

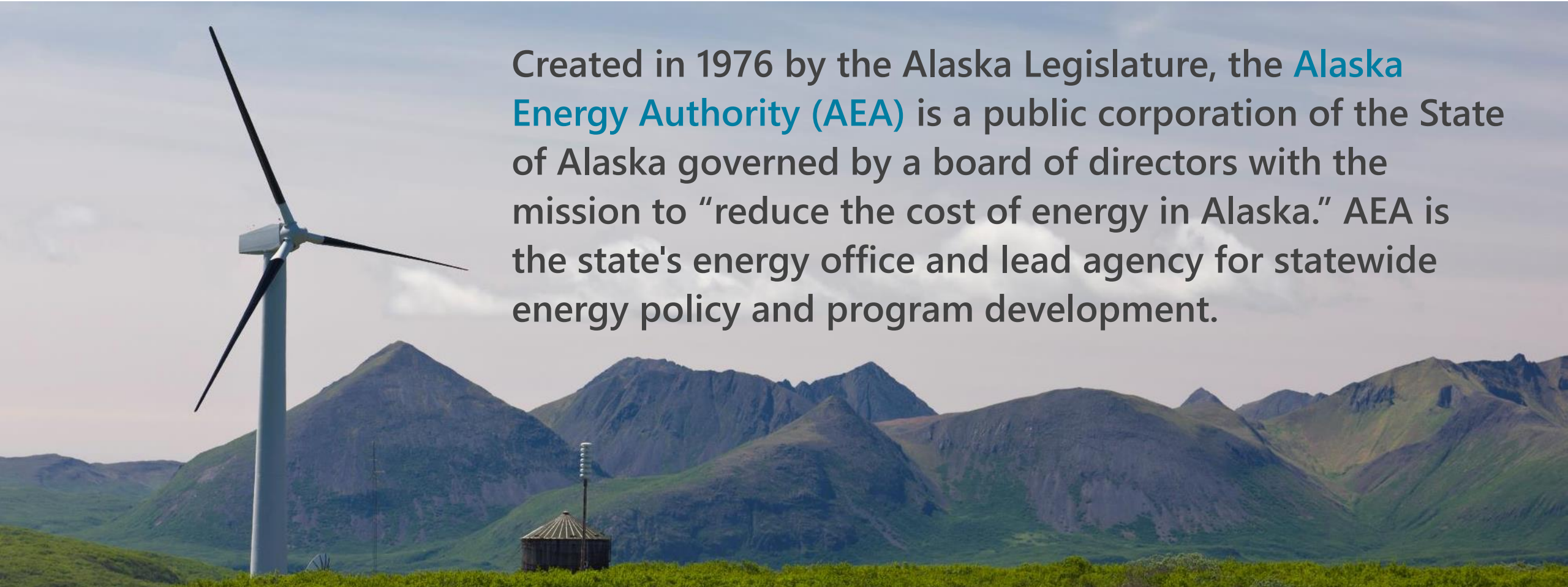
ALASKA ENERGY AUTHORITY

Curtis W. Thayer
Executive Director

Senate Finance Committee
March 10, 2021



WHO WE ARE

A photograph of a white wind turbine on a grassy hill, with a small dark structure and a tall antenna nearby. In the background, there are several jagged, rocky mountains under a cloudy sky.

Created in 1976 by the Alaska Legislature, the [Alaska Energy Authority \(AEA\)](#) is a public corporation of the State of Alaska governed by a board of directors with the mission to “reduce the cost of energy in Alaska.” AEA is the state's energy office and lead agency for statewide energy policy and program development.

WHAT WE DO



Railbelt Energy – AEA owns the Bradley Lake Hydroelectric Project and the Alaska Intertie. These assets benefit Railbelt consumers by reducing the cost of power.



Power Cost Equalization – The Power Cost Equalization Program reduces the cost of electricity in rural Alaska for residential customers and community facilities.



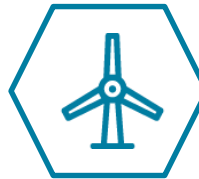
Rural Energy – AEA constructs bulk fuel tank farms, diesel powerhouses, and electrical distribution grids in rural villages. AEA supports the operation of these facilities through circuit rider and emergency response programs.



