

ALASKA ENERGY AUTHORITY

AEA UPDATE

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Executive Director

Southeast Conference
Mid-Session Summit
February 9, 2022



About the Alaska Energy Authority



Our Mission

Reduce the cost of energy in Alaska.



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.

AEA Programs and Services

AEA works to diversify Alaska's energy portfolio, engages on energy planning and policy, invests in Alaska's energy infrastructure, and provides rural Alaska with technical and community assistance.



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.



Alternative 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.



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.



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.







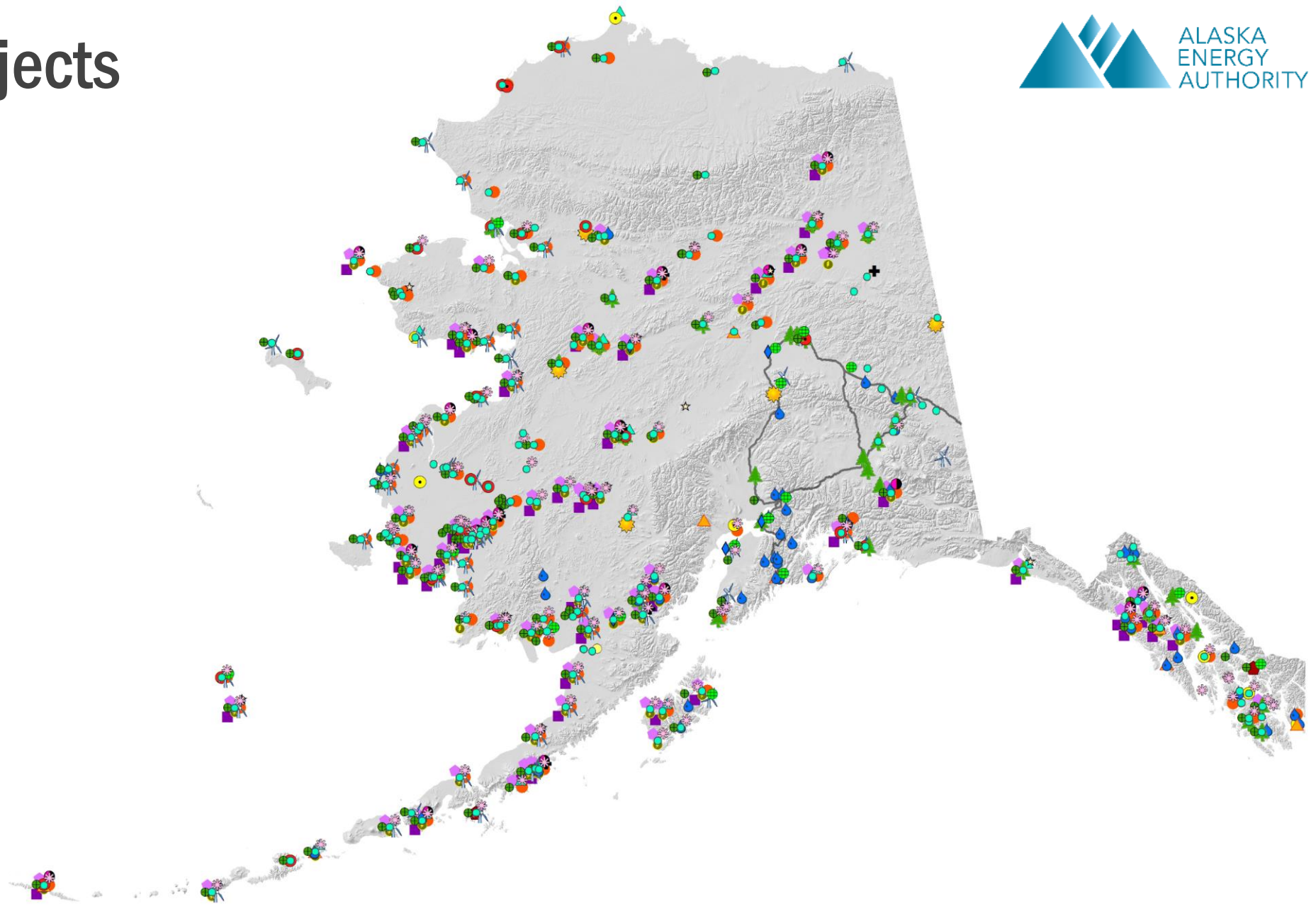
Rural Energy – AEA constructs bulk fuel tank farms, diesel powerhouses, and electrical distribution grids in rural villages. AEA supports the operation of these facilities through circuit rider and emergency response programs.



