AHFC Energy Efficiency Monitoring Research | **FY2009 Request: $1,000,000**
Reference No: 6351

AP/AL: Appropriation
Category: Development
Location: Statewide
House District: Statewide (HD 1-40)
Estimated Project Dates: 07/01/2008 - 06/30/2013

Project Type: Health and Safety

Contact: Les Campbell
Contact Phone: (907)330-8356

Brief Summary and Statement of Need:

Corporate (AHFC) funds for a designated grant to Cold Climate Housing Research Center to conduct research, analysis, and information dissemination and interchange among members of the industry, and between the industry and the public. Data gathering and analysis is being continually related to energy efficiency technology for homes constructed in northern building and market conditions.

Funding:	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	Total
AHFC Div	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$6,000,000
Total:	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$6,000,000

☐ State Match Required ☐ One-Time Project ☐ Phased - new ☐ Phased - underway ☑ On-Going
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Additional Information / Prior Funding History:

FY2008 - $1,000,000 Corporate; FY2007 - $500,000 Corporate; FY2006 - $500,000 Corporate; FY2005 - $500,000 Corporate; FY2004 - $500,000 Corporate; FY2003 - $300,000 Corporate; FY2002 - $300,000 Corporate; FY2001 - $500,000 Federal and $450,000 Corporate; FY2000 - Requested but unfunded.

Project Description/Justification:

The purpose of this project is to conduct research, analysis, information dissemination and interchange among members of the industry, as well as, between the industry and the public.

The projected outcomes are:

- Conduct research, analysis, information dissemination and interchange among members of the industry, and between the industry and the public.
- Gather data and perform analysis of geographically diverse area energy efficient designs for homes.
- Monitoring homes for energy usage, comfort levels, durability, occupant health, and economic benefits of efficiency features.

Energy Efficiency Monitoring Research – utilizes Corporate (AHFC) funds for a designated grant to Cold Climate Housing Research Center to conduct housing construction research, analysis, and information dissemination among the housing industry and the public. Data gathering and analysis is being continually related to energy efficiency technology for homes constructed in northern building and market conditions.

Program Description:
This program funds the monitoring and testing of energy efficiency designs, products, and construction technology in areas where little is being done in the Alaskan arena. Considering the diverse building conditions and requirements across the state, the home building industry has indicated they would like to see research and testing of energy efficiency designs in different regions in the state.

AHFC is required by state law to purchase homes that meet minimum energy efficiency standards, and the corporation has established and funded incentive programs for increased energy efficiency in homes. Currently, corporate arbitrage dollars are used to offer reduced interest rates on homes that meet or exceed energy rating criteria. Yet, little information is currently available about the cost benefits to the homeowner over time from these programs or how effective certain energy efficiency designs have been across Alaska's climate regions.

Funds requested here would be to conduct research, analysis, and information dissemination and interchange among members of the industry, as well as, between the industry and the public.

The following will be provided though the Cold Climate Housing Research Center: data gathering, as well as, analysis of energy efficient designs for homes. Alaska has a wide range of climates and temperatures, with everything from coastal rain forests to arctic tundra. Energy efficiency designs and technologies for homes need to address conditions in each of these regions across the state.

Homes with different energy efficiency designs would be monitored for energy usage, comfort levels, durability, occupant health, and economic benefit of efficiency features. Different regions of Alaska would be monitored along with different energy efficiency designs.

Activities should have a high level of effectiveness and success based on three reasons:

1. Programs and projects will be results oriented. Home building is a practical activity. Monitoring research and analysis should seek workable answers to real problems of home building and to real ways to improve homes across Alaska. Future trends and developing technologies need to be considered, with an emphasis on the impact that such trends and technologies will have on the way the homes are actually built.

2. Contact with the real world of home building needs to exist by having some ties to the state home building industry. In addition to a statewide association, local home building associations exist in Anchorage, the Kenai Peninsula, Ketchikan, Juneau, Interior Alaska, Mat-Su, and Kodiak. These associations could provide a grassroots network of cooperating builders. When research is launched, builders would be expected to provide direction on specific questions, technologies, designs, and to cooperate in studies and field tests.

3. Research and analysis flow directly into the building industry and the public. Monitoring results would be expected to help link the research and product development communities with the practitioners who put methods into practice and products into use. The involvement of the building industry is intended to increase builders confidence in the findings. All results and analysis would be publicized and disseminated throughout the housing industry, creating a favorable climate for the adoption of desirable changes.

Hybrid Micro Energy Project (HMEP)

The Cold Climate Housing Research Center (CCHRC) in collaboration with British Petroleum (BP), the State of Alaska, Fairbanks North Star Borough, Siemens, GW Scientific, Remote Power Incorporated, the University of Alaska Fairbanks, EEInternet, the Cooperative Extension Service and the Golden Valley Electric Association on a two-year demonstration project that will test and monitor a hybrid system composed of solar photo voltaic, solar thermal, wind and a biomass Combined Heat and Power (CHP) unit. The Hybrid Micro Energy Project (HMEP) will be designed for the high-latitude challenge of minimal solar energy during the long winter when energy demand is greatest and bountiful solar energy when demand is less.

During the cold months of the year, the hybrid system will utilize the biomass CHP unit as well as demonstrate the potential of wind to augment heat and power needs. The HMEP project, funded primarily by BP, the Fairbanks North Star Borough, and the State of Alaska, will be based at CCHRC's Cold Climate Building and Infrastructure Research and Testing Facility (RTF) in Fairbanks, Alaska. CCHRC is a 501c(3) corporation founded by members of the Alaskan homebuilding industry. The RTF is CCHRC's research and testing facility which is, in itself, a set of research and demonstration projects with over 600 sensors monitoring each component in the building from the foundation to the roof. Project deliverables will include: ongoing web-based performance reports, final report, PowerPoint presentation, an education course on renewable energy systems and at least one public meeting to present the demonstrations and results of the project.

Hybrid micro-power systems are particularly suited for Alaska's rural communities as an economical and sustainable

supplement to diesel for producing electricity and heat. A hybrid micro-power system designed for rural Alaska that is simple to install and easy to maintain has worldwide potential. Every step AHFC takes puts us further down the road toward sustainable communities.