

**Alaska Energy Authority - Energy Projects**

**FY2013 Request: \$25,800,000**

**Reference No: 38950**

**AP/AL:** Appropriation with Allocations

**Project Type:** Energy

**Category:** Development

**Location:** Statewide

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

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

**Contact:** Sara Fisher-Goad

**Estimated Project Dates:** 07/01/2012 - 06/30/2017

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**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 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.

See individual allocations for project detail.

| <b>Funding:</b> | FY2013              | FY2014              | FY2015              | FY2016              | FY2017              | FY2018              | Total                |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| Fed Rcpts       | \$7,000,000         | \$7,000,000         | \$7,000,000         | \$2,000,000         | \$2,000,000         | \$2,000,000         | \$27,000,000         |
| Gen Fund        | \$18,000,000        | \$13,000,000        | \$13,000,000        | \$15,000,000        | \$15,000,000        | \$15,000,000        | \$89,000,000         |
| I/A Rcpts       | \$200,000           | \$200,000           | \$200,000           | \$200,000           | \$200,000           | \$200,000           | \$1,200,000          |
| Stat Desig      | \$600,000           | \$600,000           | \$600,000           | \$600,000           | \$600,000           | \$600,000           | \$3,600,000          |
| <b>Total:</b>   | <b>\$25,800,000</b> | <b>\$20,800,000</b> | <b>\$20,800,000</b> | <b>\$17,800,000</b> | <b>\$17,800,000</b> | <b>\$17,800,000</b> | <b>\$120,800,000</b> |

|   |   |                                       |   |  |
|---|---|---------------------------------------|---|--|
| <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             | 0            |
| <b>Totals:</b>       | <b>0</b>      | <b>0</b>     |

**Additional Information / Prior Funding History:**

Refer to the funding matrix in the detailed description.

**Project Description/Justification:**

This request addresses the long-standing federally funded energy programs of Bulk Fuel Upgrades and Rural Power System Upgrades (RPSU), Alternative Energy and Energy Efficiency projects, and the state funded energy plan implementation. See individual allocations for detail.

**1) Rural Power System Upgrades (RPSU):** This program concentrates on power production and delivery, including diesel powerhouse, hydroelectric, and electrical distribution. Due to high costs and limited economies of scale, most local communities cannot make the capital investments needed to meet accepted utility standards. Efficiency, reliability, safety and sustainability are primary drivers throughout the conceptual design, final design and construction process. It is not uncommon to see a 30-40 percent increase in fuel savings after a new powerhouse project is completed.

After completion of the project, the rural utility is required to employ a qualified operator to ensure that the system is properly operated and maintained. AEA provides training and technical assistance to assist the community with proper operation of the new facility.

\$112 million is the estimated need to complete the Rural Power System Upgrades for the remaining 47 communities identified on the 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 2013 AEA anticipates \$3 million in federal funds. AEA anticipates using approximately \$10 million in state funds for RPSU projects.

**(2) Bulk Fuel Upgrades:** The goal of the Alaska Energy Authority (AEA) bulk fuel program is to upgrade non-compliant bulk fuel facilities in communities that meet program criteria. Upgrading bulk fuel facilities reduces the cost of energy by reducing or eliminating fuel loss from leaks and spills. By providing enough capacity for current and planned needs, communities may purchase fuel in larger quantities at a lower cost per gallon.

Most of the tank farms have 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

\$20 million is the estimated need to complete the bulk fuel upgrades for the remaining nine communities identified on the Bulk Fuel Deficiency list.

This program began in 1997 and has expanded since FY1999 with federal funding from the Denali Commission. In FY2013, AEA anticipates \$7 million in federal funds. AEA anticipates using approximately \$6 million in State funds for Bulk Fuel Upgrades.

### **(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 federal funding since the 1980s from U.S. Department of Energy (USDOE) and the Environmental Protection Agency (EPA) and recently expanded with funding from the Denali Commission and ARRA funds. A state general fund match of 25% to 100% is required for most federal AEEE programs.

AEA anticipates \$2 million in federal funding from USDOE and other federal agencies. AEA also anticipates a continuation of funding from USDOE for the Statewide Energy Program (SEP) support through Alaska Housing Finance Corporation (AHFC); and a continuation of program funding from other agencies for waste heat recovery. AEA is also requesting \$2 million in general funds to

support the continuation of the AEEE programs. State funds will be used to match federal funds when required and to provide support for these programs where federal funding is not available.

