Alaska's Electric Utilities: Powering The Last Frontier

An Overview

By Michael Rovito
Deputy Director
Alaska Power Association

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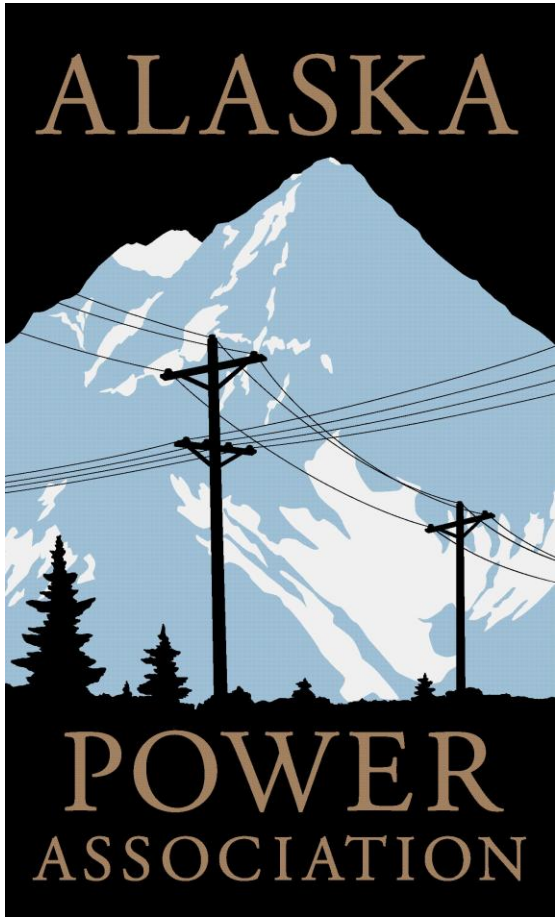
Alaska Power Association



Alaska Power Association is dedicated to assisting our members in accomplishing their goals of delivering electric energy and other services at the best value to their customers.

APA's Electric Utility Members

- Alaska Village Electric Cooperative
- Barrow Utilities and Electric Cooperative
- Chugach Electric Association
- City of King Cove
- Copper Valley Electric Association
- Cordova Electric Cooperative
- Golden Valley Electric Association
- Homer Electric Association
- INN Electric Cooperative
- Inside Passage Electric Cooperative
- Ketchikan Public Utilities
- Kodiak Electric Association
- McGrath Light and Power
- Metlakatla Power and Light
- Tanana Power Company
- TDX Power
- Kotzebue Electric Association
- Matanuska Electric Association
- Middle Kuskokwim Electric Co-op
- Naknek Electric Association
- Nome Joint Utility System
- Nushagak Cooperative
- City of Seward
- Southeast Alaska Power Agency
- Unalakleet Valley Electric Cooperative
- City of Unalaska
- Alaska Electric Light and Power
- Alaska Power and Telephone
- Doyon Utilities
- Purvurnaq Power Company
- Tanalian Electric Cooperative

Alaska's Electric Utilities: Powered by Alaskans

- Alaska's electric utilities serve the people. Their mission is crucial to the economy and life in general.
- Utility leadership lives in the communities and has a vested interest in seeing their communities succeed.
- Every utility in APA's membership is working hard to diversify its generation and increase their sustainability.
- Electric utilities have a responsibility to carefully manage the power grid, and they make decisions deliberately with safety, reliability, and costs in mind.

Alaska’s Electric Utilities: Different Types of Structures

COOPERATIVE: MEMBER-OWNED AND GOVERNED, NOT-FOR-PROFIT ELECTRIC UTILITY.

MUNICIPAL ELECTRIC UTILITY: OWNED AND OPERATED BY A LOCAL GOVERNMENT. ALSO, NOT-FOR-PROFIT.

INVESTOR-OWNED UTILITY: A FOR-PROFIT ELECTRIC UTILITY TYPICALLY OWNED BY A PRIVATE COMPANY OR PUBLICLY TRADE CORPORATION.

TRIBAL-OWNED ELECTRIC UTILITY: AN ELECTRIC UTILITY THAT IS OWNED AND OPERATED BY A TRIBAL GOVERNMENT OR A TRIBAL ORGANIZATION.

JOINT ACTION AGENCY: COLLABORATION OF PUBLIC UTILITIES TO DESIGN, FINANCE, BUILD, OPERATE, AND MAINTAIN POWER GENERATION AND TRANSMISSION FACILITIES.

