

Alaska Energy Authority Energy Projects

FY2010 Request: \$31,000,000
Reference No: 38950

AP/AL: Appropriation **Project Type:** Energy
Category: Development
Location: Statewide **Contact:** Steve Haagenon
House District: Statewide (HD 1-40) **Contact Phone:** (907)771-3000
Estimated Project Dates: 07/01/2009 - 06/30/2014

Brief Summary and Statement of Need:

This request addresses multiple federally funded energy programs, including Bulk Fuel Upgrades, Rural Power Systems Upgrades, Alternative Energy and Energy Efficiency projects, renewable energy projects and the state funded energy planning project. This program contributes to the Department's mission of promoting a healthy economy and strong communities by providing economic growth in the communities it serves.

Funding:	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	Total
AK Cap Inc	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$60,000,000
Fed Rcpts	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$120,000,000
I/A Rcpts	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$3,000,000
Stat Desig	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$3,000,000
Total:	\$31,000,000	\$31,000,000	\$31,000,000	\$31,000,000	\$31,000,000	\$31,000,000	\$186,000,000

<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"/> On-Going
15% = 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

Additional Information / Prior Funding History:

Refer to the funding matrix in the detailed description.

The Alternative Energy and Energy Efficiency federally funded programs require a state match that ranges from 25% to 100%.

Project Description/Justification:

This project provides continuation funding for the Alaska Energy Authority's (AEA) long-standing energy related programs of Bulk Fuel Upgrades, Rural Power Systems Upgrades, and Alternative Energy and Energy Efficiency Projects. The funding for these programs has been predominately provided by the federal agencies of Denali Commission, U.S. Department of Agriculture – Rural Utility Services, Environmental Protection Agency, and the U.S. Department of Energy. The Alaska Energy Plan requires the development and completion of a number of significant activities. The specifics are:

(1) Bulk Fuel Upgrades: When AEA began upgrading bulk fuel tank farms, there were approximately 1100 above-ground tank farms in 171 remote villages in rural Alaska. Most of these tank farms had serious deficiencies that typically included:

- Inadequate dikes to contain fuel spills
- Inadequate foundations, which could cause gradual tank movement and fuel leakage
- Improper piping systems and joints - the most common source of fuel leaks
- Improper siting near wells, beaches, and buildings, or within a flood plain
- Tanks that are rusted or damaged beyond repair
- Electrical code violations
- Inadequate security

This program's mission is to replace these tank farms with new or refurbished facilities that meet all applicable safety and environmental codes. \$30 million is the estimated need to complete the bulk fuel upgrades for the remaining 25 communities identified on the Bulk Fuel Deficiency list.

This program began in approximately 1997 and has expanded since fiscal year 1999 with federal funding from the Denali Commission. In fiscal year 2010 AEA anticipates \$4 million in federal funds.

(2) Rural Power System Upgrades: The electric utility systems are part of the basic infrastructure of rural communities. The power plant and distribution systems in rural communities may not meet accepted utility standards for safety, reliability, and environmental protection. Due to high costs and limited economies of scale, most local communities cannot make the capital investments needed to meet accepted utility standards.

AEA gives priority to electric utility systems that have the highest need. AEA has built a detailed database of electric utility conditions and characteristics. Deficiencies of each utility have been scored with respect to generating equipment, distribution systems, powerhouse structures, and other major physical components. Rural systems are then ranked according to the level of these deficiencies. Additional criteria that are applied to the project selection process include:

- Imminent threat to health and safety
- Imminent threat of system failure during winter conditions
- Financial need based on the level of existing rates, average income, availability of other financing, and project cost compared with utility revenue
- The utility's ability to operate and maintain the facility without future state assistance or the community's willingness to join an established qualified regional utility
- Projects needed in order to meet efficiency guidelines under the Power Cost Equalization Program

Once upgraded, to ensure a thirty-year plus useful asset life, the rural utility is required to employ a qualified operator to ensure that the system is properly operated and maintained.

\$100 million is the estimated need to complete the Rural Power System Upgrades for the remaining 50 communities identified on the RPSU deficiency list. This is a long standing energy program that has expanded since fiscal year 1999 with federal funding from the Denali Commission. In fiscal year 2010 AEA anticipates \$7 million in federal funds.

(3) Alternative Energy and Energy Efficiency (AEEE) Programs: The objective is to lower the cost of power and heat to Alaska communities while maintaining system safety and reliability. AEA alternative energy programs have received funding since the 1980s from the U.S. Department of

Energy (USDOE) and have more recently expanded with funding from the Denali Commission and the Environmental Protection Agency. A state general fund match of 25% to 100% is required for most AEEE programs. In fiscal year 2010 AEA anticipates \$9 million in federal funding received from the Denali Commission, EPA, U.S. Department of Agriculture, USDOE directly or passed through Alaska Housing Finance Corporation. AEA estimates a funding need of \$7.0 million for these programs. Projects are to be evaluated on their benefit cost ratios.

