ALASKA ENERGY AUTHORITY

AEA PROGRESS UPDATE

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Executive Director

Senate Resources Committee
January 24, 2025

ALASKA ENERGY AUTHORITY

AEA History

AEA is an independent and public corporation of the State of Alaska created by the state legislature in 1976.

1976

Created to promote, finance, and construct power projects

AS 44.83.070: “The purpose of the Authority is to promote, develop, and advance the general prosperity and economic welfare of the people of the state by providing a means of financing and operating power projects and facilities that recover and use waste energy and by carrying out the powers and duties assigned to it under AS 42.45.”

Sec. 44.83.080 Powers of the Authority

In furtherance of its corporate purposes, the authority has the following powers in addition to its other powers:

- …to issue bonds to carry out any of its corporate purposes…
- …to enter into contracts with the United States or any person… …for the construction, financing, operation, and maintenance of all or any part of a power project or bulk fuel, waste energy, energy conservation, energy efficiency, or alternative energy facilities or equipment…
- …to acquire, construct, maintain, and operate power projects in accordance with the licenses or permits,
- …to promote energy conservation, energy efficiency, and alternative energy through training and public education;
- …to acquire a Susitna River power project,…
- …to perform feasibility studies and engineering and design with respect to power projects.
- Battery Energy Storage Systems

AEA Board of Directors

Clay Koplin
Chair
Utility – Not Interconnected

Duff Mitchell
Vice Chair
Financial Expertise in Large Power Generation

Adam Crum
Commissioner, Alaska Department of Revenue

Tony Izzo
Board Member
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Rural Energy Development

Jenn Miller
Board Member
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Robert Siedman
Board Member
Municipal Utility – Off Road System

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 (Owned Assets)
- Bradley Lake Hydroelectric Project
- Alaska Intertie
- Sterling to Quartz Creek Transmission Line
- High-Voltage Direct Current Transmission Line

Power Cost Equalization (PCE)
- $48 Million Program
- 192 Rural Communities
- 91 Electric Utilities
- 80,000+ Alaskans

Rural Energy
- Bulk Fuel Upgrades
- Rural Power System Upgrades
- Circuit Rider Program
- Electrical Emergency Assistance

Renewable Energy and Energy Efficiency
- Renewable projects: biomass, electric vehicles, hydroelectric, solar, and wind
- Federal programs: NEVI, Solar for All, and Home Energy and High Efficiency Rebate Allocations

Grants and Loans
- Renewable Energy Fund
- Power Project Fund

Energy Planning
- Alaska Energy Security Task Force
- State Energy Security Profile
- Electronic Library
- Energy Data Resources
- 40101(d) Grid Resilience Program