By the Numbers

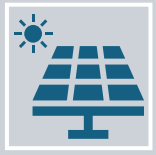
More than 90 percent of Alaskans receive their power from a not-for-profit cooperative, municipal utility, or a tribally-owned utility.

Compared to the lower 48 with only 28 percent of power produced through cooperative, municipal, or tribal utility (72 percent from IOUs) *EIA Data

Alaska’s Unique Electric Systems

Alaska has a unique electric grid system due to its vast and sparsely populated geography. There are more than 150 islanded, stand-alone electrical grids serving rural villages.

The largest transmission grids are in Southeast Alaska and the Railbelt. Although these serve a vast majority of Alaskans, they are significantly smaller than grids in the rest of the country and are all islanded.



Due to the state’s electric reality, utilities are pioneers in microgrid operation and technological innovation. From batteries to renewables to time-tested operational expertise in harsh unforgiving conditions.

Generation Sources Across Alaska

Natural Gas
47%

Hydropower
26%

Petroleum
(diesel,naptha)
13%

Solar
>1%

Wind
2%

Coal
11%

Source: Energy Information Administration

Potential Future Generation Sources

Micronuclear

Tidal

Other Hydrokinetic

Geothermal

Biomass

Something we haven't heard of yet…

Alaska's Electric Utilities Continue to Diversify

- Diversification of electric systems has been underway for some time.
- Rural and Railbelt utilities are integrating solar, wind, batteries and looking at other clean energy sources in ways that are technically and economically feasible.
- Diversification can lead to increased energy security.
- Diversification Projects consist of both utility-built and electricity purchased from independent power producers (IPPs).
- *Focus on reliability, economic, and technical feasibility.*
- Important to note – renewable energy is not always a cheaper alternative.

Considerations for Integrating Renewables

- It's more complicated than just putting up wind and solar.
- Electric utilities must consider:
  - Grid stability and reliability – Ensuring intermittent resources don't upset the balance of the grid.
  - Infrastructure upgrades – Enhancing transmission lines and other grid management systems.
  - Energy Storage – Manage variability and storage of excess energy.
  - Economic considerations – Cost of integrating renewables, backing up intermittent renewables with base load power and the cost of new infrastructure, etc.
- Baseload Power = the minimum level of continuous power required to meet the constant demand for electricity on the grid.

Alaska Powerline Podcast – May 2, 2024, episode
Understanding the Challenges of Variable Energy

Renewable Energy Fund (REF)

- State grant program designed to reduce and stabilize energy costs through the development of renewable energy projects.
- APA supports full funding of the grant program in the FY26 budget.
- 2023 Report findings (AEA):
  - 60% of grants used to support the creation of a new project.
  - 90% of grants used for fuel displacement purposes.
  - 94% of grants have achieved this goal.
  - Offset approx. 85 million gallons of diesel fuel.
- REF grants lower impact on rates and can help advance projects quicker.

Alaska’s Rural Electric Utilities

Alaska’s Rural Electric Utilities

- Alaska’s rural utilities are the most isolated in the United States.
- This makes reliability even more crucial.
  - For most rural communities, there is no neighbor to draw power from in an emergency.
- Rural utilities often rely on diesel generators due to their lack of connection to larger grids.
- Ongoing efforts to integrate renewable resources like wind, solar, hydropower, and batteries to reduce dependence on diesel.

Rural Utilities Challenges and Opportunities

Challenges:

- High cost of fuel and transportation, especially in remote areas.
- Harsh weather conditions and geographic isolation.
- Lack of interconnection.
- Small ratepayer base.

Opportunities:

- Dedicated and talented workforce putting solutions into play.
- Federal and state investment in infrastructure.
- Technologies becoming more feasible in rural communities.
- Preservation and continuation of Power Cost Equalization Program.
- Seeing more collaboration with other entities now in the energy space.
- More relationships with IPPs.

Power Cost Equalization

“The Monetary Infrastructure for Rural Alaska”

- Economic Assistance - The PCE program provides economic assistance to rural communities where the cost of electricity can be three to five times higher than in urban areas.
- Sustainability - By lowering electricity costs, the program helps ensure the sustainability of remote economies that depend on reliable, centralized power.
- Continued Support - The PCE program remains a critical component of Alaska's energy strategy, supporting rural communities and promoting economic stability.

