

Alaska Energy Authority Energy Projects

FY2011 Request: \$26,000,000
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: 07/01/2010 - 06/30/2015

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:	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	Total
AIDEA Div	\$10,000,000						\$10,000,000
AK Cap Inc		\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000		\$40,000,000
Fed Rcpts	\$16,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000		\$96,000,000
I/A Rcpts		\$500,000	\$500,000	\$500,000	\$500,000		\$2,000,000
Stat Desig		\$500,000	\$500,000	\$500,000	\$500,000		\$2,000,000
Total:	\$26,000,000	\$31,000,000	\$31,000,000	\$31,000,000	\$31,000,000	\$0	\$150,000,000

<input 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
0% = 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	
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 (EPA), and the U.S. Department of Energy (USDOE). 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. \$20 million is the estimated need to complete the bulk fuel upgrades for the remaining 9 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 2011 AEA anticipates \$4 million in federal funds. AEA anticipates using approximately \$1 million in state funds for Bulk Fuel Upgrades.

(2) Rural Power System Upgrades (RPSU): 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.

\$112 million is the estimated need to complete the RPSUs for the remaining 47 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 2011 AEA

anticipates \$7 million in federal funds. AEA anticipates using approximately \$2 million in state funds for RPSU projects.

(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 USDOE and have more recently expanded with funding from the Denali Commission and the EPA. A state general fund match of 25% to 100% is required for most AEEE programs. In fiscal year 2011 AEA anticipates \$5 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 \$3 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.

(4) Alaska Energy Plan Implementation: The objective is to develop a statewide Alaska energy plan. An estimated \$2 million of general funds is required for the continued development the energy plan, in particular AEA will work with regional organizations to further refine regional resource assessments and project development plans. The completion of the following activities and work tasks are required:

- 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 and grant 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 and grant management will be funded through this capital project. An estimated \$2 million in this capital project will provide for AEA's direct project and grant management costs.

Summary of Anticipated Funding

Federal Agency	Federal	AIDEA Dividend	Inter-agency	SDPR	Total Approps
Denali Comm	11,000,000	3,700,000			14,700,000
USDOE	2,000,000	1,300,000			3,300,000
USDOE (Through AHFC)		200,000			200,000
Other federal	3,000,000	800,000			3,800,000
Energy plan		2,000,000			2,000,000
Renewable projects		2,000,000			2,000,000
Total	16,000,000	10,000,000			26,000,000

Funding History (includes both State and Federal funding)

Year	Amount	Legislation
FY10	25,500.0	SLA 09, Ch 15, Sec 1, Pg 2, Ln 30
FY09	41,000.0	SLA 08, Ch 29, Pg 87, Ln 18
FY08	31,700.0	SLA 07, Ch 30, Pg 84, Ln 22
FY07	15,200.0	SLA 06, Ch 82, Pg 2, Ln 29
FY06	23,220.0	FSSLA 05, Ch 3, Pg 3, Ln 26
FY05	35,750.0	SLA 04, Ch, 159, Pg 3, Ln 7
FY04	35,000.0	SLA 03, Ch 82, Pg 3, Ln 13
FY04	100.0	SLA 03, Ch 82, Pg 3, Ln 10
FY03	1,600.0	SSLA 02, Ch 1, Pg 3, Ln 15
FY03	30,000.0	SSLA 02, Ch 1, Pg 3, Ln 32
FY02	5,487.0	SLA 01, Ch 61, Pg 3, Ln 17
FY02	10,000.0	SLA 01, Ch 61, Pg 3, Ln 15
FY02	4,950.0	SLA 01, Ch 61, Pg 3, Ln 13
FY01	1,600.0	SLA 00, Ch 135, Pg 3, Ln 6
FY01	30,450.0	SLA 00, Ch 135, Pg 3, Ln 9
FY00	1,600.0	SSLA 99, Ch 2, Pg 84, Ln 27
FY99	1,600.0	SLA 98, Ch 139, Pg 40, Ln 14
FY99	30,000.0	SLA 98, Ch 139, Pg 40, Ln 21

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FY98	10,000.0	SLA 97, Ch 100, Pg 42, Ln 20
FY98	1,600.0	SLA 97, Ch 100, Pg 42, Ln 27
FY98	600.0	SLA 97, Ch 100, Pg 42, Ln 21
FY97	1,000.0	SLA 96, Ch 123, Pg 45, Ln 31
FY97	500.0	SLA 96, Ch 123, Pg 45, Ln 25
FY97	1,600.0	SLA 96, Ch 123, Pg 45, Ln 37