

AP/AL: Appropriation **Project Type:** Energy
Category: Development
Location: Statewide **House District:** Statewide (HD 1-40)
Impact House District: Statewide (HD 1-40) **Contact:** Curtis Thayer
Estimated Project Dates: 07/01/2021 - 06/30/2026 **Contact Phone:** (907)771-3000

Brief Summary and Statement of Need:

This project is for the development of alternative energy research, resource assessments, feasibility studies, regulatory and permitting issues, outreach, stakeholder involvement and other project development needs for alternative energy and energy efficiency programs. This is a request for federal receipt authority only; match is not requested at this time.

| Funding: | FY2022 | FY2023 | FY2024 | FY2025 | FY2026 | FY2027 | Total |
|-----------------|--------------------|---------------|---------------|---------------|---------------|---------------|--------------------|
| 1002 Fed Rcpts | \$5,000,000 | | | | | | \$5,000,000 |
| Total: | \$5,000,000 | \$0 | \$0 | \$0 | \$0 | \$0 | \$5,000,000 |

| | | | | |
|--|---|---------------------------------------|---|---|
| <input checked="" type="checkbox"/> State Match Required | <input type="checkbox"/> One-Time Project | <input type="checkbox"/> Phased - new | <input type="checkbox"/> Phased - underway | <input checked="" type="checkbox"/> Ongoing |
| 20% = Minimum State Match % Required | | <input type="checkbox"/> Amendment | <input type="checkbox"/> Mental Health Bill | |

Operating & Maintenance Costs:

| | <u>Amount</u> | <u>Staff</u> |
|----------------------|---------------|--------------|
| Project Development: | 0 | 0 |
| Ongoing Operating: | 0 | 0 |
| One-Time Startup: | 0 | 0 |
| Totals: | 0 | 0 |

Prior Funding History / Additional Information:

Sec1 Ch16 SLA2013 P4 L11 SB18 \$2,000,000
 Sec1 Ch17 SLA2012 P6 L3 SB160 \$4,800,000
 Sec7 Ch43 SLA2010 P20 L24 SB230 \$8,000,000

The ability to receive federal funding from AEA’s federal partners such as, but not limited to the Denali Commission, USDOE, and USDA, is imperative for the continued development of alternative energy fields specific to Alaska.

The alternative energy work conducted with these funds strongly supports the success of the Renewable Energy Fund and supports achieving the 50% renewable energy goal as well as the 25% reduction in energy usage through efficiency measures.

Project Description/Justification:

The Alternative Energy and Energy Efficiency (AEEE) programs provide critical support for communities interested in developing renewable energy and efficiency projects. This capital project provides funds for reconnaissance level studies, feasibility analysis to help identify project locations as well as technical assistance and support for utilities and communities interested in developing cost effective renewable and efficiency projects. It is the most cost-effective way identified to establish base-line information of a resource area and support the development of stably priced, cost-effective energy in Alaska.

In addition to providing a “pipeline” of qualified projects to grant programs, including the Renewable Energy Fund and state loan programs, including the Power Project Fund, this program removes barriers and solves problems in each of the different renewable energy technology types. Each program area (biomass, wind, heat recovery, hydroelectric, solar, and geothermal) works on statewide resource assessments, regulatory and permitting issues, outreach and stakeholder involvement in order to advance cost-effective renewable energy in Alaska.

The AEEE programs provide a foundation of support that is critical to the proper development of renewable energy technologies in Alaska. Each of the renewable technology areas and efficiency have a working group facilitated by AEA that supports the proper application of their technology in both urban and rural communities in the state. These general funds will support the continuation of the programs.

The AEEE program includes the following focuses and projects:

Biomass: AEA's biomass energy program focuses on exploring opportunities to increase utilization of wood for energy production throughout the state. The program provides technical assistance, project management, and funding to develop wood-fired systems that displace fuel oil for heating public facilities. AEA works closely with U.S. Forest Service, the Denali Commission, nonprofits, project champions, and local land managers to ensure the development of high-quality projects with sustainable harvest plans that create local jobs and save the communities money.

