

**Alternative Energy Program**

**FY2001 Request: \$150,000**  
**Reference No: 32591**

**AP/AL:** Appropriation

**Project Type:** Construction

**Category:** Development

**Location:** Statewide

**Contact:** D. Randy Simmons

**House District:** Statewide (HD 1-40)

**Contact Phone:** (907)269-3000

**Estimated Project Dates:** 07/01/2000 - 06/30/2005

**Brief Summary and Statement of Need:**

To match and supplement expected federal funds for alternative energy projects (wind, biomass, coal, hydroelectric, etc.) Where required, a lack of match funds will prevent a federal contribution.

<b>Funding:</b>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>Total</u>
G/F Match	\$150,000						\$150,000
<b>Total:</b>	\$150,000	\$0	\$0	\$0	\$0	\$0	\$150,000

<input type="checkbox"/> State Match Required	<input checked="" type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input 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	
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Additional Information / Prior Funding History:**

**Project Description/Justification:**

The Alternative Energy program provides state funding to match federal funds for alternative energy projects or technology developments. These funds will assist AEA in coordinating projects with the U.S. Department of Energy, Sandia National Labs, National Renewal Energy Laboratory, the University of Alaska-Fairbanks and others working with new energy technologies relating to wind, coal, bioenergy, battery storage systems, etc. Alternative energy will not displace diesel generation totally, however, it will lower the demand for diesel fuel, or in some cases, create a 50 percent reduction in fuel demand.

This General Fund appropriation will be used in conjunction with US Department of Energy grants for the development of wind/fuel cell hybrid systems and battery storage applications in rural Alaska:

<u>Source of Funds:</u>	<u>Amount</u>
This Appropriation	500,000
Federal Funds:	
Wind fuel cell hybrid	2,300,000
Battery Storage	<u>2,000,000</u>
<b>Total FY01 Alternative Energy Funding</b>	<b>4,800,000</b>

**Wind Fuel Cell Hybrid**

AEA is working with the Congressional delegation and the U.S. Department of Energy in the application of fuel cells and battery storage. Currently, AEA has a \$300,000 grant from the U.S. Department of Energy for the design, acquisition and installation of wind turbines and the development of a wind/fuel cell hybrid system designed to operate under extreme

weather conditions. As a condition of the grant, AEA provided match funding of \$75,000. Fuel cells are a rapidly developing technology for producing electricity from hydrogen gas. The potential benefits of fuel cells over the diesel generator sets currently used in much of rural Alaska for power production include: 1) high efficiency, 2) low maintenance, 3) high reliability, 4) quiet operation, 5) reduced emissions, 6) the potential for using hydrogen gas produced from other alternative energy sources such as hydro, wind, or tidal power.

USDOE has indicated that funds in the amount of \$2,300,000 will be available after evaluation of the current test site. AEA, as a partner in the application of this technology, will assist USDOE in the selection of future test sites, as well as evaluation of the technology and its application throughout rural Alaska. This appropriation request will support the state match portion of the grant, as well provide funding assistance to the battery storage project.

**Battery Storage**

The use of lead acid batteries in conjunction with diesel generator sets in rural Alaska has several potential benefits: 1) improved efficiency; 2) power quality improvements (voltage and frequency regulation) resulting in fewer brownouts and blackouts, and less risk of damaging sensitive electrical equipment; 3) short-term backup power during power outages, and 4) more efficient use of the genset.

Some of these benefits have been realized by the community of Metlakatla, which installed a large-scale battery system to store power from its hydroelectric plant and displace diesel genset usage during periods of peak demand. Although Metlakatla's situation is unique due to the use of hydropower, several other Alaskan communities may benefit from battery storage systems in similar ways.

The appropriation will provide battery storage equipment, monitoring instruments and a feasibility study of battery storage applications in rural Alaska. Federal funding of \$2,000,000 for the storage program is currently being obtained from Sandia Labs (U.S. Department of Energy).

**Biomass**

Although no General Fund match is requested, it is anticipated that a \$150,000 federal grant will be received in FY2001 for AEA's biomass program. This program provides grant and contractual funds for technical assistance for pre-feasibility analyses, construction, software, reports, etc., to communities/entities for biomass energy projects. The goal of this program is to further the cost-effective and environmentally beneficial use of biomass energy resources in order to lower costs of energy, stimulate local economic development, offset oil imported into rural communities, convert waste to useful products and increase community self-reliance. Past projects include South Tongass Wood Waste, Rural Fuelwood Substation, Juneau Waste-to-Energy, Dot Lake Wood-Fired Boiler project and Interior Alaska Wood-Fired Power.