1,233,935,399</b>	<b>\$ 1,088,944,727</b>	<b>\$ 594,283,714</b>	<b>\$ 770,453,640</b>	<b>\$ 959,479,028</b>

Source: 2018 & 2019 Railbelt Utility Regulatory Commission of Alaska (RCA) Annual Report Filings

**Railbelt Utilities Long-Term Debt (LTD), 2018-2019**

Utility	LTD (2018,\$)	LTD (2019,\$)	2018-2019, % Change	LTD Per MWh (2018)	LTD Per MWh (2019)
CEA	\$ 456,572,084	\$ 504,704,127	11%	\$ 404	\$ 454
GVEA	\$ 423,520,771	\$ 431,626,952	2%	\$ 351	\$ 375
HEA/AEEC	\$ 319,960,828	\$ 306,158,107	-4%	\$ 708	\$ 646
MEA	\$ 458,683,223	\$ 437,182,703	-5%	\$ 603	\$ 553
ML&P	\$ 516,665,381	\$ 507,431,235	-2%	\$ 367	\$ 440
<b>Total</b>	<b>\$ 2,175,402,287</b>	<b>\$ 2,187,103,124</b>	<b>1%</b>	<b>\$ 439</b>	<b>\$ 467</b>

Source: RCA Electric Utility Annual Report Filings, 2018 & 2019

This suite of Projects is estimated to take between 10 to 12 years from inception to construction completion and Project(s) closeout.

## 6. 9:33 a.m. Slide #11 – Maximizing Clean Energy for the Railbelt

**Q:** Senator Stedman – The Gunnuk Creek hydroelectric project near Kake – Was AEA involved in it? How has it changed electric rates for consumers in Kake? Why have rates gone up?

**A:** Inside Passage Electric Cooperative (IPEC) received a Round 9 Renewable Energy Fund construction grant for hydroelectric generation to be added to an existing dam on Gunnuk Creek. The project utilizes an existing City of Kake dam on Gunnuk Creek and added a penstock and power plant. The project was expected to produce about 1,600 MWh's annually or 55 percent of Kake's annual energy. Construction started in 2018 with funding by a REF grant of \$3,920,000 in addition to \$3 million from a United States Department of Agriculture High Energy Cost Grants. The anticipated budget was \$6.9 million. Project construction was substantially completed in November 2020. IPEC expects the final cost to be about \$1.8 million over budget. IPEC is using internal financing for the cost overrun. IPEC has four to six rate adjustments every year. The IPEC board approved a rate reduction in its October 2020 meeting. Since Gunnuk Creek has been in operation for only a short time it has not had a significant cost effect. A Kake rate increase may have been caused by flooding damage this winter, also the cost of fuel has been increasing as of late.

**7. 9:39 a.m. Slide #14 – Power Cost Equalization**

**Q:** Senator von Imhof – Can PCE endowment earnings be used annually to invest in capital projects that build electric interties that reduce heating and/or power costs for an entire community in perpetuity?

**A:** Yes, PCE can fund capital projects through Legislative appropriation. Previous examples include:

- 2017 Appropriation from PCE Endowment for Bulk Fuel Upgrades (BFU) – \$1.3 million
- 2017 Appropriation from PCE Endowment for Rural Power System Upgrades (RPUS) – \$1,446,142
- Or by funding mechanism laid out in the following Alaska Statute:  
2019 PCE funding mechanism Sec.42.45.085 (d) (2) (B) – \$11 million

**8. 9:53 a.m. Slide #17 & #18 – RPSU and Projects Requiring Funding**

**Q: Senator Olson** – Is there a difference in eligibility for state support for RPSU upgrades between a community served by the Alaska Village Electric Cooperative and one that has its own powerhouse?