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

AEA Active Projects and Services

-  Biomass/Biofuels
-  Bulk Fuel Upgrades
-  Circuit Rider Assistance
-  Diesel Emission Reduction Act
-  Electrical Emergency Response
-  Emerging Energy Technology Fund
-  Heat Pump
-  Heat Recovery
-  Hydroelectric
-  Maintenance and Improvement
-  Ocean/River
-  PCE Community
-  PCE Utility Clerk Training
-  Rural Power System Upgrade
-  Solar
-  Storage
-  Transmission
-  Utility Operator Training
-  Utility Technical Assistance
-  VEPP (Efficiency)
-  Wind



AEA Active Projects in Southeast Alaska



- 1. Hiilangaay Hydroelectric Project (Hydaburg)** – Owned by Haida Energy and partially financed by the Power Project Fund and the Renewable Energy Fund (REF), this project was completed in 2021 and is providing electricity to Prince of Wales Island.
- 2. Thayer Lake Hydroelectric Project (Angoon)** – Kootznoowoo Inc., with a REF grant, has submitted final permits and is working to finance the project to provide electricity to Angoon.
- 3. Water Supply Creek Hydroelectric Project (Hoonah)** – Inside Passage Electric Cooperative received a REF grant in 2021 for final design of the project located in Hoonah.
- 4. Woodchip Construction (Craig)** – Under construction; funded by AEA, Denali Commission (DC), and the United States Forest Service (USFS).
- 5. Southeast Island School District (Thorne Bay)** – Under construction to expand heating system in Kasaan and put floor in wood storage in Naukati (grant is about to be issued); funded by AEA, DC, and USFS.

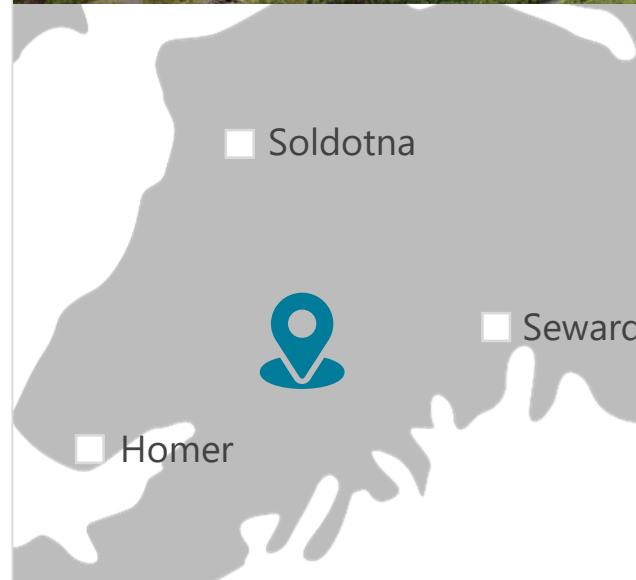


URBAN ENERGY

Bradley Lake Hydroelectric Project

Hydroelectric power is Alaska's largest source of renewable energy — and Bradley Lake is Alaska's largest hydro facility.