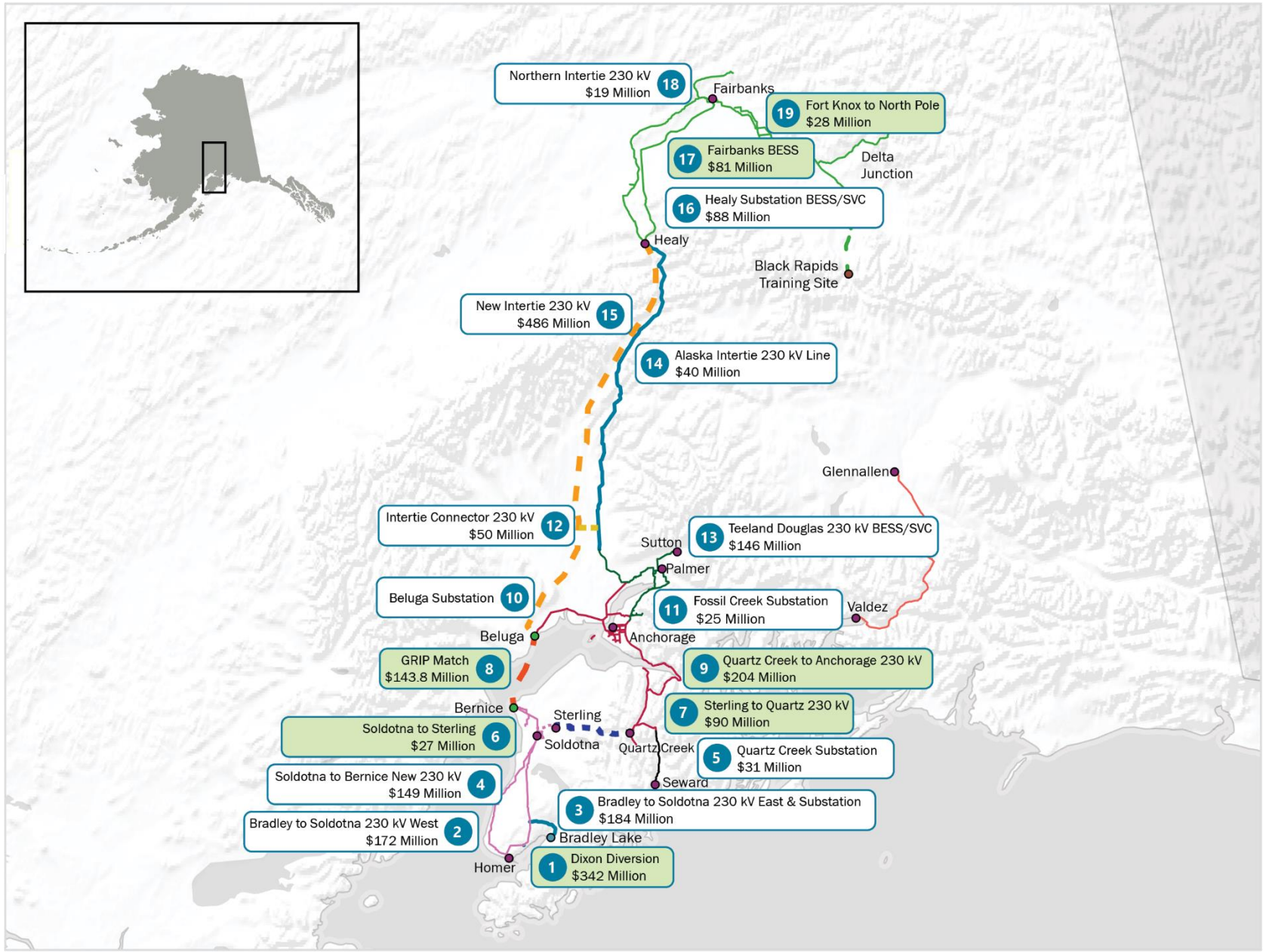
Railbelt Transmission Organization (RTO)

House Bill 307: Integrated Transmission Systems

House Bill 307 is one of the most important pieces of legislation affecting energy policy for the Railbelt since Alaska statehood.

- The bill also **incentivizes new energy development** by extending tax-exempt statutes to independent power producers.
- This law also fundamentally **changes how AEA operates:**
  - **Established its own distinct board of directors** — better positioning the state's energy office to address Alaska's unique energy challenges and opportunities.
  - Authorized AEA to have its own **direct-hire employees**.
  - Created the **Railbelt Transmission Organization**, as a division of AEA, to establish and administer a non-discriminatory open access transmission tariff that provides for recovery of transmission costs and ancillary services and replaces wholesale charges assessed by each utility with a new mechanism that fairly recovers the costs of operating the backbone transmission system.
- Offers **reduced interest rates for Power Project Fund loans** that are $5 million or more.

AEA Active Projects and Services



Railbelt Projects

1. Dixon Diversion: AEA-unfunded (**studies underway**)*
2. Bradley-Soldotna West: HEA-unfunded*
3. Bradley-Soldotna East & Substation: AEA-HEA-unfunded*
4. Soldotna-Bernice: AEA-unfunded**
5. Quartz Creek Substation XMFR: CEA-unfunded*
6. Soldotna-Sterling: AEA-**partially funded***
7. Sterling-Quartz Creek: AEA-**funded, target 2028***
8. GRIP Match: AEA-**partially funded, target 2032****
9. Quartz Creek-Anchorage: CEA-**ongoing, target 2032***
10. Beluga Substation XMFR (2nd line): AEA-unfunded**
11. Fossil Creek Substation XMFR: CEA-MEA-unfunded*
12. Intertie Connector: AEA-unfunded**
13. Teeland-Douglas: MEA-unfunded*
14. Alaska Intertie: AEA-unfunded*
15. New Intertie Beluga-Healy: AEA-unfunded**
16. Healy Substation: AEA-unfunded*
17. Fairbanks BESS: GVEA-**partially funded, target 2027****
18. Northern Intertie: GVEA-unfunded*
19. Fort Knox-North Pole Loop: GVEA-**funded, target 2031***

