ALASKA ENERGY AUTHORITY

AEA OVERVIEW PRESENTATION

Curtis W. Thayer
Executive Director

City of Seward
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ENERGY
AUTHORITY

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.

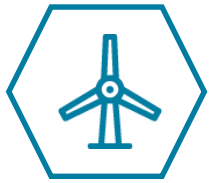
Railbelt Energy – AEA owns the Bradley Lake Hydroelectric Project, the Alaska Intertie, and the Sterling to Quartz Creek Transmission Line — all of which benefit Railbelt consumers by reducing the cost of power.

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.

AEA Active Projects and Services

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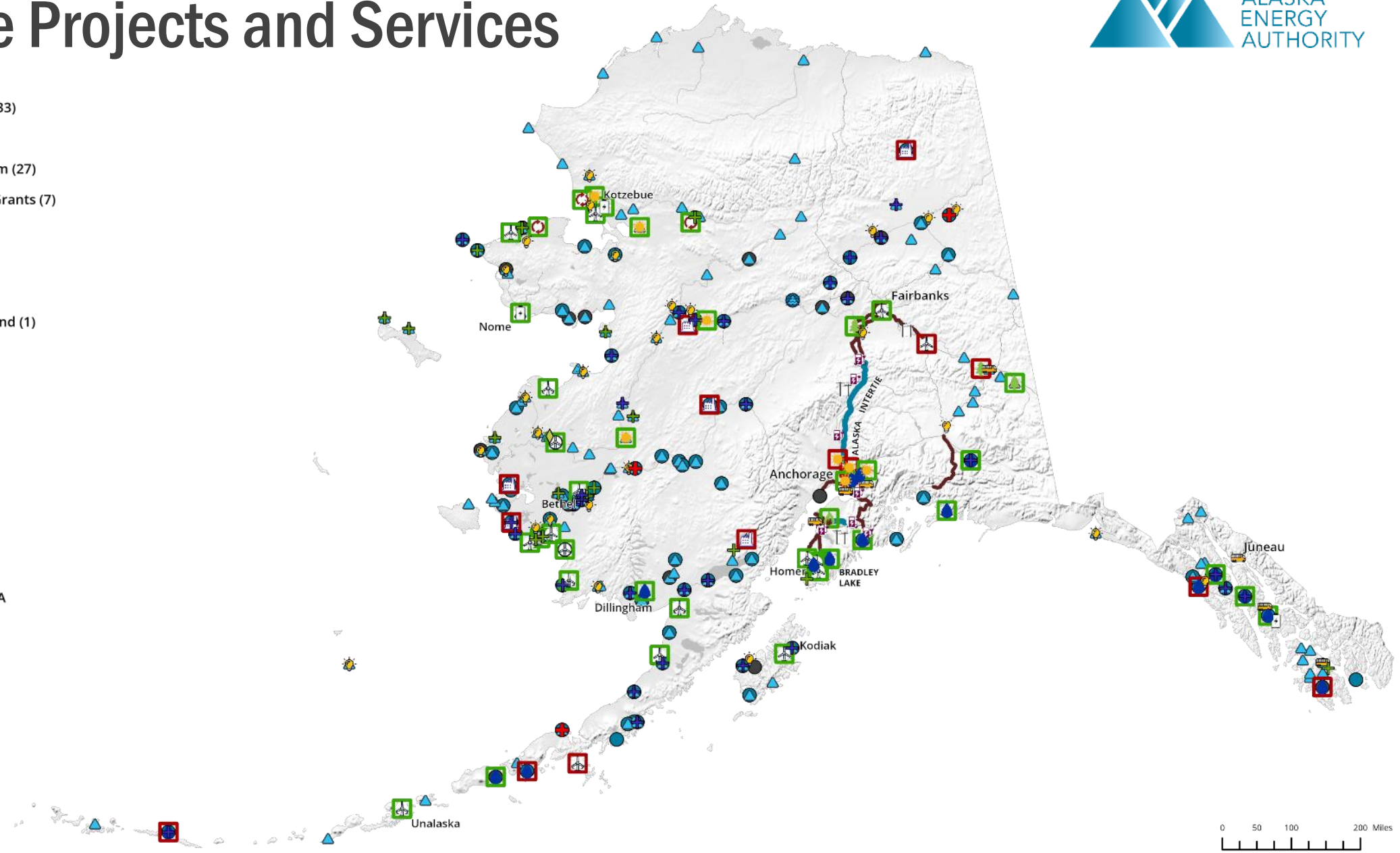
- Rural Power System Upgrades (33)
- Bulk Fuel Upgrades (25)
- Village Energy Efficiency Program (27)
- Volkswagen Diesel Settlement Grants (7)
- Biogas (1)
- Biomass (4)
- Diesel (6)
- Emerging Energy Technology Fund (1)
- Electric Vehicles (9)
- Heat Recovery (3)
- Hydroelectric (18)
- Hydrokinetic (1)
- Solar (8)
- Storage (3)
- Transmission (3)
- Wind (21)
- Transmission Line owned by AEA
- Other Transmission Line
- Power Project Fund (16)
- Renewable Energy Fund (44)
- PCE Communities (193)
- Emergency Assistance (3)
- Circuit Rider Assistance (93)
- Utility Training (81)