- **Location** – The Bradley Lake Hydroelectric Project is located 27-air miles northeast of Homer on the Kenai Peninsula
- **Benefits** – Provide low cost energy to 550,000+ members of Chugach Electric Association, City of Seward, Golden Valley Electric Association, Homer Electric Association, and Matanuska Electric Association
- **Annual Energy Production** – ~10% of Railbelt electricity at 4.5 cents/kWh (or ~54,400 homes/year) and over \$20 million in savings per year to Railbelt utilities from Bradley Lake versus natural gas
- **Status** – Energized in 1991

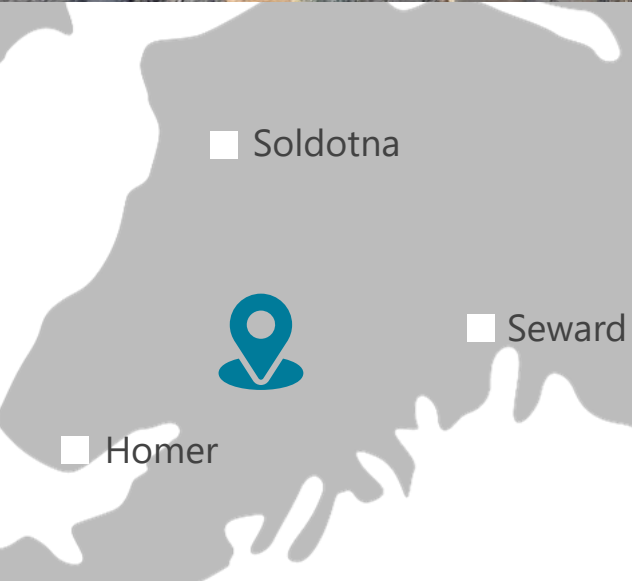


- **Dam Height** – 125 feet
- **Dam Elevation** – 1,190 Feet
- **Reservoir Length** – 4 miles
- **Reservoir Width** – 1.3 miles
- **Installed Capacity** – 120 MW
- **Annual Energy** – 400,000 MWh
- **Cost** – ~\$400 Million

Dixon Diversion Project

The proposed Dixon Diversion Project would expand the size of the largest hydro project in Alaska — the Bradley Lake Hydroelectric Project.

- **Location** – The Dixon Diversion Project is located five miles southwest of Bradley Lake
- **Studying Two Options** –
 - Alternative 1 – Tunnel to Bradley Lake
 - Alternative 2 – Tunnel to Martin River Powerhouse
- **Benefits** – Could provide annual electric energy for 17,000-40,000 homes on the Railbelt. (Bradley Lake Hydroelectric Project: 54,000 homes)
- **Status** – Alternative analysis underway



- **Installed Capacity** – ≤ 180 MW
- **Annual Energy** – 100,000-500,000 MWh
- **Cost** – ~\$160-500 Million

Alaska Intertie

- Constructed in the mid-1980s, the Alaska Intertie is a 170 mile-long, 345 kilovolt (kV) transmission line from Willow to Healy
- Operated by AEA and Railbelt utilities, the transmission line improves reliability within Railbelt system
- Allows Golden Valley Electric Association (GVEA) to connect to and benefit from lower cost power
- Between 2008 and 2018, the Intertie provided an average annual cost savings of \$30 million to GVEA customers