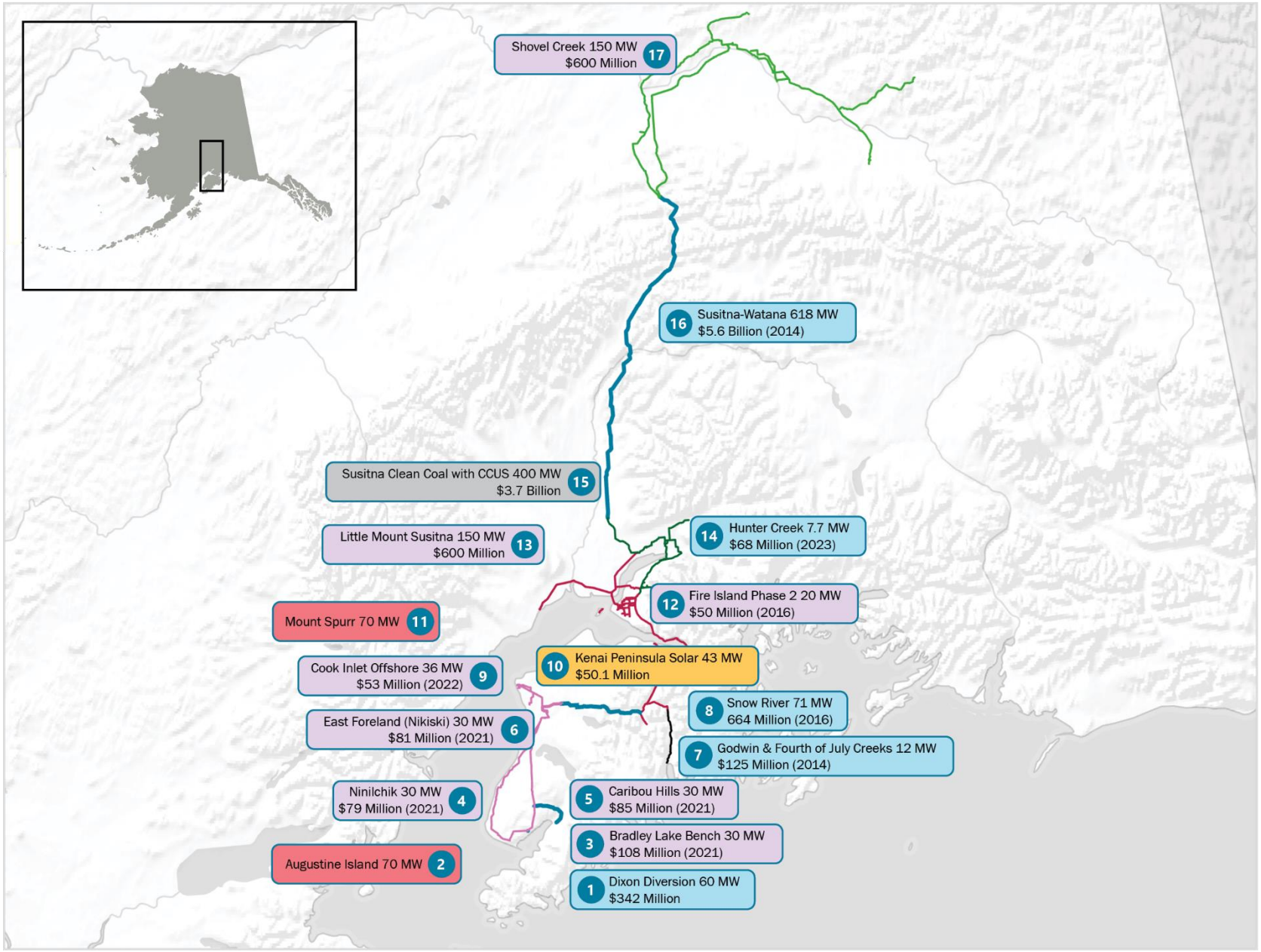
*Expansion or upgrade
**New project

Acronyms

BESS: Battery Energy Storage System
SVC: Static Var Compensator
XMFR: Transformer

Legend

- Alaska Energy Authority
- Chugach Electric Association
- Copper Valley Electric Association
- Golden Valley Electric Association
- Homer Electric Association
- Matanuska Electric Association
- Seward Electric System
- In Progress