Renewable Energy – AEA provides renewable energy and energy efficiency grants, analysis, and expertise to benefit Alaskans. These include hydro, biomass, wind, solar, and others.

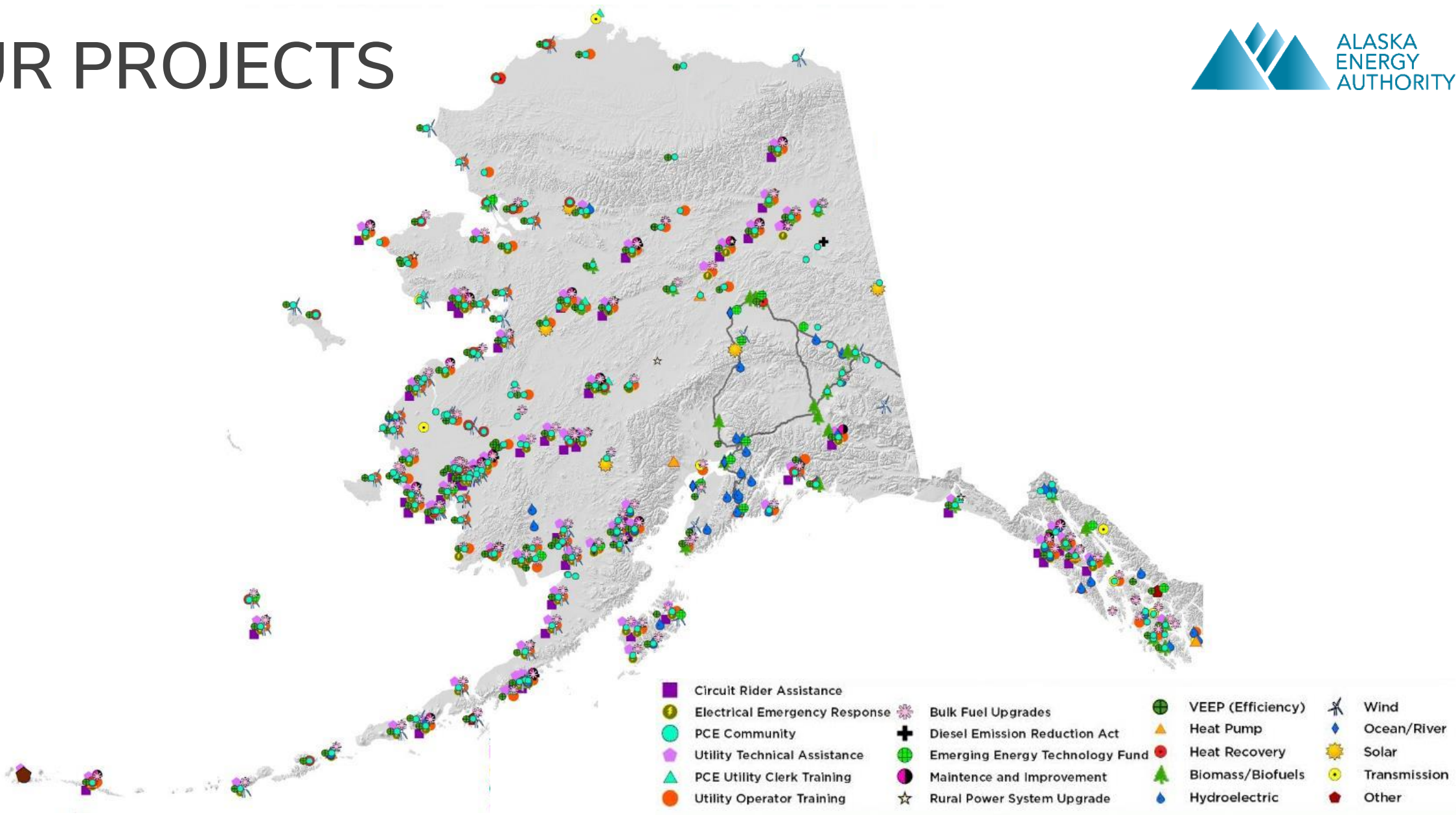


Grants and Loans – AEA provides loans to local utilities, local governments, and independent power producers for the construction or upgrade of power generation and other energy facilities.