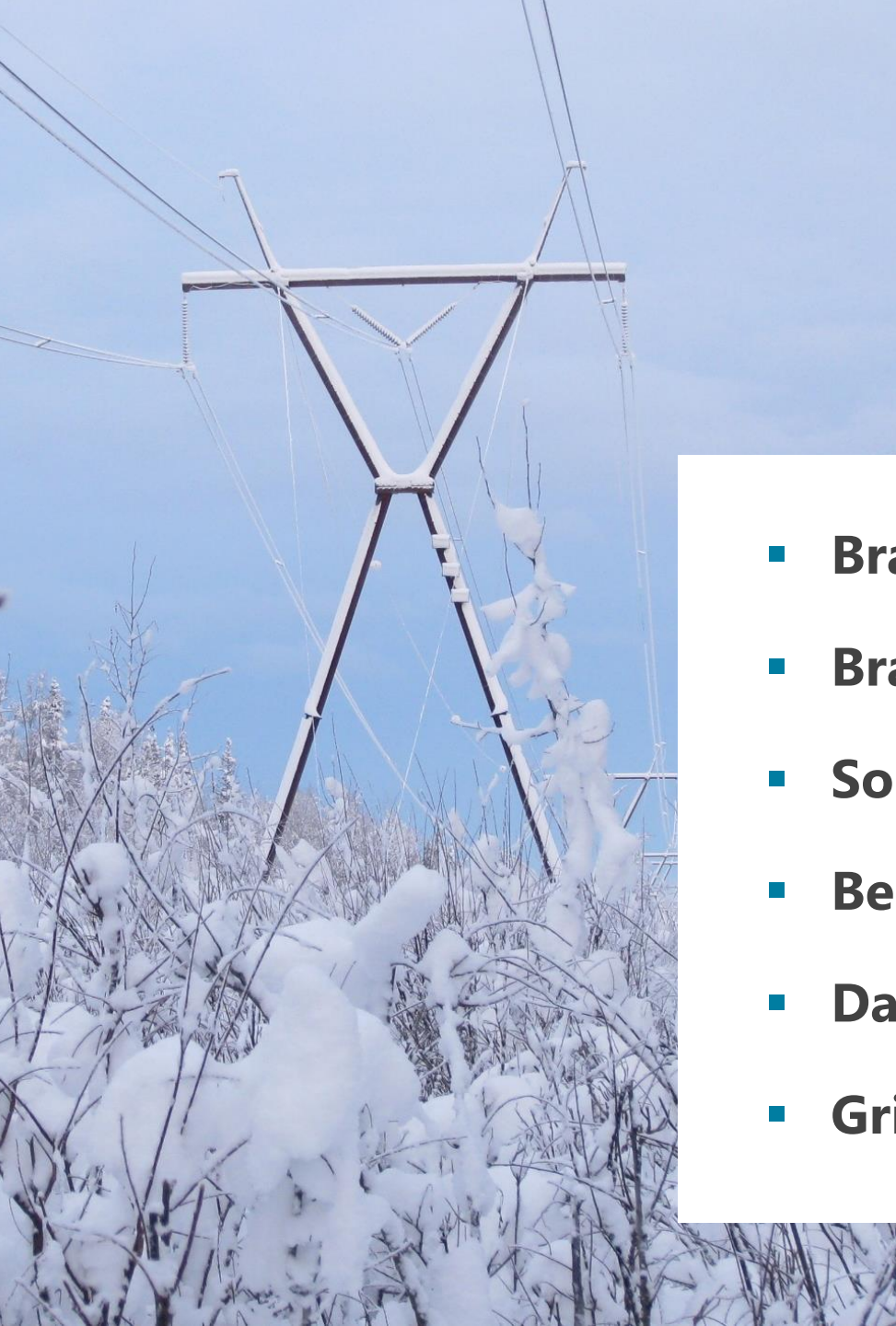




Governor Dunleavy surveys the Swan Lake Fire in August 2019.

Sterling to Quartz Creek Transmission Line

- The Sterling to Quartz Creek is a 39.3 mile-long, 115-kV transmission line that delivers Bradley Lake hydroelectric generated power to areas north
- AEA purchased the line in 2020 to allow 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 unconstrain Bradley Lake power
- The upgrade from 115 kV to 230 kV will begin with preliminary design
- AEA is working with its utility partners to determine a schedule



Maximizing Clean Energy for the Railbelt

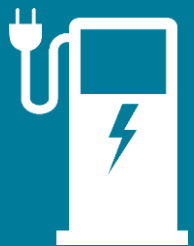
- **Bradley Lake Expansion (Spillway Raise) – \$4 million**
- **Bradley-Soldotna 115kV Line – \$81 million**
- **Soldotna-Quartz Creek (and Substation) – \$70 million**
- **Bernice Lake-Beluga HVDC – \$185 million**
- **Dave's Creek-University 230kV Line – \$58 million**
- **Grid Stabilization – \$115 million**

ELECTRIC VEHICLES



Preparing Alaska for EVs

- Creation of an EV charging infrastructure plan that establishes a fast-charging network along the state's highways including:
 - the Marine Highway,
 - connecting Alaska to Canada and the contiguous 48 states,
 - as well as the establishment of community-based Level 2 EV chargers
- Alaska EV Working Group
- Education and Outreach (Ribbon Cuttings, Car Show, and Ride and Drive)
- Inter-agency coordination



AEA is leading the effort to minimize barriers that inhibit EV adoption in Alaska.