Clean Energy Projects

1. Dixon Diversion Hydroelectric
2. Augustine Island Geothermal
3. Bradley Lake Bench Wind Farm
4. Ninilchik Wind Farm
5. Caribou Hills Wind Farm
6. East Foreland (Nikiski) Wind Farm
7. Godwin & Fourth of July Creeks Hydroelectric
8. Snow River Hydroelectric
9. Cook Inlet Offshore Wind
10. Kenai Peninsula Solar
11. Mount Spurr Geothermal
12. Fire Island Wind Phase 2
13. Little Mount Susitna Wind
14. Hunter Creek Hydroelectric
15. Susitna Clean Coal with Carbon Capture, Utilization & Storage
16. Susitna-Watana Hydroelectric
17. Shovel Creek Wind

Legend

- Geothermal
- Hydroelectric
- Storage
- Solar
- Wind
- Clean Coal
- Alaska Energy Authority
- Chugach Electric Association
- Copper Valley Electric Association
- Golden Valley Electric Association
- Homer Electric Association
- Matanuska Electric Association
- Seward Electric System

Bradley Lake Hydroelectric Project

- Energized in 1991, the Bradley Lake Hydroelectric Project is **Alaska's largest renewable energy source**. It is located 27 air miles northeast of Homer.
- The 120-megawatt facility provides **low-cost energy to over 550,000** people on the Railbelt.
- Bradley Lake's **annual energy production** is ~10 percent of Railbelt electricity at 4.5 cents/kWh (or ~54,400 homes/year) and over $20 million in savings per year for Railbelt utilities from Bradley Lake versus natural gas.
- AEA, in partnership with Railbelt utilities, **is studying the Dixon Diversion Project**, which would increase the annual energy production of Bradley Lake by 50 percent (the equivalent of up to 30,000 homes).

$342 Million (AEA bonds anticipated)
FY2026 Request - $6.5 million

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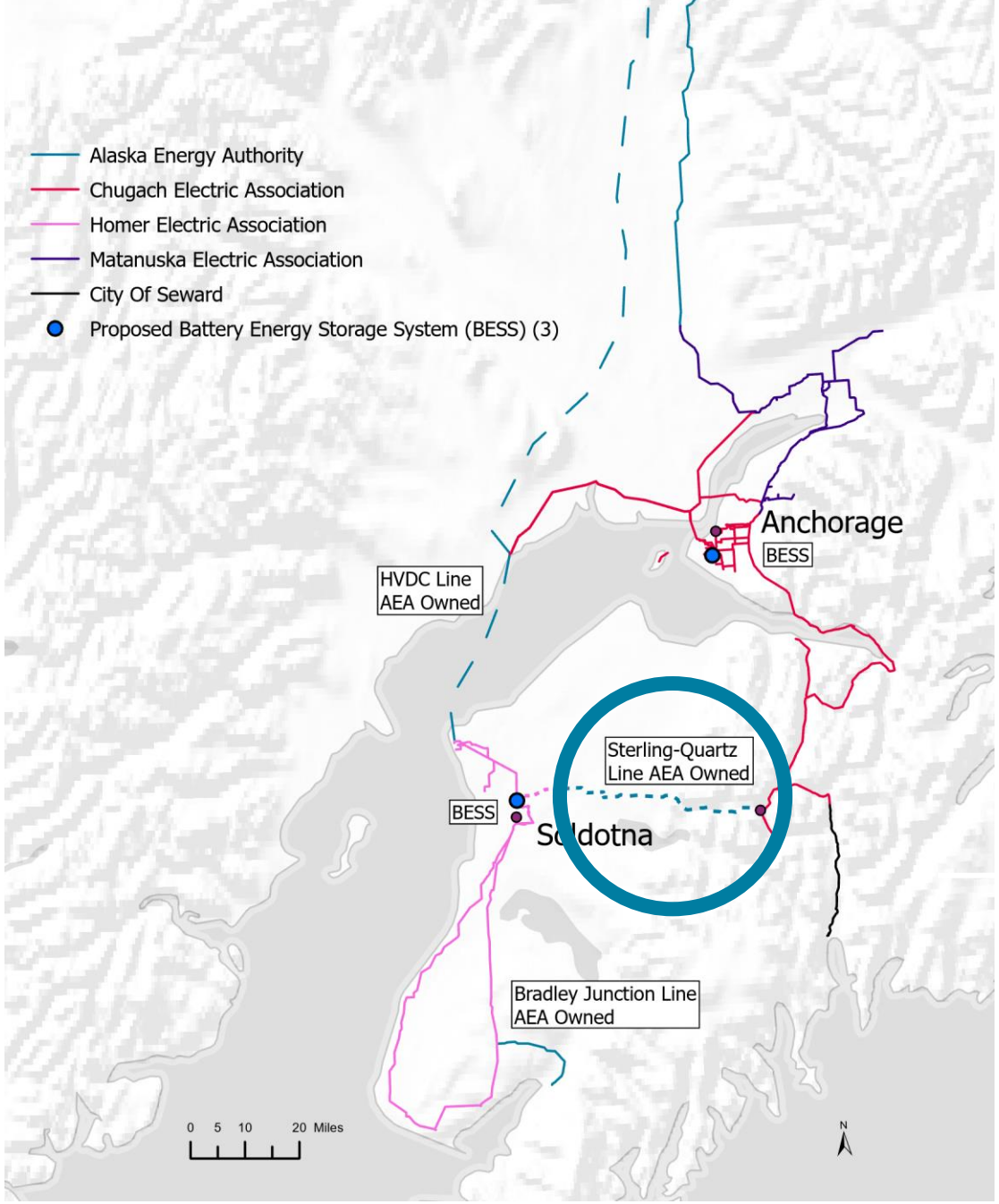
Dixon Diversion Project