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

OUR PROJECTS



PROGRAMS AND PROJECTS

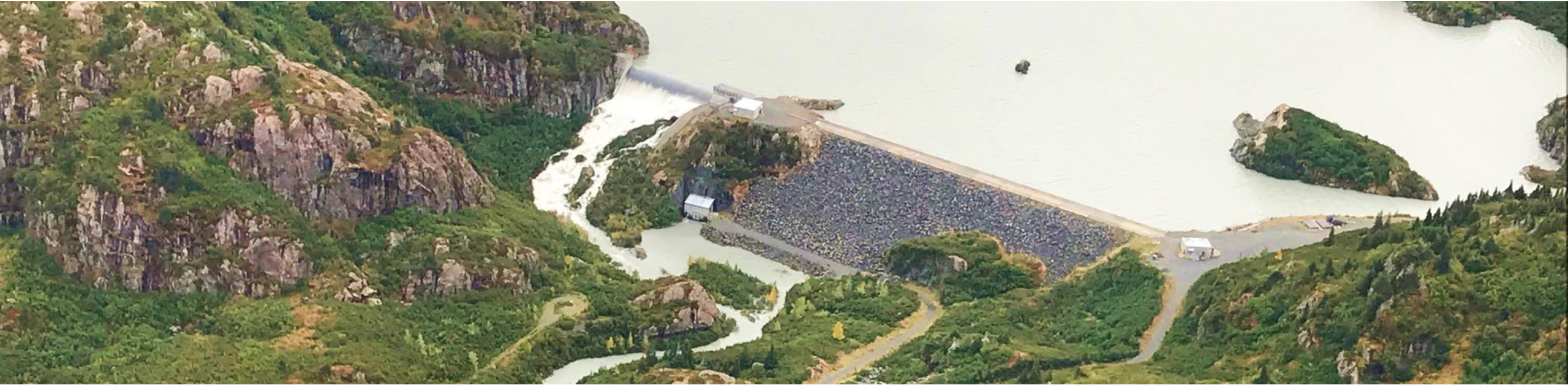
- Bradley Lake Hydroelectric
- West Fork Upper Battle Creek Diversion
- SSQ Transmission Line
- Alaska Intertie
- Power Cost Equalization
- Rural Power System Upgrades
- Bulk Fuel Upgrades
- Alternative Energy + Energy Efficiency
- Renewable Energy Fund
- Power Project Fund



OWNED ASSETS



BRADLEY LAKE HYDROELECTRIC PROJECT



- Benefits 500,000+ members of Chugach Electric Association, City of Seward, Golden Valley Electric Association, Homer Electric Association, and Matanuska Electric Association
- Produces ~10% of Railbelt electricity at 4.5 cents/kWh
- Over \$20 million in savings per year to Railbelt utilities Bradley Lake versus natural gas

WEST FORK UPPER BATTLE CREEK DIVERSION



- Project cost \$47 million, will add ~10% energy
- Substantial completion on July 2020
- Project diverts runoff from Battle Creek into Bradley Lake expanding the state's largest hydroelectric facility
- Includes three miles of road, concrete diversion dam, and a five-foot diameter pipeline under the road to carry water from its source to Bradley Lake
- More energy at lower cost can be produced and delivered to ratepayers

SSQ TRANSMISSION LINE

- 39.3 miles of 115-kV transmission line delivers Bradley Lake hydroelectric generated power
- AEA's recent purchase allows for better cost alignment, increased reliability, and future prospect for upgrades to the line, which would decrease line losses and allow for increased power transmission north, and unconstraining Bradley power
- Schedule begins with preliminary design with 6 months, 24 to 36 month estimate to finalize construction



ALASKA INTERTIE



- 170 mile-long transmission line from Willow to Healy
- Allows Golden Valley Electric Association (GVEA) to connect to and benefit from lower cost power
- Improves reliability within Railbelt system
- Operated by AEA and Railbelt utilities
- Between 2008 and 2018, the Intertie provided an average annual cost savings of \$40 million to GVEA customers