CAPACITY

120MW

Bradley Lake generators are rated to produce up to 120 MW of power.

ENERGY

10%

Bradley Lake generates about 10 percent of the total annual electrical energy used by Railbelt electric utilities.

GENERATION COST PER KWH

$0.04

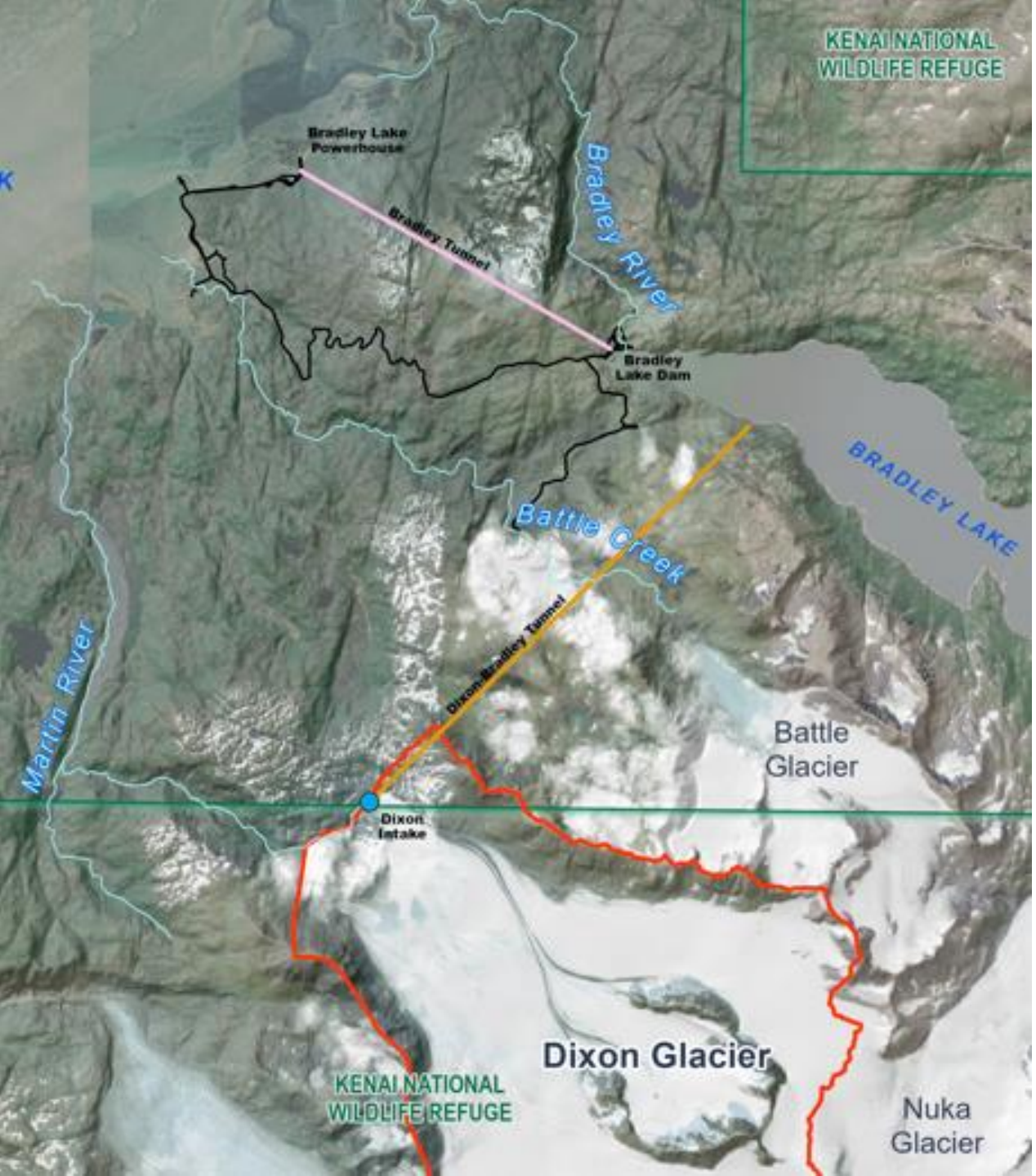
From 1995 through 2020, the project averaged 392,000 MWh of energy production annually at $0.04 per kWh.

