



October 15, 2009

TO: Interested Utilities

FROM: Sean Skaling
Program Manager, Energy Efficiency and Conservation
Alaska Energy Authority
813 W. Northern Lights Blvd.
Anchorage, AK 99503-2495
(907) 771-3079 (phone)
(907) 771-3044 (fax)
sskaling@aidea.org

Reference: Request for Proposals for AEA Metering Project #AEA10-012

1. Project Requirements and Goals

The Alaska Energy Authority (AEA) is requesting proposals from certificated Alaska electric utilities that submitted a letter of interest to AEA to conduct research on the impacts of residential and commercial building energy monitors (BEM) on energy efficiency and conservation.

In June 2008, AEA and other partners published a report which created a roadmap for developing energy efficiency and conservation programs and policies in Alaska (<http://www.akenergyauthority.org>). One of the 23 recommendations was for the State to fund a pilot program to test the effectiveness of “smart meters,” what we are now more specifically referring to as “building energy monitors” (BEM).

The Alaska Energy Authority, through its energy efficiency and conservation program, is interested in implementing a smaller-scale pilot test of these devices for their ability to help residential customers conserve energy and better understand how their buildings consume energy. Additionally, AEA is interested in expanding the scope to include commercial or institutional buildings. AEA anticipates the project will include approximately 300 residential buildings and 30 commercial or institutional buildings. The study will be split into two population bases, with two-thirds of the residential and commercial buildings located in an urban community (200 residential, 20 commercial/institutional), and one-third in a rural community (100 residential, 10 commercial/institutional).

For the purposes of this project, a building energy monitor is defined as an electronic device that displays and/or records the current whole-building electrical energy usage for the consumer, and may also display cost information and recent historical energy usage data.

The participating utilities may have other interests in testing these devices, not only to help their customers conserve energy, but also to explore the extra communications capabilities that some of the equipment provides between the utility and the customer (for example, transmitting immediate usage data to the utility from the customer’s meter, and for automatic outage reporting). Other possibilities are

on the horizon as the “smart grid” is developed and utility communication and control of individual appliances becomes possible for load shaping.

AEA would like to identify whether, and under what conditions, the deployment of building energy monitors is most effective for reducing energy usage. For example, is deployment in rural versus urban settings, or residential versus commercial buildings more effective; is the size of the home or building a factor; and does the level of customer interest in energy efficiency play a role? A second goal is to identify the best equipment available today and which features are most helpful to customers and utilities. With the information collected in this pilot project, Alaska utilities, AEA, and other interested parties will have better information upon which to make decisions about whether to and how to effectively deploy these developing technologies in the future.

2. Eligibility Requirements

Applicants interested in participating in this program must meet the following minimum requirements.

- An Alaska electric utility holding a certificate of public convenience and necessity under AS 42.05, or an Alaska electric utility association with the support of one or more member utilities.
- Ability to provide at least a one-to-one match of funding.

3. Coordinating Efforts

Utilities may submit either a single or joint application with other utilities (for example an urban utility pairing with a rural utility). In the event of a joint application, the utilities are requested to provide a single point of contact that will coordinate the overall project and methods, and consolidate the research findings.

4. Deadline

The proposals must be received by **4:00 pm November 12, 2009** at Alaska Energy Authority. Proposals may be emailed, mailed, faxed or hand-delivered.

5. Contact

Please submit proposals or any questions regarding this solicitation to:

Sean Skaling
Program Manager, Energy Efficiency and Conservation
Alaska Energy Authority
813 W. Northern Lights Blvd.
Anchorage, AK 99503-2495
(907) 771-3079 (phone)
(907) 771-3044 (fax)
sskaling@aidea.org
www.akenergyauthority.org

6. Timeline

Proposals are due November 12, 2009. AEA anticipates making awards in December, 2009 for a project start date also in December. The project is expected to last between six and nine months, with final reports one month after completion of the project and no later than October 29, 2010.

