

Community Energy Efficiency Education “Booth in a Bucket” Kits – Implementation Model

*Biggest State to Biggest Saver: Energy Efficiency Solutions for Alaska
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Photos courtesy RurAL CAP; taken during START community energy fairs in Arctic Village and Shishmaref, 2013

Overview

As a part of an effort to overcome barriers to the adoption of energy efficiency and conservation (EE&C) behavior, Rural Alaska Community Action Program (RurAL CAP) piloted EE&C outreach methodology with several goals in mind: to generate EE&C public awareness, to create a new tool for use by EE&C outreach stakeholders, and ultimately to improve EE&C in Alaska. RurAL CAP's community education project involved the creation of nine different EE&C related "booth in a bucket" applied science kits and a "how-to" guide for putting on a local energy fair. This work, based on the quantitative and qualitative findings of recent, Alaska-specific research, was conducted throughout 2012 in five rural Alaska communities. RurAL CAP's project demonstrated overwhelming support for simple, inexpensive, and easily replicated community-oriented education as a way to deliver critical EE&C information in a way that resonates with the target audience and inspires long-lasting behavior change.

RurAL CAP is one of over forty entities making up the Alaska Energy Efficiency Partnership ("Partnership"), an ad-hoc working group working collaboratively since 2010 toward the state goal of improving EE per capita by 15% between 2010 and 2020. Among the Partnership's diverse membership the common thread is an emphasis within each organization on public outreach. Given the lack of state mandates and limited funding for energy efficiency action the collective outreach efforts of the Partnership are seen as one of few available vehicles for improving energy efficiency in Alaska. RurAL CAP's pilot project was designed to test one potential way of overcoming a barrier relevant to energy efficiency outreach, and therefore of significant importance to the Partnership's collective efforts.

RurAL CAP has a long history of helping rural Alaska communities. Since its establishment in 1965, the organization has been working to lower rural energy costs through weatherization, energy efficiency and conservation education, and other ventures. In 2009, RurAL CAP piloted their award winning Energy Wise program as a comprehensive residential energy efficiency and conservation education program. Working in partnership with local communities, regional entities, and a wide variety of partners, RurAL CAP implemented the Energy Wise program in 18 communities and 1530 households between 2009 and early 2012. Energy Wise helps rural Alaskans reduce their energy consumption, lower their home heating and electric bills, and save money. Energy Wise also creates up to 10 local jobs and training opportunities per community. Residents and the state save an average of more than \$700 a year in home electric bills, in addition to reducing heating costs.

In order to enhance the educational component of the successful Energy Wise program, RurAL CAP decided to develop a formal community education tool that would build on existing materials used by similar programs in and out of Alaska, as well as incorporate new materials created to meet the specific needs of Alaskan populations. Not only could the Energy Wise program benefit from this new resource, but collective Partnership efforts and any other program or agency in Alaska interested in an improved delivery system and effective outreach and public education tool would benefit from the development, distribution, pilot, and evaluation of a Community Energy Education Kit. By utilizing the existing infrastructure of Energy Wise program, RurAL CAP set out to develop, test, and refine a Community

Energy Education Kit that would benefit all Alaskan energy efficiency stakeholders working to meet the goal of 15% by 2020.

While RurAL CAP's project was driven ultimately by the 15% by 2020 state energy efficiency goal, the project's specific objective was to pilot a creative, culturally appropriate, easily replicated and effective vehicle for delivering energy efficiency public education in rural Alaska. Project development drew heavily on findings of the 2011 report *Recommendations for Alaska Energy Efficiency and Conservation Public Education and Outreach* ("Needs Assessment"). The Needs Assessment highlighted insufficient public awareness as a barrier to EE&C improvement, and identified improved public education/outreach as a way to overcome that barrier. The following recommendations were incorporated into RurAL CAP's Community Education Kit project plan:

- Show a connection between energy use behaviors and energy consumption
- Provide a clear path to follow in taking EE&C measures
- Get buy in from community Elders/leaders and ask community members to deliver the message
- Engage the whole community from youth to elder to create a sense of "doing" for the greater good
- Use fun, engaging, motivating and dynamic people-centered initiatives



Approach

There were two components to RurAL CAP's community energy education kits: creation of nine different "Booth in a Bucket" hands-on science kits and the successful deployment of those booths during energy fairs associated with the Energy Wise and START programs.