Bradley Lake Hydroelectric Project

- Bradley Lake is **Alaska's largest source of renewable energy**. Energized in 1991, the project is situated 27-air miles northeast of Homer on the Kenai Peninsula.
- The 120 MW facility provides **low-cost energy to 550,000+** members on the Railbelt.
- Bradley Lake's **annual energy production** is ~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.
- AEA, in partnership with the Railbelt utilities, **is studying the Dixon Diversion Project** which would increase the annual energy production of Bradley Lake by 50% — or the equivalent of 14,000-28,000 homes.

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
Seward Electric System.



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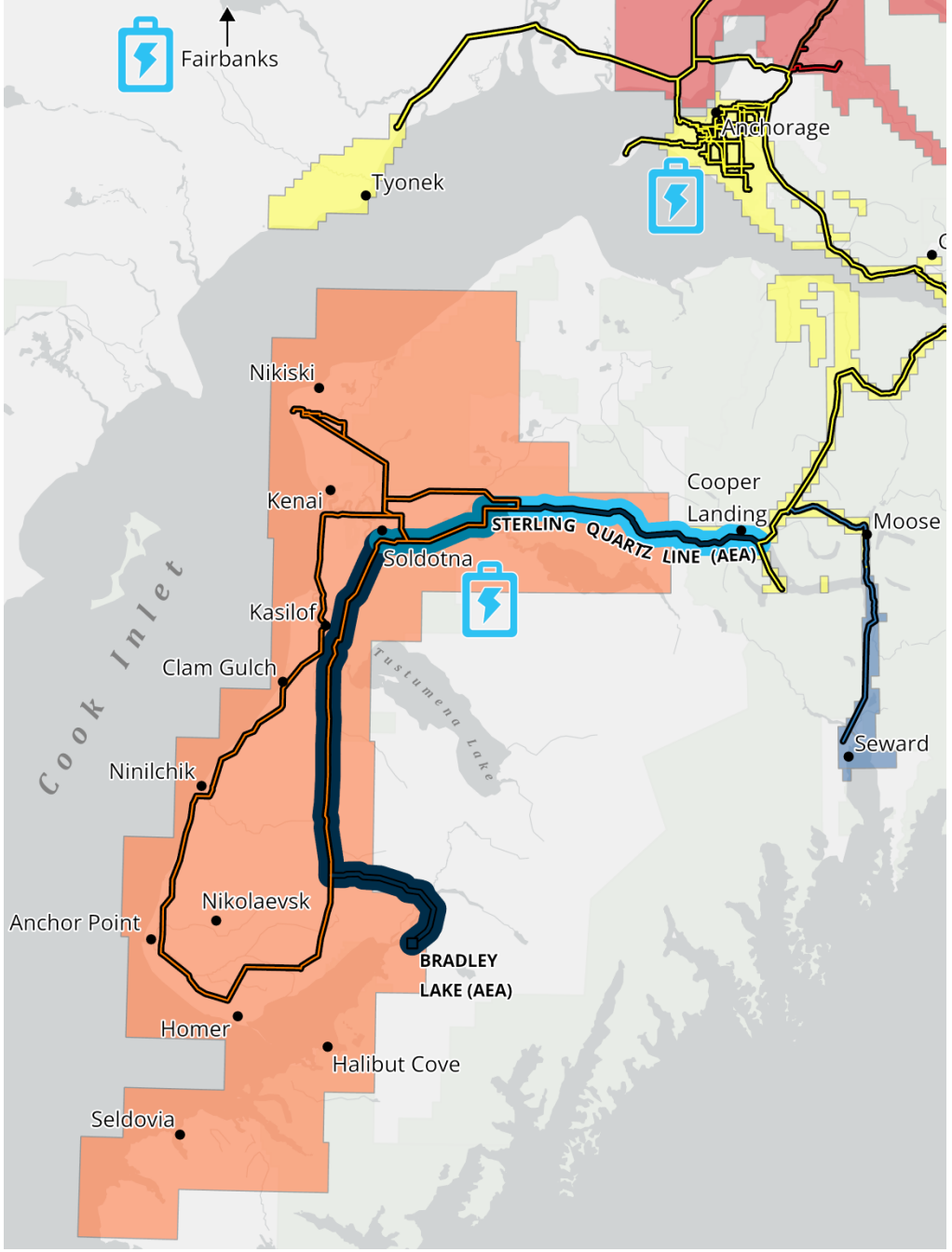
Dixon Diversion Project

The proposed Dixon Diversion Project would increase energy from Bradley Lake Hydroelectric Project 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)



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Transmission Upgrades and Battery Storage

AEA and the Railbelt utilities closed on **$166 million in bond financing** to improve the efficiency and deliverable capacity of power from the Bradley Lake Hydroelectric Project. **The bonding comes at no additional cost to ratepayers or burden on the State treasury**.

- Upgrade transmission line between **Bradley Lake and Soldotna** Substation