7. Budget

AEA anticipates providing up to \$75,000 toward this project, with approximately \$25K for a rural project and \$50K for an urban project. To be eligible for this project AEA requires applicants to provide least a one-to-one match in cash, labor, and/or in-kind contributions.

This budget assumes the total average cost per residential installment of \$415 and the total average cost of a commercial/institutional installation at \$850. These figures include all project expenses, including those expenses covered by matching funds. The number of residential units is estimated at 100 for the rural study and 200 for the urban study; and the number of commercial establishments is expected to be approximately 10 for rural and 20 for urban locations. These are estimates. Please provide the number of residential and commercial establishments that will be served in your proposal, and the approximate cost per each. The final award funding amount(s) will be determined based on the proposal(s) selected.

Budget Matrix

	# of units	All costs per building	Category cost			AEA funded	Utility funded
Urban Residential	200	\$415	\$83,000		Total urban		
Rural Residential	100	\$415	\$41,500		\$100,000	\$50,000	\$50,000
Total Residential	300		\$124,500				
Urban Commercial	20	\$850	\$17,000		Total rural		
Rural Commercial	10	\$850	\$8,500		\$50,000	\$25,000	\$25,000
Total Commercial	30		\$25,500				
Total Costs			\$150,000			\$75,000	\$75,000

8.0 Project Scope and Requirements

AEA is seeking at least one urban utility and at least one rural utility to design and deploy building energy monitoring devices at both residential and commercial buildings. AEA's goal for the project is to be able to identify how effective building energy monitors are at reducing energy consumption at homes and places of work, and what factors contribute to or are correlated with energy use reductions. Examples of some of the factors include: which energy monitoring equipment is most effective or provides the best information display to the user, how energy intensive was the home or business prior to the trial, the user's self-reported level of interest in and knowledge of energy efficiency, etc.

The study design and implementation processes will be defined by the utility. The study period should be between six and nine months long, and should include both winter and summer months in the data gathering portion of the project. Below are the minimum reporting requirements. Other outputs or extra information is welcome and encouraged to the extent that it better defines the conditions under which building energy monitors are either effective or not effective at reducing energy use.

8.1 Reporting

The selected utility(s) will be required to provide periodic progress reports, participate in at least one mid-project meeting to report on the progress and status of the project two to three months after the project start date, and complete a final report that includes the following information:

- Overview of the methods
- Summary conclusions
 - Are BEMs effective at reducing energy use
 - Overall results: percentage change of energy use for the whole group during the test months as compared to a representative sample of similar customers (to account for weather or other variables)
 - Significant results for different groups or classes of subjects
- Conditions associated with effective use of BEMs
 - Urban versus rural (if joint application)
 - Residential versus workplace
 - Size of home/business
 - Energy efficiency interest level of occupants (self-reported)
 - Energy efficiency knowledge level of occupants (self-reported)
 - Pre-study energy intensity (i.e. were high energy users better able to make changes, or were low energy users)
 - Any other conditions studied, reported, or observed
- Table of monthly energy use data during the test period and for the prior 2-3 years for each subject (reported in kWh per month for residential customers, and kWh and peak kW, if available, from commercial customers)
- Dates during the study to note on a per-customer basis
 - BEM installation date
 - Significant energy efficiency changes (appliance or equipment changes) and whether the changes were caused by the study
 - Significant building occupancy changes (unoccupied or visitors)
- A summary of feedback from the customers regarding the effectiveness of the BEM, favorite features of the devices, and lacking features of the devices
- An assessment of the equipment tested and a reporting of its strengths, weaknesses and approximate per unit costs to purchase, install and support
- A report of the level of customer education that was provided about energy efficiency, if any, and when this education was delivered
- Copies of any materials developed for the project (printed materials, web sites, emails, etc.)
- Recommendations for the future

8.2 Statistical Analysis

While statistical analysis of the data (testing for statistically significant differences between groups of subjects) would add to the strength of the proposal and to the insight into the effectiveness of BEMs, it is not a required component.

