

**Alaska Energy Authority Energy Projects**

**FY2009 Request: \$41,000,000**  
**Reference No: AMD 38950**

**AP/AL:** Appropriation **Project Type:** Construction  
**Category:** Development  
**Location:** Statewide **Contact:** Ron Miller  
**House District:** Statewide (HD 1-40) **Contact Phone:** (907)269-3000  
**Estimated Project Dates:** 07/01/2008 - 06/30/2013

**Brief Summary and Statement of Need:**

Multiple federally funded energy programs of Bulk Fuel Upgrades, Rural Power Systems Upgrades, Alternative Energy and Energy Efficiency 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.

<b>Funding:</b>	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	Total
AK Cap Inc	\$10,000,000						\$10,000,000
Fed Rcpts	\$30,000,000						\$30,000,000
I/A Rcpts	\$500,000						\$500,000
Stat Desig	\$500,000						\$500,000
<b>Total:</b>	<b>\$41,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$41,000,000</b>

<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 checked="" 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
<u>One-Time Startup:</u>	<u>0</u>	<u>0</u>
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Additional Information / Prior Funding History:**

Refer to the funding matrix in the detailed description.

The Alternative Energy and Energy Efficiency program requires a State general fund match. The estimated match requirement for those projects that require match is between 25 and 50%.

**Project Description/Justification:**

Continuation of 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 development of 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 over the last several years has been to replace these tank farms with new or refurbished facilities that meet all applicable safety and environmental codes. \$60 million is the estimated need to complete the bulk fuel upgrades for the remaining 35 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 2009 AEA anticipates \$7 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 most rural communities do 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 the accepted utility standards.

AEA gives priority to electric utility systems that are in the worse condition. 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 are needed in order to meet efficiency guidelines under the Power Cost Equalization Program.

Once upgraded, 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 55 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 2009 AEA anticipates \$15 million in federal funds.

**(3) Alternative Energy and Energy Efficiency Programs:** The objective is to lower the cost of power and heat to Alaska communities while maintaining system safety and reliability. The alternative energy program has received funding for several years from the US Department of Energy (USDOE) and has 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 2009 AEA anticipates \$8 million in federal funding, \$750,000 in federal funding received from USDOE directly or passed through Alaska Housing Finance Corporation, and an estimated state match requirement of \$3,000,000.

\$5,525,000 Alaska Capital Income Funds is proposed to be used for Alternative Energy and Energy Efficiency projects to be matched up to 50% with local funds based on a competitive RFP for projects not eligible for Denali Commission funds. Projects to be evaluated on a benefit cost ratio.

The AEEE program includes the following focuses and projects:

- Fuel efficiency improvements, including the Diesel Generation Efficiency Improvements program, the "Waste Heat" Recovery from Diesel Generators program.
- Hydroelectric and intertie project pass through grants. AEA manages several federal pass through grants for larger power projects.
- 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 program which tests air emissions and performance of fish oil and diesel blends as fuel, the viability of recovering fish oil from fish processing waste stream, and utilization of sawmill and municipal wastes for energy. EPA is a potential funding source for biomass projects and typically has a 1:1 match requirement.
- In FY06 and FY07, using USDOE Geopowering the West funds requiring a 25% state cost share, AEA has prepared a statewide geothermal development plan and organized public events such as the Mt. Spurr geothermal workshop. The plan identifies 13 locations throughout Alaska with potential for geothermal development. AEA plans to support follow-up work with USDOE and other interested industry and government partners.
- AEA and the Denali Commission will release a fifth RFP for Energy Cost Reduction Initiative projects in December. Begun in FY2003, this initiative has offered \$8.4 M in grant funds to match \$12.4 million in local funds for projects that are displacing or will displace 1.4 million gallons per year of diesel and equivalent natural gas.

**(4) Alaska Energy Plan:** The objective is to develop a statewide Alaska energy plan. This requires the completion of significant activities and work tasks including 1) determination of locally available energy sources 2) evaluation of existing technology 3) evaluation of energy delivery systems 4) identification of energy needs for each community 5) evaluation and rank of energy sources 6) deployment to the private sector by providing business plan to potential or new enterprises 7) organization of public workshops to assist in the communication of the plan by gathering feedback and providing periodic updates.

Summary of Anticipated Funding by Federal Agency:

Federal Agency	Federal	Capital Inc Fund	Inter-agency	SDPR	Total Approps	Estimated Local Match
Denali Commission	26,650,000	2,200,000		500,000	29,350,000	2,200,000
USDOE	2,750,000	400,000			3,150,000	
USDOE (Through AHFC)		200,000	500,000		700,000	
Other federal	600,000	200,000			800,000	
Energy plan		1,475,000			1,475,000	
*		5,525,000			5,525,000	3,000,000
Total	30,000,000	10,000,000	500,000	500,000	41,000,000	5,200,000

\* \$5,525,000 used for Alternative Energy and Energy Efficiency projects, a portion of the funds are proposed to be matched 50% with local funds based on a competitive RFP for projects not eligible for Denali Commission funds. Projects to be evaluated on a benefit cost ratio.

**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

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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