MAXIMIZING CLEAN ENERGY FOR RAILBELT

- Soldotna-Quartz Creek (and Substation) – \$70 Million
- Dave's Creek-University 230 kV Line – \$58 Million
- Bradley-Soldotna 115 kV Line – \$66 Million
- Bradley Lake Expansion (Spillway Raise) – \$4 Million
- Bernice Lake-Beluga HVDC – \$185 Million
- Grid Stabilization HVDC – \$115 Million



ALASKA CARGO AND COLD STORAGE



- AEA was awarded \$21 million USDOT BUILD grant to participate in the construction of a ~715,000-square-foot \$220 million state-of-the-art air cargo and cold storage facility at the Ted Stevens Anchorage International Airport (ANC)
- AEA will deliver its expertise in renewable energy design and operation to make the building a showpiece in energy-efficiency
- The project will enhance ANC's shipping infrastructure, improve Alaska's supply chain security, and create jobs for Alaskans — 2,075 construction jobs and 120 full-time jobs

POWER COST EQUALIZATION



POWER COST EQUALIZATION



- Power Cost Equalization (PCE) provides electric power to rural residential customers and community facilities at costs similar those in Anchorage, Fairbanks, and Juneau
- 194-eligible communities see the benefits of PCE credits
- In Fiscal Year 2020, \$29.6 million was disbursed
- PCE Endowment Fund created capitalized in Fiscal Year 2001 – now ~\$1.1 billion

PCE ENDOWMENT HISTORY (THOUSANDS)

	<u>FY2016</u>	<u>FY2017</u>	<u>FY2018</u>	<u>FY2019</u>	<u>FY2020</u>
Beginning Investment Fund Balance	\$ 969,389	946,939	1,023,566	1,073,378	1,072,825
Inflows:					
Annual investment earnings	8,912	112,331	76,602	74,142	48,303
Capital fund transfers in	—	—	—	—	—
Total inflows	8,912	112,331	76,602	74,142	48,303
Outflows:					
Transfers to AEA for PCE payments (1)	(30,622)	(34,956)	(25,595)	(29,719)	(27,000)
Transfers and appropriations to Other Funds	—	—	—	(44,000)	(14,867)
Program administration – AEA	(255)	(243)	(624)	(444)	(575)
Administrative fee – Regulatory Commission	(100)	(112)	(113)	(102)	(108)
Management fee – Department of Revenue	(385)	(393)	(458)	(430)	(421)
Total outflows	(31,362)	(35,704)	(26,790)	(74,695)	(42,971)
Ending investment fund balance	\$ 946,939	1,023,566	1,073,378	1,072,825	1,078,157

(1) Transfers to AEA for PCE Endowment grant payments at June 30, 2020 were \$27,000,000. Subsequent transfers were \$2,600,000 based on estimated PCE costs paid in FY21.

RURAL ENERGY



RURAL POWER SYSTEM UPGRADES



- ~197 communities eligible for Rural Power System Upgrade (RPSU)
- Goal — improve power system efficiency, safety, and reliability
- Aging infrastructure and Operation and Maintenance
- Active projects — 7 full and 16 Maintenance and Improvement/Diesel Emissions Reduction Act
- Deferred maintenance \$327 million

RPSU PROJECTS REQUIRING FUNDING

FY2022 RPSU Capital Requests

- Napaskiak
- Nelson Lagoon
- Nikolai
- Rampart

Next RPSU Priorities

- Beaver
- Buckland
- Chefnak
- Chenega Bay
- Chuathbaluk
- Crooked Creek
- Elfin Cove
- Golovin



BULK FUEL UPGRADES

- ~400 rural bulk fuel facilities
- Goal — code compliant fuel storage facilities and prevention of spills and contamination
- Aging infrastructure, erosion, and catastrophic failure
- Active projects — 8 full and 18 Maintenance and Improvement No funding for two years
- Leveraging Coast Guard regulatory efforts to capture BFU assessments to prioritize projects
- Deferred maintenance \$800 million