The AEEE program includes the following focuses and projects:

**Biomass:** AEA's biomass energy program focuses on developing wood-fired systems that displace fuel oil for heating public facilities, assessing opportunities for developing liquid fuels such as biodiesel, and recovering energy from municipal solid waste.

**Combined Heat and Power:** These project development activities, including "waste" heat recovery, are supported through a USDOE cost-share program. AEA routinely includes heat recovery in RPSU projects.

**Energy Data Inventory:** Program activities include preparation of the Alaska Energy Statistics publication and maintenance and expansion of the web-based geographic information system <http://akenergyinventory.org/> that houses renewable and fossil resource, energy production and use, and energy infrastructure data.

**Energy Efficiency and Conservation (EE&C) Program:** AEA focuses its end use energy efficiency program activities on commercial buildings, public buildings, industrial facilities, and electrical efficiency. Additionally, AEA organizes the collaborative multi-stakeholder group called the Alaska Energy Efficiency Partnership, which is focused on outreach and education about efficiency and conservation as well as EE&C long term planning.

**Geothermal:** This energy program assists communities in identifying and planning geo-power and direct heating projects. AEA coordinates the statewide Geothermal Working Group of industry, academic, and government officials interested in geothermal development.

**Hydroelectric Power Project Development:** Work includes inventorying and scanning hydro feasibility reports and performing site-specific assessments of potential hydroelectric projects in partnership with the US Army Corps of Engineers.

**Nuclear Energy:** Nuclear energy potential has been studied by UAF's Alaska Center for Energy and Power, which prepared a draft report on the applicability of small modular systems in spring 2011 under contract with AEA. Update work is in progress.

**Ocean and River Energy Program:** This 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.

**Wind Energy:** These development activities include wind resource mapping and assessment, 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.

**(4) Alaska Energy Plan Implementation:**

The objective is to develop a statewide Alaska energy plan. An estimated \$1 million of general funds is required for the continued development of the energy plan, in particular AEA will work with regional organizations to initiate specific regional resource assessments and project development plans. The completion of the following activities and work tasks is required:

- Determination of fuel usage by community for electricity, space heating and transportation
- Determination of locally available energy sources
- Evaluation of existing technology
- Evaluation of energy delivery systems
- Evaluation and rank of energy sources
- Deployment to the private sector by providing business plan to existing or new enterprises, and
- Organization of public workshops to assist in the communication of the plan by gathering feedback and providing periodic updates.

AEA will be updating the detailed database of electric utility conditions and characteristics.

**Summary of Anticipated Funding:**

| Program            | Denali Commission & Other Federal | General Funds     | I/A Receipts   | Wash State Univ, ANTHC, Other | Total             |
|--------------------|-----------------------------------|-------------------|----------------|-------------------------------|-------------------|
| Bulk Fuel Upgrades | 2,000,000                         | 5,000,000         |                |                               | 7,000,000         |
| RPSU               | 3,000,000                         | 10,000,000        |                |                               | 13,000,000        |
| AEEE               | 2,000,000                         | 2,000,000         | 200,000        | 600,000                       | 4,800,000         |
| Energy Plan        | -                                 | 1,000,000         |                |                               | 1,000,000         |
| <b>Total</b>       | <b>7,000,000</b>                  | <b>18,000,000</b> | <b>200,000</b> | <b>600,000</b>                | <b>25,800,000</b> |

**Funding History (includes both State and Federal funding)**

| YEAR   | AMOUNT       | LEGISLATION                        |
|--------|--------------|------------------------------------|
| FY2012 | \$16,330,000 | SLA 11, Ch 5, Sec 4, Pg 127, Ln 13 |
| FY2011 | \$24,500,000 | SLA 10, Ch 43, Sec 7, Pg 20, Ln 22 |
| FY2010 | \$25,500,000 | SLA 09, Ch 15, Sec 1, Pg 2, Ln 30  |
| FY2009 | \$41,000,000 | SLA 08, Ch 29, Pg 87, Ln 18        |
| FY2008 | \$31,700,000 | SLA 07, Ch 30, Pg 84, Ln 22        |
| FY2007 | \$15,200,000 | SLA 06, Ch 82, Pg 2, Ln 29         |
| FY2006 | \$23,220,000 | FSSLA 05, Ch 3, Pg 3, Ln 26        |
| FY2005 | \$35,750,000 | SLA 04, Ch, 159, Pg 3, Ln 7        |
| FY2004 | \$35,100,000 | SLA 03, Ch 82, Pg 3, Ln 10, 13     |
| FY2003 | \$31,600,000 | SSLA 02, Ch 1, Pg 3, Ln 15, 32     |