Linny Pacillo Parking Garage, Anchorage, AK

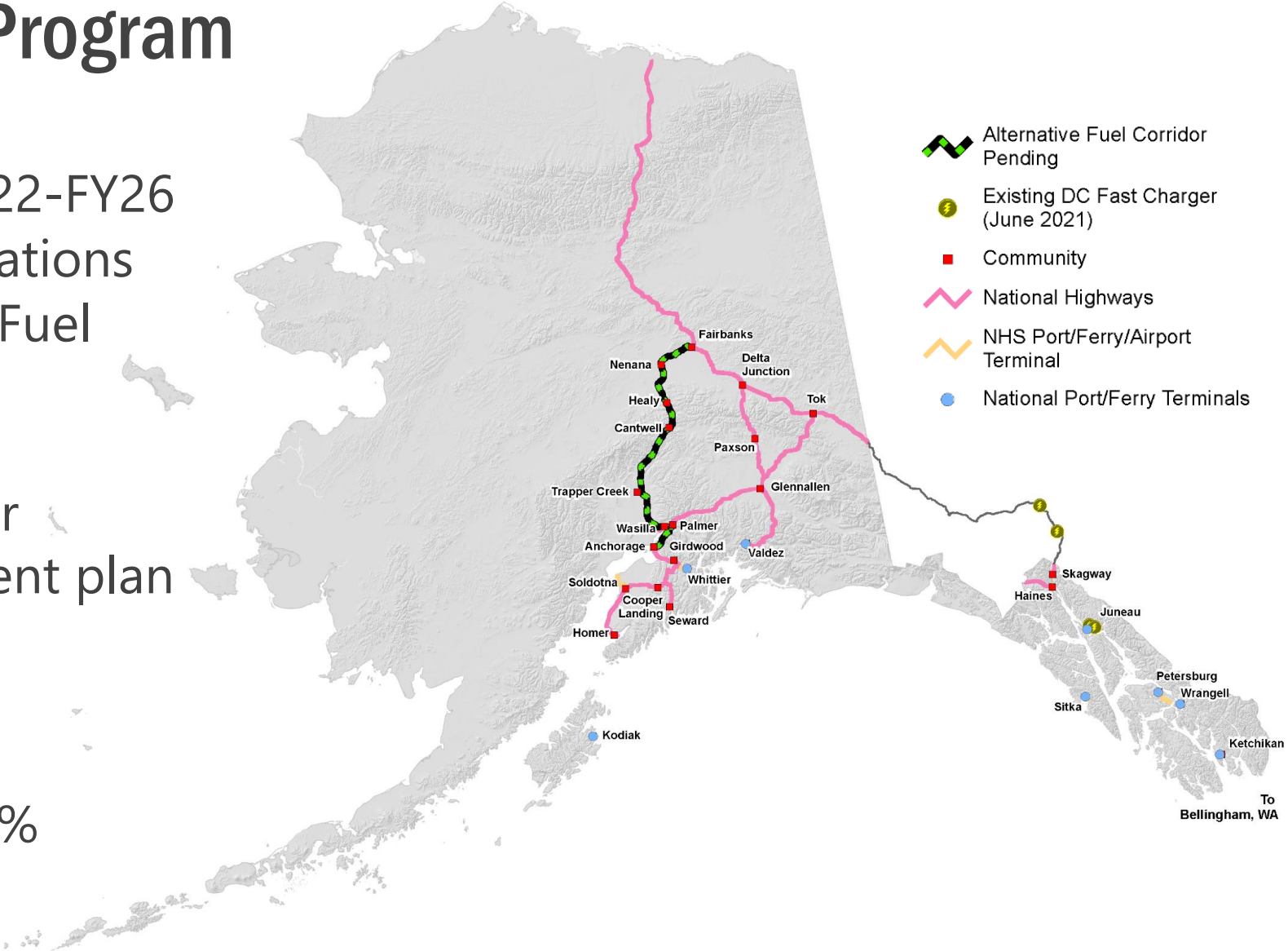
EV Fast-Charging Locations Under Construction