BFU PROJECTS REQUIRING FUNDING



FY2022 BFU Capital Requests

- Ekwok
- Marshall
- Shageluk
- Shaktoolik

Next BFU Priorities

- Minto
- Noatak
- Nondalton
- Shungnak
- Togiak
- Tuluksak

OPERATOR TRAINING

- Cooperatively AEA and AVTEC train community operators
- Skills acquired include routine maintenance, troubleshooting, and supply management
- In Calendar Year 2020, 24 Power Plant Operators and 21 Bulk Fuel Operators successfully completed training from 21 communities



TRAINING AND TECHNICAL SUPPORT



January 1 through December 31, 2020

Circuit Rider and Itinerant Bulk Fuel Operator Onsite Training

Number after the community indicates number of staff trips; 30 communities visited with 64 total staff trips.

- Akhiok(2)
- Akiachak(3)
- Akiak(1)
- Atmautluak(2)
- Central(2)
- Chefnak(2)
- Chignik Bay(2)
- Chignik Lake(4)
- Chitina(1)
- Circle(4)
- Clarks Point(1)
- Elfin Cove(2)
- False Pass(2)
- Fort Yukon(2)
- Iliamna(3)
- King Cove(2)
- Kwethluk(2)
- Larsen Bay(2)
- Napaskiak(2)
- Ouzinkie(1)
- Pedro Bay(2)
- Pelican(2)
- Perryville(1)
- Port Heiden(1)
- Seward AVTEC(3)
- Takotna(1)
- Tenakee Springs(2)
- Tuluksak(7)
- Twin Hills(1)
- Venetie(2)

TRAINING AND TECHNICAL SUPPORT



January 1 through December 31, 2020

Power Plant and Bulk Fuel Operator AVTEC Training

Number after the community indicates number of operators from community trained; 21 communities 32 operators.

- Anchorage(4)
- Alakanuk(1)
- Ambler(1)
- Atmautluak(1)
- Auke Bay(1)
- Birch Creek(4)
- Chenega Bay(1)
- Chignik Lake(1)
- Diomedede(1)
- Edna Bay(2)
- Golovin(1)
- Iliamna(1)
- Kalskag(1)
- Kipnuk(1)
- Nikolai(2)
- Nunapitchuk(3)
- Ouzinkie(1)
- Pedro Bay(1)
- Pilot Station(1)
- Ruby(1)
- Unalakleet (2)

TRAINING AND TECHNICAL SUPPORT



January 1 through December 31, 2020

Circuit Rider Real-Time Remote Assistance

Number after the community indicates number of distinct responses for assistance; 85 communities 452 total responses.

▪ Adak(1)	▪ Buckland(4)	▪ Emmonak(1)	▪ Kokhanok(3)	▪ Nikolia(5)	▪ Tazimina(3)
▪ Akhiok(2)	▪ Central(5)	▪ Fairbanks UAF(1)	▪ Kongiganak(3)	▪ Nunam Iqua(2)	▪ Tenakee
▪ Akiachak(8)	▪ Chenega Bay(5)	▪ Fairbanks TCC (2)	▪ Koyuk(1)	▪ Ouzinkie(18)	▪ Springs (3)
▪ Akiak(16)	▪ Chignik Bay(7)	▪ False Pass(3)	▪ Koyukuk(1)	▪ Pedro Bay(7)	▪ Tuluksak(28)
▪ Anc ANTHC(4)	▪ Chignik	▪ Fort Yukon(3)	▪ Kwethluk(17)	▪ Pelican(22)	▪ Tuluksak
▪ Anc DCRA(1)	▪ Lagoon(5)	▪ Galena(1)	▪ Kwigillingok(9)	▪ Perryville(1)	▪ School(1)
▪ Anc FEMA(2)	▪ Chignik Lake(5)	▪ Gambell(1)	▪ Larsen Bay(5)	▪ Pilot Point(1)	▪ Tuntutuliak(1)
▪ Anc PMC(1)	▪ Chitina(9)	▪ Hoonah(4)	▪ Levelock(7)	▪ Platinum(1)	▪ Ugashik(1)
▪ Anc SEOC(2)	▪ Chefnak(3)	▪ Hughes(4)	▪ Manokotak(1)	▪ Point Hope(1)	▪ Venetie(1)
▪ Angoon(5)	▪ Circle(6)	▪ Igiugig(6)	▪ McGrath(5)	▪ Port Heiden(10)	▪ Wales(1)
▪ Arctic Village(1)	▪ Clarks Point(42)	▪ Juneau IPEC(1)	▪ McGrath MKEC(1)	▪ Rampart(1)	
▪ Atmautluak(11)	▪ Crooked Creek(4)	▪ Kake(10)	▪ Mertarvik(11)	▪ Ruby(7)	
▪ Atka(3)	▪ Deering(1)	▪ Karluk(2)	▪ Napakiak(5)	▪ Saint George(3)	
▪ Beaver (4)	▪ Diomedes(10)	▪ King Cove(2)	▪ Napaskiak(1)	▪ Stevens Village(5)	
▪ Bethel Calista(2)	▪ Egegik(7)	▪ Kipnuk(8)	▪ Newhalen(1)	▪ Takotna(3)	
▪ Birch Creek(1)	▪ Elfin Cove(6)	▪ Kobuk(1)	▪ Newtok(3)	▪ Tatitlek(8)	