AEA is studying the Dixon Diversion Project to optimize the Bradley Lake Hydroelectric Project's energy potential. Like the West Fork Upper Battle Creek Diversion Project, the Dixon Diversion Project would divert water from Dixon Glacier to increase Bradley Lake's annual energy production by 50 percent.

- Located five miles from Bradley Lake and would utilize existing powerhouse at Bradley Lake
- Estimated annual energy 100,000-200,000 MWh (the equivalent of up to 30,000 homes)
- Estimated to offset 1.5 billion cubic feet of natural gas per year in Railbelt power generation (equal to 7.5 percent of Alaska's unmet natural gas demand projected for 2030)
- Estimated completion is 2030



$90 Million (Under Construction; AEA Bonds Existing)

Sterling to Quartz (SSQ) and Soldotna to Sterling Transmission Lines

In 2020, AEA acquired the SSQ Transmission Line, 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, reduce line losses, increased reliability, and more timely repairs and upgrades.
- **Status –** 69 kV line decommissioned and removed; engineers are designing and are procuring equipment for the upgrade of the existing 115 kV line to 230 kV. Construction has started on first section.
- **Cost –** Estimated cost to upgrade line is $90 million for the SSQ transmission line and Sterling to Soldotna transmission line.

$413 Million (Match of $62.7 Million Secured; $143.8 Million Future Need)
FY2026 Request - $1.5 Million

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Grid Resilience and Innovation Partnerships (GRIP): HVDC Line

AEA secured $206.5 million for GRIP Topic Area 3: Grid Innovation through the U.S. Department of Energy's Grid Deployment Office. A cost share of 100 percent, or $206.5 million, is required for a total project amount of $413 million. The project includes constructing high-voltage direct current (HVDC) submarine cables as a parallel transmission route from the Kenai Peninsula to Anchorage.

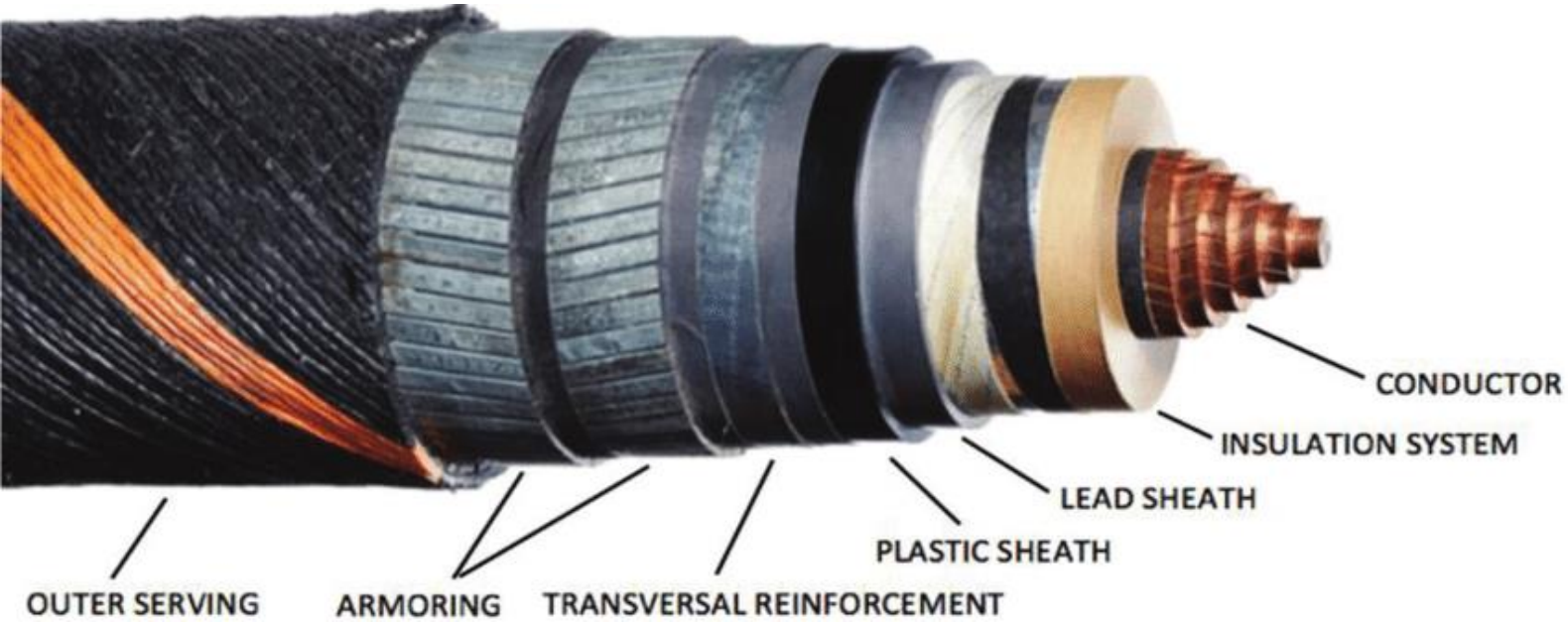
The project addresses several challenges facing Alaska's Railbelt regions:

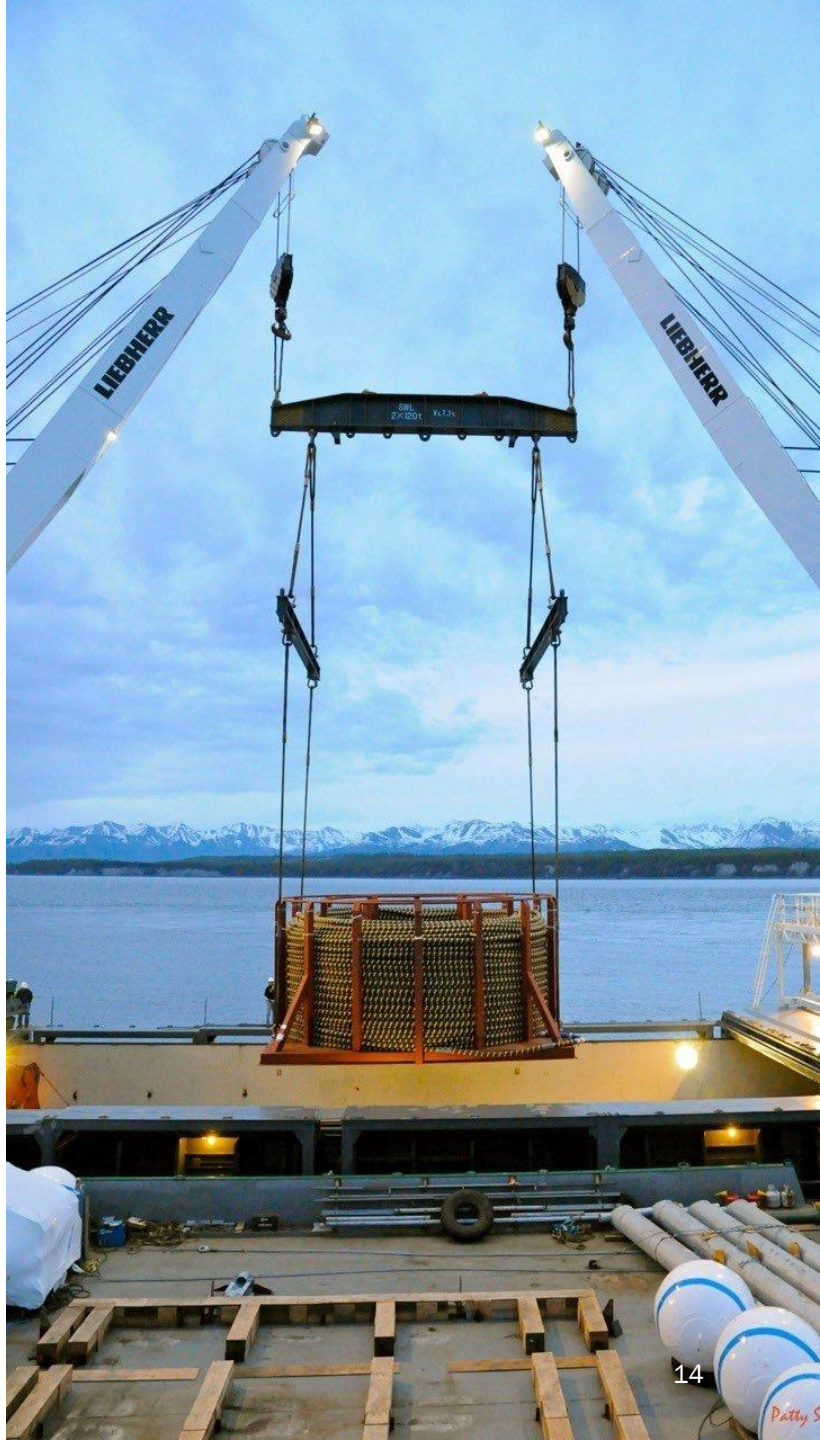
- Provides a **redundant pathway** between the Southern (Kenai Peninsula) and Central (Anchorage and Mat-Su) Regions
- Eliminates the **single-point-of-failure** inherent in the previous system (the system will still be subject to single point of failure between Willow and Healy)
- Allows for **more renewable power** to be added to the grid and distributed across the Railbelt
- **Increases the ability to share power** between the Southern, Central, and Northern Regions of the Railbelt, allowing the most economical power to be used at all times