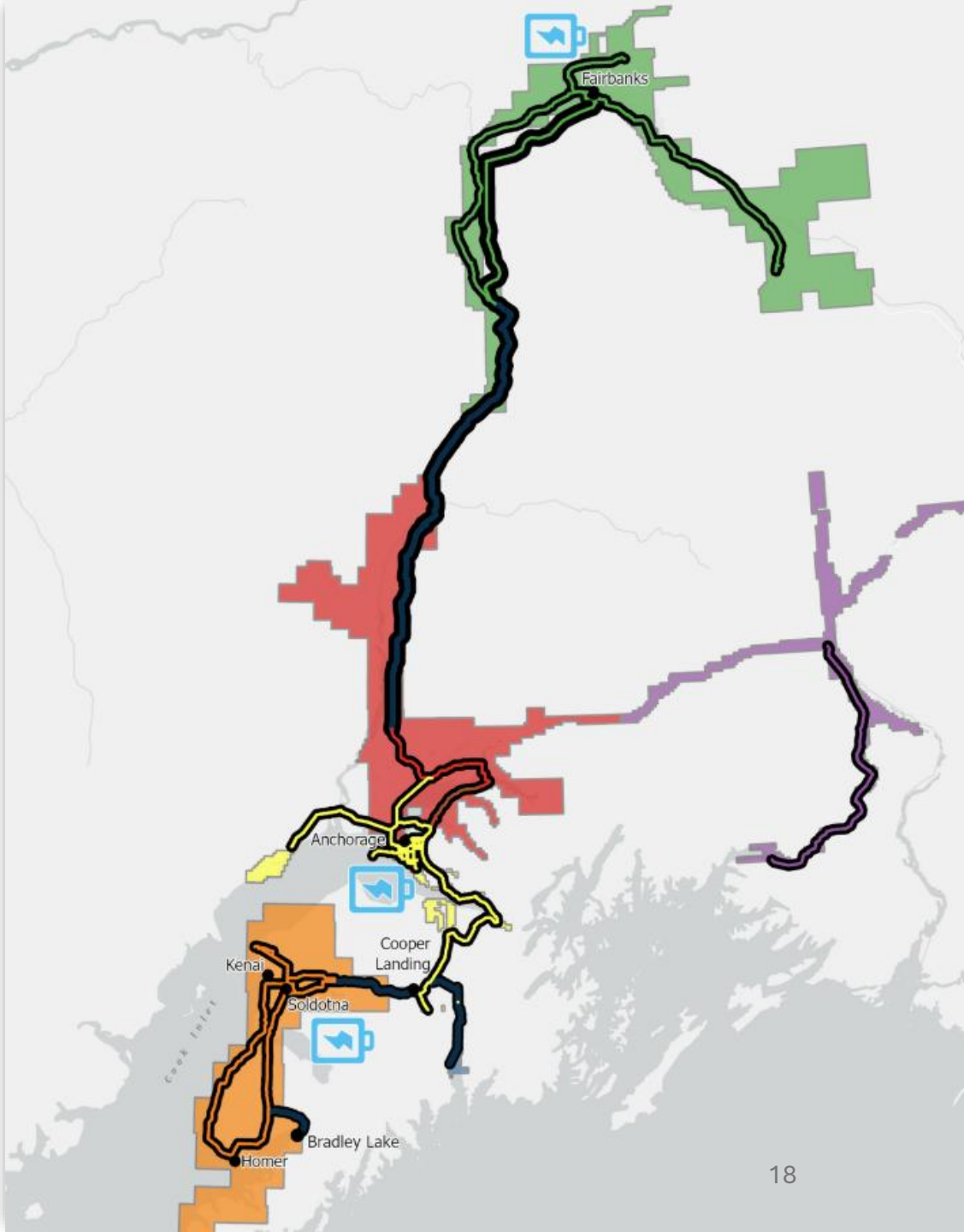
Railbelt Electric Utilities

- Four cooperatives and one municipal utility
  - Golden Valley Electric Association, Matanuska Electric Association (the oldest co-op), Chugach Electric Association (the largest co-op/electric utility), Homer Electric Association, City of Seward
- Incorporated as co-ops in the 1940s.
- The Railbelt serves about 75 percent of Alaska’s population.
- The grid is a mix of energy sources:
  - Natural gas
  - Hydropower – Bradley Lake provides 10% of Railbelt electricity
  - Solar
  - Wind
  - Diesel
  - Coal

Railbelt Electric Utilities

- Working with Alaska Energy Authority to upgrade and modernize the Railbelt transmission system.
  - This is crucial for maximum use of large-scale energy projects.
- Working with IPPs to add diverse energy options.
- Constructing community solar projects to allow more Alaskans to invest in solar energy.
- Railbelt energy costs impact PCE rate for rural communities.