DENALI COMMISSION



- Partners since inception and continuing over the last 23 years
- Active awards – \$33.3 million (as of 2/7/21)
- Anticipated additional federal funding this year – \$6 million

GRANTS AND LOANS



RENEWABLE ENERGY FUND



- Renewable Energy Fund (REF) helps Alaskans reduce and stabilize the cost of energy
- \$268 million invested in REF by the State
- 99 operational projects, 27 in development
- Round 13 recommendation submitted to Legislature January 2021
- REF program will sunset on June 30, 2023
- Approximately \$6.5 million available for Round 13

POWER PROJECT FUND



- Dedicated to power projects, the Project Power Fund (PPF) is available to for qualified borrowers
- PPF is critical as grant funding is eliminated
- Requires review for technical and fiscal viability
- \$31 million in outstanding loans
- \$10.7 million uncommitted cash balance available for lending
- 8 applications pending for a total of \$10.4 million
- Low interest rates to encourage innovative power project applications

OPERATING AND CAPITAL BUDGETS



FY2022 OPERATING BUDGET (THOUSANDS)

FY2022 OPERATING BUDGET (ALL COMPONENTS)	FY2021 Authorized	FY2022 Authorized	Variance
Expenditure Categories:			
Travel	134.8	134.8	—
Services (includes personal services paid to AIDEA)	8,548.2	8,548.2	—
Commodities	56.0	56.0	—
Capital Outlay/Equipment	15.0	15.0	—
Grants	29,600.0	32,100.0	2,500.0
Totals	38,345.0	40,854.0	2,500.0
Funding Sources:			
Unrestricted GF (undesignated)	847.3	—	(847.3)
Power Project Fund (designated)	995.5	995.5	—
Renewable Energy (designated)	1,400.0	1,400.0	—
PCE Endowment (designated)	30,236.8	33,584.1	3,347.3
GF Program Receipts (designated)	50.0	50.0	—
Subtotal (Designated & Undesignated GF)	3,3529.6	36,029.6	2,500.0
CIP Receipts	2,567.8	2,567.8	—
Federal Receipts	1,202.0	1,202.0	—
AEA Receipts	780.7	780.7	—
I/A Receipts	123.9	123.9	—
Statutory Designated Program Receipts	150.0	150.0	—
Totals	38,354.0	40,854.0	2,500.0

FY2022 CAPITAL BUDGET (THOUSANDS)