The AEEE program includes the following focuses and projects:

Diesel generation and end use efficiency improvements, including "waste" heat recovery and community facility energy conservation measures under the Combined Heat and Power, the Village End Use Efficiency, and Energy Cost Reduction programs. Funding partners are USDOE and the Denali Commission.

Hydroelectric project development in partnership with the U.S. Army Corps of Engineers.

Pass through grants. AEA manages federal pass through grants for larger power projects when requested.

Wind energy development activities which include wind resource mapping and assessment, technical assistance and training, AEA's anemometer loan program, 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.

Biomass energy program, which assists communities in developing energy facilities that use locally available wood fuel and assesses the viability of recovering fish oil from fish processing waste stream. The U.S. Forest Service, USDOE, and EPA are potential funding sources for biomass projects. Match requirements range from 1:1 to 1:2.

Geothermal energy program, which assists communities in identifying and planning geopower and direct heating projects. USDOE's Geopowering the West is the chief co-funding source.

Ocean energy program, which assesses tidal, instream flow and wave energy resources and technology options for power production. USDOE and utilities are anticipated co-funding sources.

Energy Cost Reduction.

(4) Alaska Energy Plan: The objective is to develop a statewide Alaska energy plan. An estimated \$1 million of general funds is required for the continued development the energy plan. This requires the completion of significant activities and work tasks including:

- 1) determination of fuel usage by community for electricity, space heating and transportation
- 2) determination of locally available energy sources
- 3) evaluation of existing technology
- 4) evaluation of energy delivery systems
- 5) evaluation and rank of energy sources
- 6) deployment to the private sector by providing business plan to existing or new enterprises, and
- 7) organization of public workshops to assist in the communication of the plan by gathering feedback and providing periodic updates.

(5) Renewable Energy Grant Fund Projects. Project management for Renewable Energy Grant Fund projects. AEA provides direct project management for renewable energy projects funded by the Renewable Energy Grant Fund. The Renewable Energy Grant Fund is intended for grants for approved renewable energy projects. AEA project management is currently unfunded. An estimated \$2 million in this capital project will provide for AEA's direct project management costs through 2013.

Summary of Anticipated Funding

Federal Agency	Federal	ACIF	Inter-agency	SDPR	Total Approps
Denali Comm	18,000,000	5,500,000		500,000	24,000,000
USDOE	1,000,000	500,000			1,500,000
USDOE (Through AHFC)		200,000	500,000		700,000
Other federal	1,000,000	800,000			1,800,000
Energy plan		1,000,000			1,000,000
Renewable projects		2,000,000			2,000,000
Total	20,000,000	10,000,000	500,000	500,000	31,000,000

Funding History (includes both State and Federal funding)

Year	Amount	Legislation
FY 1997	1,000,000	SLA 96 Ch 123 Page 45 Line 31
FY 1997	500,000	SLA 96 Ch 123 Page 45 Line 25
FY 1997	1,600,000	SLA 96 Ch 123 Page 45 Line 37
FY 1998	10,000,000	SLA 97 Ch 100 Page 42 Line 20
FY 1998	1,600,000	SLA 97 Ch 100 Page 42 Line 27
FY 1998	600,000	SLA 97 Ch 100 Page 42 Line 21
FY 1999	30,000,000	SLA 98 Ch 139 Page 40 Line 21
FY 1999	1,600,000	SLA 98 Ch 139, Page 40 Line 14
FY 2000	1,600,000	SSLA 99 Ch 2 Page 84 Line 27
FY 2001	30,450,000	SLA 00 Ch 135 Page 3 Line 9
FY 2001	1,600,000	SLA 00 Ch 135 Page 3 Line 6
FY 2002	4,950,000	SLA 01 Ch 61 Page 3 Line 13
FY 2002	10,000,000	SLA 01 Ch 61 Page 3 Line 15
FY 2002	5,487,000	SLA 01 Ch 61 Page 3 Line 17
FY 2003	30,000,000	SSLA 02 Ch 1 Page 3 Line 32
FY 2003	1,600,000	SSLA 02 Ch 1 Page 3 Line 15
FY 2004	100,000	SLA 03 Ch 82 Page 3 Line 10
FY 2004	35,000,000	SLA 03 Ch 82 Page 3 Line 13
FY 2005	35,750,000	SLA 04 Ch159 Page 3 Line 7
FY 2006	23,220,000	FSSLA 05 Ch3 Page 3 Line 26
FY 2007	15,200,000	SLA 06 Ch 82 Page 2 Line 29
FY 2008	31,700,000	SLA 07 Ch 30 Page 84 Line 22
FY 2009	41,000,000	SLA 08 Ch 29 Page 87 Line 18