PUMPED HYDRO

Bryan Carey, P.E.
Hydroelectric Manager
Alaska Energy Authority

Department of Energy
Office of Indian Energy
November 12, 2020
WHO WE ARE

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

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.

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.


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

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

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.
State is agnostic toward selecting energy storage technology
State does not tip the scale toward a method
Utilities will initiate energy storage technology
AEA will engage with stakeholders and facilitate discussions or assist with government actions
PUMPED HYDRO CONSIDERATIONS

- Cost
  - High construction cost in Alaska
  - High operating cost
PUMPED HYDRO CONSIDERATIONS

- Renewable requirement
PUMPED HYDRO CONSIDERATIONS

- System flexibility
Location

- Preferred location near existing transmission and roads
- High valley
- Bedrock chokepoint
- Wide low gradient valley floor or lake upstream of dam location
- Close to resource to provide power to the pumps
AEA provides energy solutions to meet the unique needs and opportunities of Alaska’s rural and urban communities.