8.3 Selection of Equipment

The selection of the building energy monitor equipment will be the choice of the utility, but will be required to be coordinated with AEA and any other selected utilities for the purposes of ensuring that different types of equipment are being tested and to ensure that effective devices are used.

It is anticipated that substantially different monitoring equipment will be employed for the commercial/institutional buildings, particularly larger buildings. Web-based systems and other creative solutions that serve the purpose of educating building owners and occupants about their current and recent energy use are encouraged.

8.4 Ownership of Equipment

Any equipment purchased for this project, even if partially paid for by AEA, will be purchased by and owned by the utility. At the conclusion of this project, the utility may retain possession of the equipment for continued use. If use will be discontinued, the utility is encouraged to donate the equipment to a different utility or to AEA for continued distribution.

It may also be effective to distribute watt meters such as the P3 Kill A Watt P4400, or the Watt's Up watt meter to customers that participate in this pilot.

8.5 Customer Education

Education of the customer on use of the BEM device will be required. Additional education about energy efficiency and conservation is encouraged. In the proposal, please address your approach to customer education.

9. Proposal Format

Please provide a concise narrative addressing the topics below in 6 pages or fewer, and submit one copy in electronic or paper format to the contact given above. In addition to the six-page narrative, extra support documents such as equipment specification sheets may be added, if desired.

9.1 Proposal Content Requirements

Your response to this request should contain the following sections:

- Brief introduction of the utility (or utilities, if joint application)
- Proposed methodology and scope of work
 - Number of customers in study
 - Type(s) of building energy monitors to be used (describe both residential and commercial/institutional equipment)
 - List name of device(s), model number(s) and approximate price
 - Briefly describe how device works and what it displays (current energy use, historical energy use, graphs, etc.)
 - Provide resolution of the current energy use reading (does it display current usage in Watts, hundredths of a kW, etc.)
 - Provide the refresh rate of the current energy use reading and whether it is an averaged reading or momentary reading
 - Selection of customers for study
 - Installation, startup procedure
 - Education provided to customer (including whether Watt meters, educational materials, or other materials will be distributed)
 - Data collection
 - Customer information
 - Energy use prior to study (2-3 years)
 - Energy use during study period
 - Customer feedback during study
 - Data analysis (will you use statistical analysis or will you express differences between groups by percentages, etc.)
 - Equipment use after the study period
- Timeline with major milestones
- Budget: whole project budget, including utility matching funds
- Organization and key staff qualifications

- Commitment statement and signature
 - A statement committing the utility to pursuing this project as described in the proposal, if selected, and signed by an authorized person.

10. Evaluation and Award Process

Applications received on time will be pre-screened for meeting the requirements, such as meeting the eligibility requirements, providing one-to-one match, and inclusion of a signed commitment letter. Applications meeting the requirements will be scored by a review committee.

The top scoring single applicant in the urban classification (serving communities with populations 5,000 and higher) and the top scoring applicant in the rural classification (serving communities with populations below 5,000) will be compared against the top-scoring joint application of an urban and a rural utility to select the overall winner(s).

10.1 Evaluation Criteria

Applications will be evaluated based upon the following criteria:

- Quality of the methodology and scope of work (50 pts)
 - BEM equipment proposed
 - Implementation plan
 - Education plan
 - Level of analysis
- Amount of matching funds provided and number of buildings to be served (25 pts)
- Qualifications of applicant (20 pts)
- Whether a joint or single application was submitted (5 pts for coordinated joint application)

10.2 Award Process

The Applicant(s) with the best response based on the above criteria will be notified of our intent to negotiate an agreement. The format, terms, conditions, and final project scope will be mutually agreed upon in writing prior to award of any funds.

AEA and the selected utilities may need to redefine the equipment selected, in the event that the proposed equipment does not meet study needs, or in the event that only one device is proposed for both rural and urban studies.

If you have any questions about the application process, please contact me.

Thank you for taking the time to respond to this request.

Sincerely,

Sean Skaling
Program Manager, Energy Efficiency and Conservation