- **Scope** – Phase 1: Connect Homer and Seward to Fairbanks
 - 9 sites selected
 - 15 Fast-Chargers
 - 8 Level 2 Fast-Chargers
- **Schedule** – Summer 2021-Summer 2022
- **Budget** – Total Investment \$1.52 Million
 - Volkswagen – \$875,000
 - State Energy Program – 90,000
 - Private – \$555,000



Infrastructure Investment and Jobs Act: National EV Charging Program

- > \$50 Million for Alaska FY22-FY26
 - EV Fast-charging Installations
 - Designated Alternative Fuel Corridors
- State must develop plan for disbursement and implement plan
- Federal Share – 80%
- Private entity or other – 20%



Alaska Cargo and Cold Storage



AEA awarded \$21 million USDOT BUILD grant to help construct ~715,000-square-foot \$220 million 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



Project enhances ANC's shipping infrastructure, improve Alaska's supply chain security, and create jobs for Alaskans — 2,075 construction jobs and 120 full-time jobs



A wide-angle photograph of a rural landscape, featuring rolling hills, a small town with several houses, and a large body of water in the foreground. The entire image is overlaid with a semi-transparent teal color. The text "RURAL ENERGY" is centered in the middle of the image in a large, white, bold, sans-serif font. A small white horizontal line is positioned below the text, centered under the word "ENERGY".