PROJECT NAME	STATE FUNDING REQUEST	FEDERAL RECEIPT AUTHORITY	TOTAL	FUND CODE	BRIEF SUMMARY
Alaska Cargo and Cold Storage	—	21,0000.0	21,000.0	1002 - Fed	The Alaska Energy Authority and Alaska Cargo and Cold Storage are partnering to construct a cargo storage and warehouse facility at the Ted Stevens Anchorage International Airport. This will develop a state-of-the art facility that is exceptionally energy efficient by maximizing available renewable and energy efficient technologies. Funding Sources: United States Department of Energy (federal)
Alternative Energy and Energy Efficiency Programs	—	5,000.0	5,000.0	1002 - Fed	Alternative Energy and Energy Efficiency Programs provide critical support for communities interested in developing renewable energy and efficiency projects. This program provides a foundation of support that is critical to the proper development of renewable energy technologies in Alaska. Funding Sources: Denali Commission (federal); United States Department of Energy (federal); and United States Department of Agriculture (federal)
Bulk Fuel Upgrades (State dollars are matching funds)	5,500.0	7,500.0	13,000.0	1002 - Fed Receipts / 1169 PCE Endowment	Bulk fuel tank farm upgrades. Replaces aging tanks that may be leaking. Adds capacity to meet community needs. Meets code compliance standards improving life, health, and safety of community. Funding Sources: Denali Commission (federal) & PCE Endowment Fund
Rural Power Systems Upgrades (State dollars are matching funds)	5,000.0	12,500.0	17,500.0	1002 - Fed Receipts / 1169 PCE Endowment	Electric utility systems are part of the basic infrastructure of rural communities. New power systems are designed to meet accepted utility standards for safety, reliability, and environmental protections. Funding Sources: Denali Commission (federal) & PCE Endowment Fund
TOTALS	10,500.0	46,000.0	56,500.0		

UNAUDITED FINANCIAL HIGHLIGHTS (THOUSANDS)*

BALANCE SHEETS	June 30, 2020	June 30, 2019
Assets and deferred outflows of resources:		
Restricted Investments securities and cash	1,180,885	1,204,632
Loans, net	27,032	24,742
Capital assets, net	388,046	375,972
Receivables and other assets	3,919	4,244
Total Assets	1,599,882	1,609,590
Liabilities and net position:		
Liabilities		
Bonds payable	63,684	74,709
Other bonds liabilities	1,052	1,269
Payables and other liabilities	1,096,980	1,090,582
Total liabilities	1,161,716	1,166,560
Net position	438,166	443,030
Total liabilities and net position	1,599,882	1,609,590

*Unaudited – Derived from Audited Financial Statements.

UNAUDITED FINANCIAL HIGHLIGHTS (THOUSANDS)*

REVENUE, EXPENSES AND CHANGES IN NET POSITION	June 30, 2020	June 30, 2019
Operational Revenues:		
Federal grants	7,845	3,552
Revenue from operating plants	21,361	21,035
State operating and capital revenues	4,719	20,444
Interest on loans	362	347
Other operating revenues	1,684	792
Total operating revenues	35,971	46,170
Operational Expenses:		
Grants and projects	18,714	20,213
Power cost equalization grants	29,255	28,369
Interest expense	827	1,746
Plant operating	5,376	5,350
General and administrative	5,742	5,672
Provision for loan loss	61	169
Loss on disposal of asset	—	—
Depreciation	10,917	10,862
State of Alaska appropriations and transfers	21,288	1,097,628
Other project expenses	—	—
Total operating expense	92,180	1,170,009
Operating loss	(56,209)	(1,123,839)
Investment Income, net	51,411	78,008
State of Alaska reappropriations and transfers	(66)	(67)
Capital contributions	—	1
Increase (decrease) in net position	(4,864) **	(1,045,897)

*Unaudited – Derived from Audited Financial Statements.