Commercial Property Assessed Clean Energy (C-PACE): The Commercial Property Assessed Clean Energy, or C-PACE, program under AEA leadership seeks initial adoption in Anchorage, Fairbanks, and Juneau of a funding vehicle whereby owners of commercial property can obtain financing for the purpose of improving a building's energy efficiency. AEA is presently a grant recipient under a U.S. Department of Energy program and is engaged in the effort to help Alaska's larger cities adopt their city codes to accommodate enacted legislation promoting clean energy in order buildings.

Efficiency: AEA's energy efficiency program focuses on rural community outreach and education, public buildings, commercial buildings, and public infrastructure such as street lighting and water/sewer infrastructure. AEA's core efficiency program efforts are focused on two primary goals: 1) achieving the most cost-effective energy efficiency gain, and 2) providing services where energy costs are critically high. When funding is available, the program offers grant opportunities to qualified entities using funds received from federal, state, and private entities. It can also provide technical assistance and coordinates efforts between relevant stakeholders.

Electric Vehicles: The transportation sector is increasingly transitioning to electric vehicles (EV). There are now more options for hybrid and full EVs than ever and with the recent appearance of the electric truck Alaskans will see more EVs sharing our roadways. EVs and their charging infrastructure have the ability to bring new industries to Alaska, helping to promote our economy and save Alaskans money. Much of the country is already in a rapid transition to EVs, however, many Alaskans have identified barriers to adoption such as range anxiety, unknown performance in cold climate, and costs that prevent them from confidently making an EV their next vehicle purchase. For this reason, AEA has a mission to lead the effort to minimize barriers that inhibit EV adoption in Alaska. AEA is seeking federal opportunities to help support advancement in this area.

Energy Storage: Energy storage allows for energy from non-firm generation sources such as wind or base load thermal generation sources such as natural gas or coal to be stored for later use. The stored energy is used during periods of high electrical demand to avoid turning on additional generation units or to provide energy when the non-firm source is not generating. Energy storage can be accomplished through the use of several different technologies such as battery banks (BESS), water storage, pumped hydro, fly wheels, and compressed air.

Geothermal: Alaska has 141 volcanoes and over 100 hot springs. Many of these have potential for providing energy for agriculture, space heating, tourism, and power generation purposes. AEA has funded geothermal exploration and feasibility studies as well as ground source heat pump projects with the Renewable Energy Fund.

Heat Recovery and CHP: Combined heat and power (CHP) project development activities, including "waste" heat recovery, are supported through a U.S. Department of Energy (USDOE) cost-share program for technical assistance and project development. The State's Renewable Energy Fund and Rural Power System Upgrade programs offer construction funding to interested applicants.

Hydroelectric: Hydroelectric power project development work includes inventorying and scanning hydro feasibility reports, performing site-specific assessments of potential hydroelectric projects in partnership with communities, coordinate a small hydroelectric working group, and work with federal agencies on identifying prospective sites and coordinating the development of conventional and non-conventional hydroelectric projects. Ocean and River energy program assesses tidal, in-stream flow and wave energy resources and technology options for power production. USDOE and other federal agencies are anticipated co-funding sources through the federal Marine Energy Technology Advancement Program.

Solar: AEA provides information to Alaskans regarding solar photovoltaic system performance and economics, contractors and consultants, and analysis tools. These requests come from Alaska residents, businesses, electric utilities and public entities. In recent years AEA has contributed to the latest edition of the Solar Design Manual for Alaska and performed a technical review of the largest solar PV system in Alaska during a Power Project Fund loan application process. The rural Alaska power systems that AEA constructs often include distributed solar photovoltaic systems which must be carefully integrated with the diesel powerhouse. AEA's Renewable Energy Fund has funded several solar projects which continue to provide project performance data to AEA for analysis. As solar panel costs continue to decrease, AEA projects an increasing reliance on solar energy in Alaska, both in rural areas and on the Railbelt.

Wind: Wind energy development activities include wind resource mapping and assessment, feasibility analysis, technical assistance and training, AEA's meteorological tower loan program for onsite assessment, project siting and bird habitat impact assessment, conceptual design and technology analysis for hybrid wind-diesel systems, and evaluation of field results from operating systems required for additional federal construction funds.