RURAL ENERGY

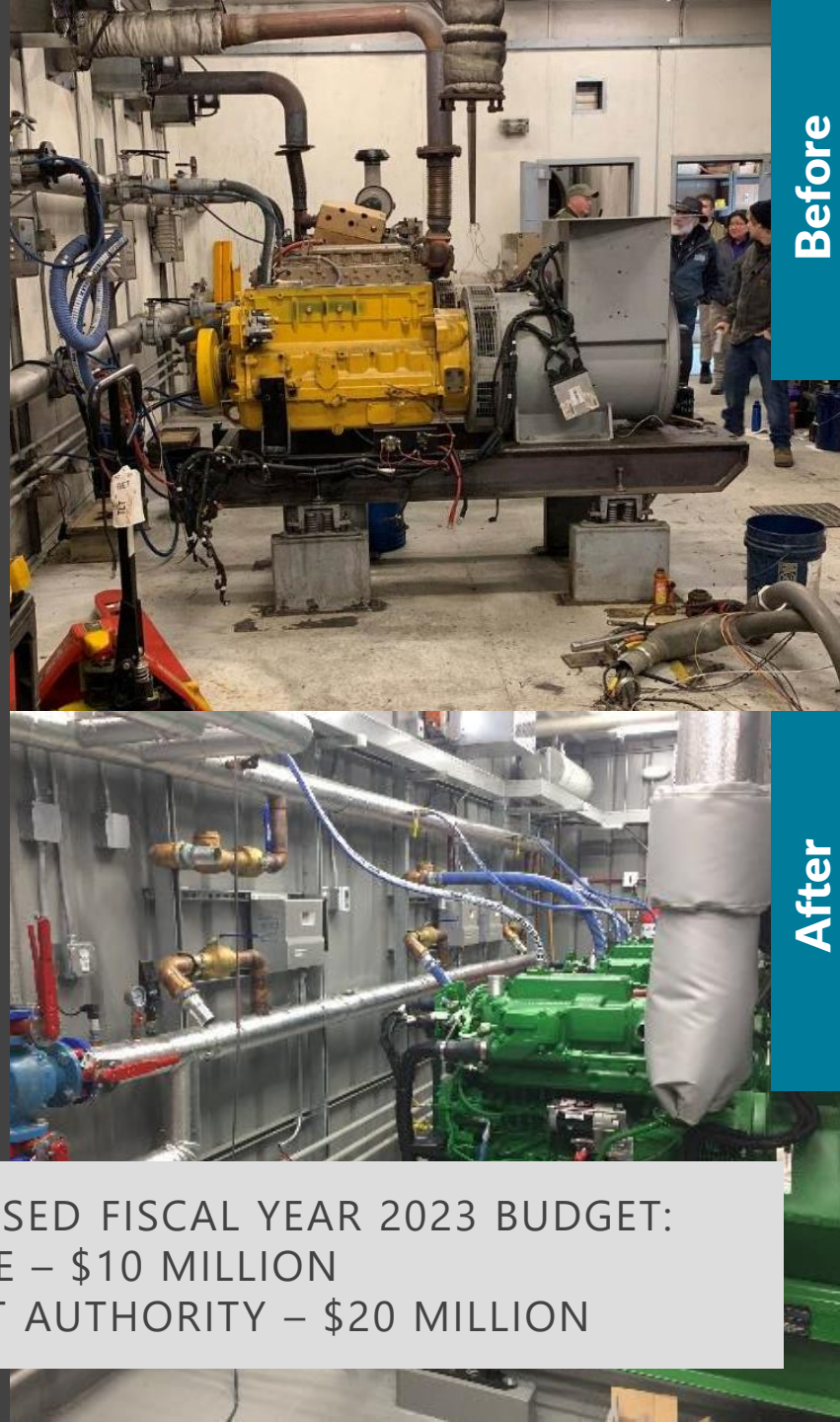


St. George Island, Pribilof Islands, AK

Power Cost Equalization

- The Power Cost Equalization (PCE) program was established in 1985 as one of the components of a statewide energy plan
- PCE reduces the high costs of electricity paid by rural consumers to a level comparable to an average of rates paid in Anchorage, Fairbanks, and Juneau
- PCE assists 82,000 Alaskans in 192 rural communities with their high energy costs
- In Fiscal Year 2023, \$33 million is estimated payments
- PCE Endowment Fund was created in 2000 and capitalized in Fiscal Year 2001 — now valued at ~\$1.1 billion

Rural Power System Upgrades



Before

After

- ~197 communities eligible for Rural Power System Upgrade
- 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 is \$300 million
- Fiscal Year 2023 Capital Requests:
 - Aniak
 - Bettles
 - False Pass
 - Metlakatla



GOVERNOR'S PROPOSED FISCAL YEAR 2023 BUDGET:
STATE – \$10 MILLION
FEDERAL RECEIPT AUTHORITY – \$20 MILLION

Before



After



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
- Leveraging Coast Guard regulatory efforts to capture BFU assessments to prioritize projects
- Deferred maintenance is \$800 million
- Fiscal Year 2023 Capital Requests:
 - Ewok
 - Scammon Bay
 - Shungnak
 - Venetie



GOVERNOR'S PROPOSED FISCAL YEAR 2023 BUDGET
STATE – \$5.5 MILLION
FEDERAL RECEIPT AUTHORITY – \$7.5 MILLION

SOUTHEAST RECAP

Round 13 Awards

- One Award
 - Community: Hoonah
 - Applicant: IPEC
 - Project: Water Supply Creek
 - Technology: Hydro
 - Project phase: final design and permitting
 - Grant award: \$461,474

Round 14 Applications

- Five Applications
- Communities:
 - Angoon
 - Kake (2)
 - Saxman
 - Yakutat
- Technology:
 - Hydro (2)
 - Emergency Generation (3)
- Project Phase:
 - Construction (3)
 - Feasibility (1)
 - Reconnaissance (1)

Renewable Energy Fund



- Established in 2008, the Renewable Energy Fund (REF) provides grant funding (subject to Legislative approval) incentivizing the development of qualifying and competitively selected renewable energy projects
- Since inception, the program to date has awarded 244 grants totaling \$275 million
- 99 projects are in operation, 27 projects are in development
- Legislature approved all 11 AEA-recommended projects as submitted for Round 13, for a total of \$4.75 million in available grant funds
- **Solicited for Round 14; application deadline was January 18, 2022; \$15 million in Governor's Fiscal Year 2023 proposed budget**
- REF program sunsets on June 30, 2023



Puvurna Power Company Wind Farm, Kongiganak, AK

Power Project Fund

- Available to qualified borrowers
- Critical as grants are eliminated
- Requires review for technical and fiscal viability
- \$26.3 million in outstanding loans
- \$12.2 million uncommitted cash balance available for lending
- Low interest rates encourage innovative applications



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

Alaska Energy Authority

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