SUSITNA-WATANA HYDROELECTRIC PROJECT



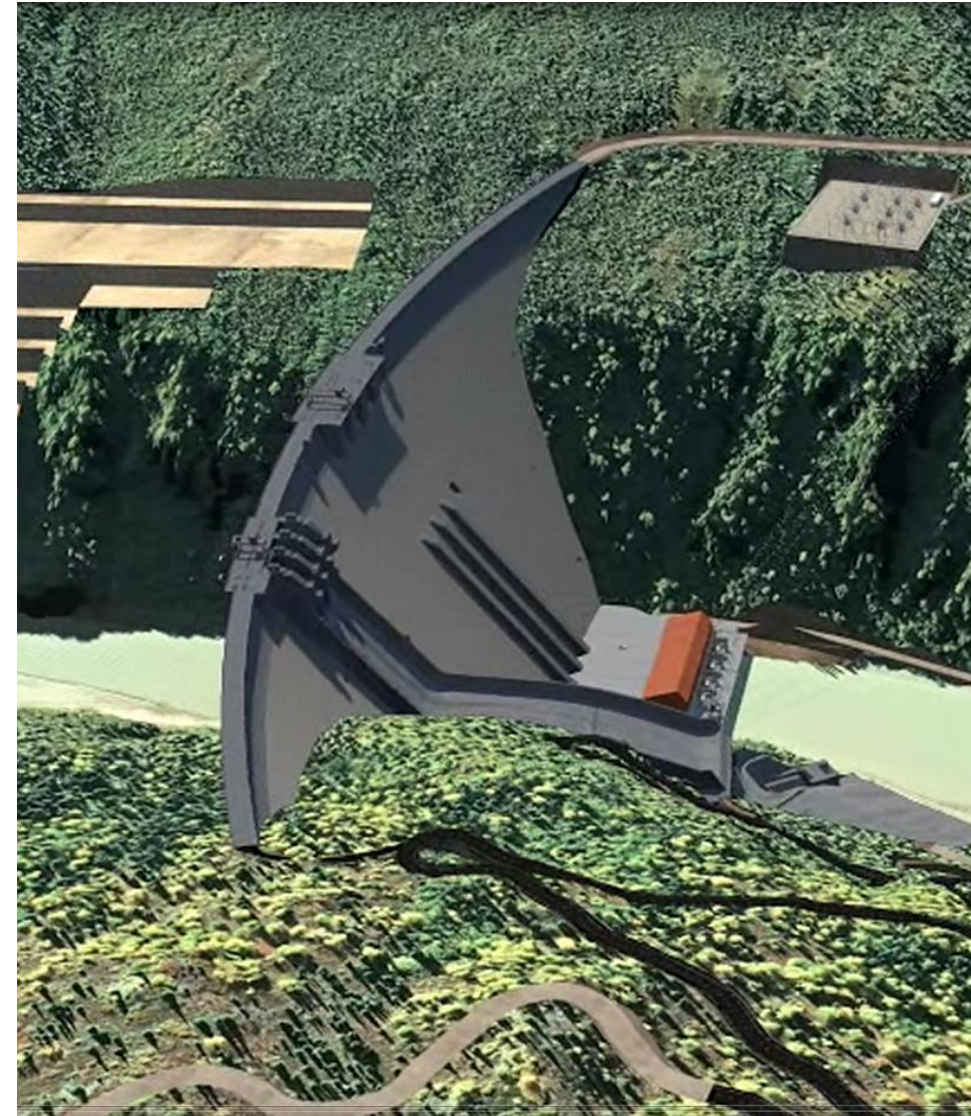
SUSITNA-WATANA HYDROELECTRIC PROJECT



- Dam Height – 705 feet
- Dam Elevation – 2,065 Feet MSL
- Reservoir Length – ~42 miles
- Reservoir Width – ~1.25 miles
- Installed Capacity – 459-619 MW
- Annual Energy – 2,800,000 MWh
- Cost – ~\$5.655 billion (2014\$)

SUSITNA-WATANA ECONOMICS

- Benefit-Cost and Economic Impact Analyses completed in 2015
 - Based on 2014 projection of natural gas prices:
 - Benefit-cost ratio of 2.39 from energy savings alone
 - \$11.2 billion (2014\$) in energy savings over first 50 years
 - \$4.7 billion (2014\$) in capital and O&M costs over first 50 years



SUSITNA-WATANA STATUS



- Integrated Licensing Process
- 2/3 of the way done; \$193 Million invested
- Cost to complete ~\$100 million for license
- 58 FERC-approved studies:
 - Implemented 2012-2017
 - 19 studies completed
 - 39 significant progress made
- Initial Study Report filed with FERC

AEA provides
energy solutions
to meet the
unique needs and
opportunities of
Alaska's rural
and urban
communities.

Alaska Energy Authority

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