Submarine Power Cable's Attributes

Submarine power cables are designed for the transport of electric energy under the sea.

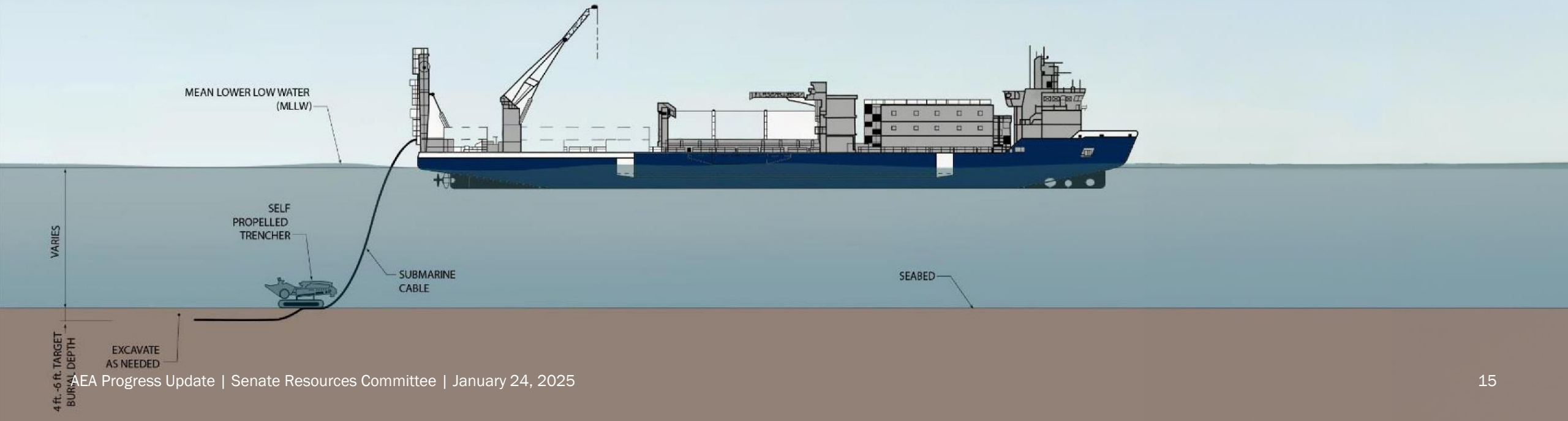
- Outside diameter – 4.5"
- Weight per foot – 20 lbs. with standard armor (may spec for Cook Inlet)
- Length is about 35 miles under water
- Estimated lifespan is 50 years





Schedule

- **The statutory period for the project is eight (8) years and the construction schedule below is based on a design-bid-build process — a traditional project delivery method that consists of three distinct phases in sequence:**
  - **September 2024 –** Award
  - **First Quarter 2025 –** Preliminary Engineering & Schedule
  - **Second Quarter 2026 –** Commence Full Design and Permitting
  - **July 2027 –** Complete National Environmental Policy Act (NEPA) Process
  - **January 2028 to December 2029** – Long Lead Items
  - **January 2030 to December 2031** – Construction



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 $30 million annually**.
- The Intertie provides benefits to Southcentral customers as well through **cost savings and resilience to unexpected events**.