- Upgrade transmission line between **Soldotna Substation and Sterling** Substation
- Upgrade transmission line between **Sterling Substation and Quartz Creek** Substation
- **Battery Energy Storage Systems** for Grid Stabilization

These projects will reduce constraints on the Railbelt by improving the Kenai Peninsula's transmission capacity to export power from Bradley Lake — and allow for the integration of additional renewable energy generation.

IIJA Competitive: Grid Resilience and Innovation Partnerships (GRIP)

To enhance the power system's resilience to extreme weather and climate change, the Grid Deployment Office is administering a $10.5 billion GRIP program under the Bipartisan Infrastructure Law.

1) Railbelt Backbone Reconstruction Project
$100 Million*
(Requested of DOE; submitted April 5, 2023)

2) Battery Energy Storage/HVDC Coordinated Control
$16 Million*
(Requested of DOE; submitted March 16, 2023)

3) Railbelt Innovation Resiliency Project)
$299 Million*
(Due May 19, 2023)

3) Rural Alaska Microgrid Transformation
$250 Million*
(Due May 19, 2023)

*All four GRIP programs are in application phase.

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

ALASKA ENERGY AUTHORITY

Alaska Energy Authority

813 W Northern Lights Blvd.
Anchorage, AK 99503

Main: (907) 771-3000
Fax: (907) 771-3044

akenergyauthority.org

@alaskaenergyauthority

@alaskaenergyauthority