Above all – keeping safety, reliability, and costs paramount.

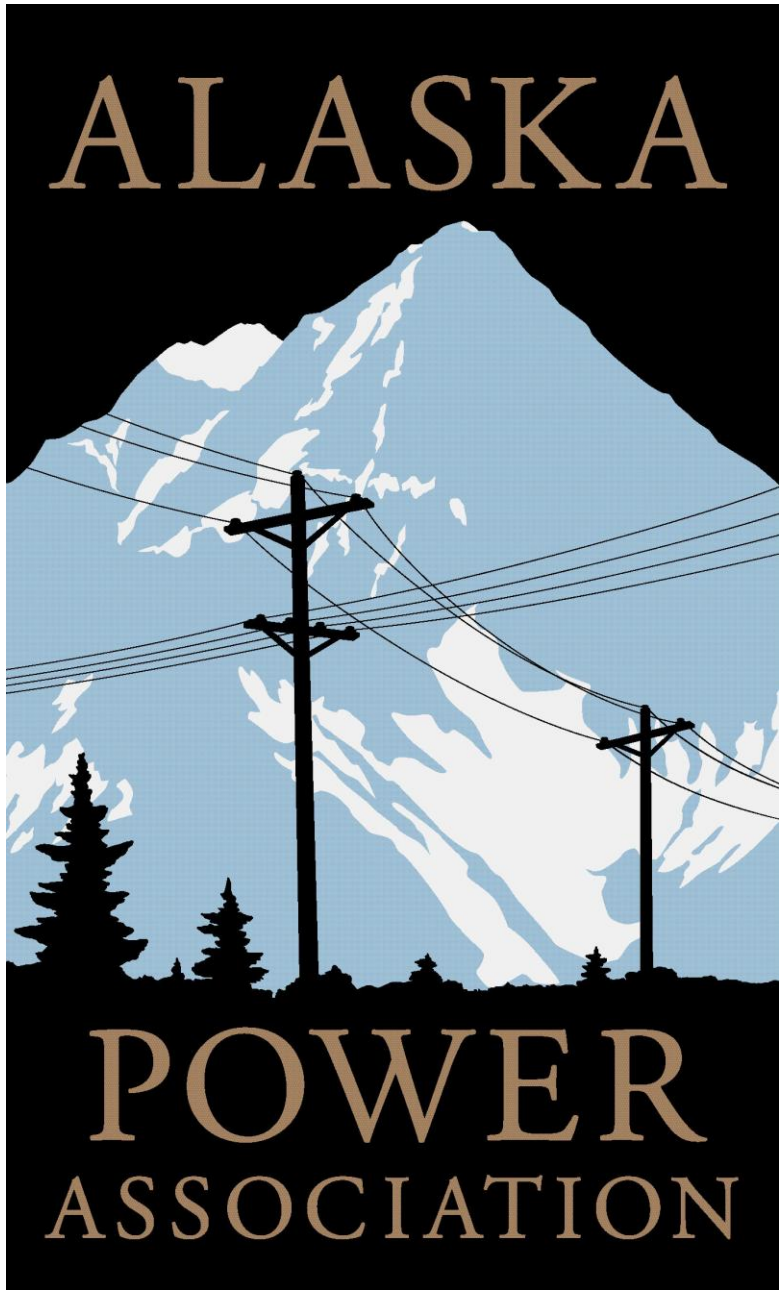


The importance of an unconstrained transmission system

- Electric utilities across the country are working to upgrade their transmission grids.
  - **Increased Capacity**: Upgrading the grid allows for the integration of more renewable energy sources, which are often located far from where the power is needed, and increases the ability to transfer electricity from one area of the grid to another in a reliable manner.
  - **Grid Flexibility**: Modernized grids can better handle the variability and intermittency of renewable energy, ensuring a stable supply.
  - **Continuous Power Supply**: Redundancy ensures that there are multiple pathways for electricity to flow, so if one path fails, others can take over, reducing the risk of outages.
  - **Resource Efficiency:** Allows for a more effective use of resources to reduce costs and use of limited and often expensive fossil fuels.
- Investment in upgrading the transmission infrastructure of the Railbelt will lead to more opportunities for diversification and energy security.

How can the legislature help?

- Do not take any solutions off the table.
- Work closely with electric utilities to craft legislation that promotes reliability and affordability.
- State should be an investment partner on electric infrastructure upgrades.
- While electric utilities have the same mission, they face different circumstances.
  - It is important to consider the unique aspects of individual utilities when writing legislation.



Thank you!

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www.alaskapower.org