$28 Million to Utilities

Battery Energy Storage Systems (BESS) for Grid Stabilization

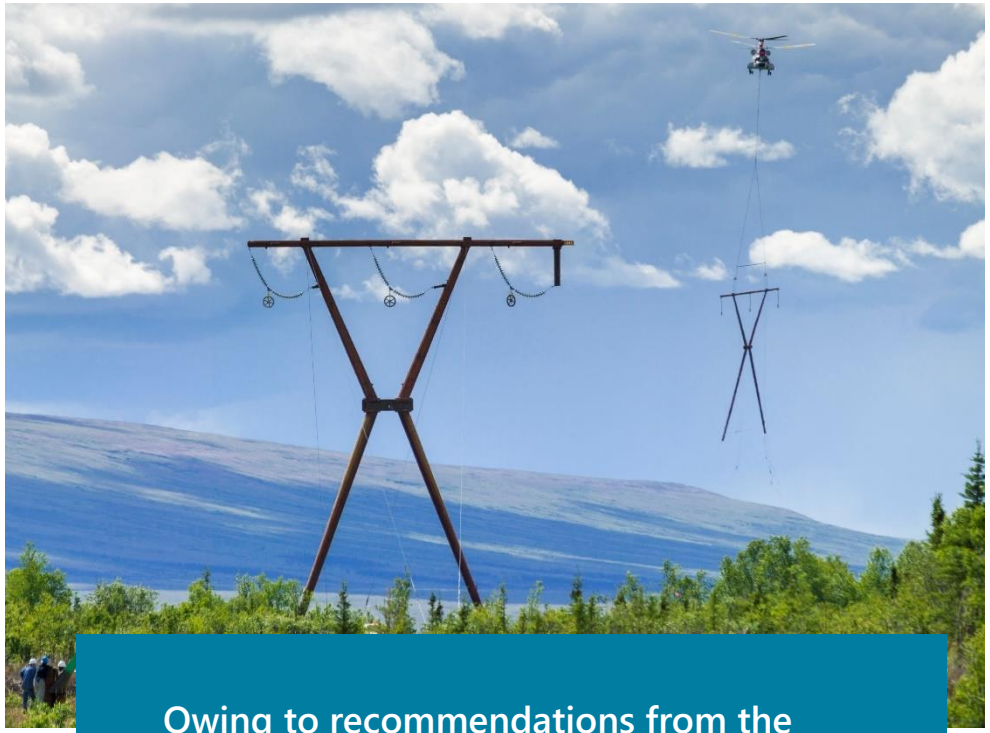
- **Scope –** The BESS projects consist of an upgrade to the existing BESS system in the North, and new BESS systems in the Southern, and Central regions of the grid. The Northern BESS is located at Fairbanks, the Southern BESS is located in Kenai, the Central Region BESS will be located at Anchorage. 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.

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

- **Schedule –** Estimated completion date is 2026:
  - Southern (Kenai) – In service
  - Central (Anchorage) – October 2024
  - Northern (Fairbanks) – To be determined

- **Budget –** $28 million in services to dampen oscillation

Railbelt Transmission Organization (RTO)



Owing to recommendations from the governor's Alaska Energy Security Task Force concerning the elimination of transmission wheeling charges and the establishment of a RTO, the Legislature passed House Bill 307, which was signed into law on July 31, 2024. Under the law, the RTO is a division of AEA.

- The RTO operates through its governance committee comprised of a representatives from AEA, each Railbelt utility, and the Railbelt Reliability Council (as an ex officio non-voting member).
- Since the signing of House Bill 307, the RTO has held five public meetings, established a charter, and adopted bylaws modeled after the Bradley Lake Project Management Committee.
- The RTO submitted an application for a certificate of public convenience and necessity (CPCN) and a petition for waivers with the Regulatory Commission of Alaska (RCA) on December 20th, in advance of the January 1st statutory deadline. The RCA will rule on the petition for waivers and determine whether the application is complete by February 18th.
- By July 1, 2025, the RTO shall file with the RCA a nondiscriminatory open access transmission tariff that provides for the recovery of Railbelt backbone transmission costs and related ancillary services, and replaces wheeling charges with a new mechanism that fairly recovers and equitably allocates the costs of operating the backbone system.

Thank You

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