**A:** No. Eligibility is determined under 3 AAC 108.110:



3 AAC 108.110. Eligibility for and authority prioritization of assistance (a) Utilities, municipalities, school districts, unincorporated villages, community associations, Native corporations, councils organized under 25 U.S.C. 476, traditional councils, and other persons providing power or fuel to the public in one or more communities are eligible for assistance under 3 AAC 108.100 - 3 AAC 108.130. (b) To prioritize its assistance for bulk fuel storage facility upgrades, the authority will evaluate and rank deficiencies and needs for upgraded community bulk fuel storage facilities in each community in the state that (1) has a population of at least 20 but less than 2,000; (2) is not predominantly a military or industrial site; (3) has significant bulk fuel storage needs; and (4) is either located off an interconnected road system or, if located on an interconnected road system, is more than 20 miles from Anchorage, Fairbanks, Juneau, Kenai, Ketchikan, Kodiak, Nikiski, Sitka, Soldotna, Valdez, or another major fuel distribution center. (c) To prioritize its assistance for power system upgrades, the authority will evaluate and rank deficiencies and needs for upgraded community power systems in each community in the state that (1) has a population of at least 20 but less than 2,000; (2) is not predominantly a military or industrial site; (3) has a central community power system; and (4) is not connected to the Railbelt (Homer-Seward-Anchorage-Fairbanks), Four Dam Pool (Glenallen-Valdez, Wrangell-Petersburg, Ketchikan, Kodiak), or Juneau power distribution systems. (d) The authority may reevaluate and modify its evaluations and rankings based on changed assumptions or new information. The authority will publish and periodically update its rankings on its Internet web site. (e) In providing assistance under 3 AAC 108.100 - 3 AAC 108.130, the authority will give priority to those communities found in the authority's evaluations and rankings under (b) and (c) *of this section to have the greatest needs for assistance. The authority may revise its prioritization based on (1) requirements of federal or state agencies or other entities providing money; (2) the authority's determination of a recipient's readiness to proceed with the project; (3) the recipient's ability to meet conditions for assistance under 3 AAC 108.120; or (4) cost-effectiveness factors.*

3 AAC 108.120. *Conditions to receiving assistance As a condition to providing assistance under 3 AAC 108.100 - 3 AAC 108.130, the authority will require the recipient to (1) execute a grant agreement prepared by the authority that describes the terms and conditions of the assistance; (2) execute a waiver of any sovereign immunity; (3) provide a business plan or other documentation demonstrating to the satisfaction of the authority the recipient's ability to operate and maintain the facility for the public benefit for the facility's useful life and to replace the facility at the end of the facility's useful life; (4) provide a cash match, property, services or another form of contribution to the project; (5) establish that the recipient has title to or a leasehold interest in the site on which the facility is located; and (6) comply with other terms and conditions*

*that the authority determines are needed to maximize the public benefit from the assistance provided.*

**9. 10:10 a.m. Slide #30 – FY 22 Operating Budget**

**Q:** Senator Hoffman – Please provide a breakdown for the past 10 years of how much of the power cost equalization endowment’s annual earnings go to the PCE program, the community assistance program, and the renewable energy fund.

**A:** Please see attached PCE 10-Year Breakdown.

**10. 10:16 a.m. Slide #31 – FY 22 Capital Budget/FY 21 Supplemental Capital Budget**

**Q:** Senator Stedman – How much federal funding did Alaska lose last year by not providing state matching funds for BFU or RPSU? Please provide a five-year synopsis of federal funding opportunities the state has missed.

**A:** Over the last five years the State has lost \$47.646 million of federal funding assistance opportunities. Please see attached Five-Year Capital Budget History.

**11. 10:19 a.m. Slide #31 – FY2022 Capital Budget/FY2021 Supplemental Capital Budget**

**Q:** Senator Bishop – How many projects were covered over the past five years and will be covered under proposed funding next year for RPSU? Which ones? Please provide a list by fiscal year.

**A:** Please see attached Five-Year Capital Budget History and reference “Project” columns.

**12. 10:24 a.m. Slide #35 – Susitna-Watana hydroelectric project**

**Q:** Senator Stedman – What would ratepayers pay? At the meter, per kWh, at their homes, businesses, or government office buildings? How would this compare with other sources of heat and power? What would the price per kWh be:

- a. If the project were debt-free?
- b. If it were paid for through conventional debt financing at current or expected market rates?

- c. For distribution costs? For transporting energy from the power plant to homes, businesses, or government office buildings?

**A:** Project cost is \$5.6 billion (\$2014) with a 6 to 7 cent per kilowatt cost (\$2015). Utility rates, however, are determined by a mix of costs for generation, administration, transmission, and distribution. Cost of generation can include utility debt structure and cost of fuel. Depending on the specific utility, and the attribution of costs for that specific utility amongst the various components of that utilities total "plant", the reduction in cost per kWh would vary. The attribution below is meant to be illustrative only:

- a. If project debt free – 3 to 6 cents reduction from the existing rate
- b. If debt-financed – 1 to 3 cents reduction from the existing rate
- c. For distribution costs – Distribution costs are currently contained in each utility rate structure and would not change if Susitna-Watana were constructed.

### **Other questions**

#### **Integration of residential solar power**

**Q:** Senator Olson – What kind of power upgrades are available for people in communities like Unalakleet that have a solar power dealer and who might be convinced to install solar panels in new construction projects, especially if there are state incentives to do so?

**A:** AEA's benefits target the entire community, as opposed to the individual household. By its RPSU program, AEA builds and retrofits facilities in communities providing stable and reliable power. Powerhouses recently constructed incorporate technological advances and may employ modular powerhouse construction, marine manifolds on diesel engines to maximize heat recovery, and used-oil blending systems to reduce cost and the risk of environmental contamination. Through its BFU program, AEA repairs or upgrades fuel storage facilities in communities bringing these facilities into compliance with federal and state codes and regulations, and also make them safer and more reliable. By eliminating fuel spills from leaking tanks, a community can use all fuel purchased and avoid environmental cleanup costs.



## **Net Metering**

**Q:** Senator Olson – Do you support net metering?

**A:** AEA does not have a position on net metering. The RCA has approved net metering tariffs for a number of the utilities that it regulates. AEA is not a participant in the process of approving the terms or conditions under which a utility agrees to buy power from its customers who by some means generate useful and acceptable power.

## **Susitna-Watana hydroelectric project**

**Q:** Senator Bishop – How much does it cost to finish the Federal Energy Regulatory Commission (FERC) application for the Susitna-Watana hydroelectric project?

**A:** Continuing with the Integrated Licensing Process, it was estimated to cost approximately \$100 million in 2014 to complete the remaining studies, impact analysis, and license application. However, a re-evaluation of the data already gathered should be completed to determine what remains to be done to develop an adequate license application.

**Q:** How big a workforce do you need to finish the FERC application?

**A:** Following the Integrated Licensing Process, the workforce is estimated to be 200 to 400 contractors.

**Q:** How does that break down in terms of personnel and costs?

**A:** Of the \$100 million noted above, personnel was estimated to be approximately \$2 million annually for seven to eight full-time equivalent employees, with the rest of the estimated cost comprised of contractors, logistics, and equipment.

**Q:** If you had all that, how soon could the project be certified by FERC? What would the timeline be?

**A:** It would take approximately two years to complete the studies and develop a license application following the ILP once contractors were on board. FERC would complete their National Environmental Policy Act analysis and issue a license 18 months to two years after submittal of the application.

## **Roadbelt Intertie Project**

**Q:** How much does it cost to finish the FERC application for the Road Belt intertie project?

**Q:** How big a workforce do you need to finish the FERC application?

**Q:** How does that break down in terms of personnel and costs?

**Q:** If you had all that, how soon could the project be certified by FERC? What would the timeline be?

**A:** FERC has no jurisdiction or permitting requirements over the Roadbelt Intertie Project. FERC jurisdiction over power transmission is limited to interstate transmission projects, and even then only under certain conditions. Ahtna Environmental Inc. completed the [Roadbelt Intertie Reconnaissance Engineering Report](#) for the Denali Commission in November of 2020. The 142-page report includes significant detail on environmental issues and permitting, but no reference to FERC jurisdiction or permitting.

If you have further questions, please contact me at (907) 771-3009.

Sincerely,



Curtis W. Thayer  
Executive Director

CC: Senator Bert Stedman  
Senator Lyman Hoffman  
Senator Donald Olson  
Senator Natasha von Imhof  
Senator Bill Wielechowski  
Senator David Wilson