The "Booth in a Bucket" project scope of work included components relevant to four different target audiences important in rural Alaska: residential, community energy fair, youth engagement, and public buildings. The quest for a simple, culturally relevant and transportable system to engage communities in the fundamentals of energy efficiency and conservation lead to the creation of bucket booth concept as a way to bring all four components together into one multi-purpose EE&C education delivery system. Nine booth demonstrations, each easily transported entirely within a commonly found five-gallon bucket, contain an interactive elementary science fair project relating to a basic scientific concept teaching EE. Each bucket also includes a list of materials and step-by-step instructions on how to run the booth so that essentially anyone can open the bucket and give a hands-on EE demonstration. These nine demonstration booths are:

1. Window film demonstration
2. Refrigerator demonstration
3. Keep the Cold Side Cold booth (refrigerator efficiency)
4. Keep the Hot Side Hot booth (insulation efficiency)
5. Ventilation! It Matters booth (ventilation and indoor air quality)
6. Put a Lid on It booth (heat escape and cooking efficiency)
7. Kill-A-Watt booth (bulb and electricity efficiency)
8. Linty Bubbles booth (cleaning refrigerator coils and dryer vents)
9. Thinking Up! Booth (heat escape and insulation)

The Energy Bucket Booths were tested first in five northwest Alaska communities already slated for participation in RurAL CAP's Energy Wise program and then in the eight U.S. DOE Strategic Technical Assistance Response Team (START) program communities. In each community RurAL CAP visits they host a community energy fair, usually held in the school. It was at these fairs that the "Booth in a Bucket" kits were deployed. RurAL CAP found it was important to work in collaboration with the school during the preparation process. For the nine demonstrations, students worked with community volunteers to host the demonstrations. Volunteer students and community members attended the fair early to help set-up and learn the content of their demonstrations. Other aspects of the community energy fairs that were important for attracting participation were youth poster contests, door prizes, and refreshments.

RurAL CAP, as a part of this project, wrote a manual giving step-by-step instructions for how to organize and manage a community energy fair. The manual entitled "Energy Fair, A Quick How-To Manual: Hosting an Energy Fair in Your Rural Alaskan Community" begins as a conversation with a community that may be interested in learning about and teaching energy efficiency. It proceeds to identify the logistics of locating a building, recruiting volunteers and gathering supplies. The steps that follow are

ways to publicize the event and ways to entice and engage youth participation, such as the poster contest. Because booths may include electricity access, general instructions are provided, as well as tips for safety and conversation ideas. Lastly, seven unique booth ideas (taken from the “Booth in a Bucket” list) are presented, including for each: the purpose, materials required, table instructions, booth instructions, special instructions, if any, and a section on how booth volunteers can turn the science-fair-like demonstration into a learning opportunity with tangible applications for community members. This 23-page booklet is very easy to follow, and designed so that a youth in middle school can pick it up and follow it to completion.

One way of encouraging participation in the energy fairs, thus exposure to the bucket booths, was having poster competitions for young people. Community youth were invited to create posters that displayed the concept of energy conservation and sustainability. Posters were hung around the room and all fair participants were invited to vote on their top selections for each of two contest groups (younger kids and older kids). Votes were tallied at the close of the fair and awards were given to the top three selections in each age group. The poster contest was an effective way of building enthusiasm for energy efficiency and ensuring good attendance at the energy fairs.

Door prizes were also used as a way to entice participation and encourage people to visit as many booths as possible while attending the energy fair. Participants were issued cards that had to be validated by the booth volunteers in order to be considered for the door prize drawing. The incentives were usually items that are good for energy efficiency in the home, or funds to offset their energy costs, such as gasoline, heating fuel, or a credit to their utility bills. The amounts were very modest. Asking a vendor to be a partner and donate such prizes is a good way to get outside participation and build partnerships.

Finally, incorporating food into the event was another important component of the project’s approach. Food plays an important role in rural Alaska culture – it’s a way of bringing people together. Some energy fairs were potlucks in which participants were asked to bring a dish to share, while others provided refreshments donated by local stores or outside organizations/agencies helping to put on the energy fair. Food tends to be a good draw to events in rural Alaska.

The Energy Fairs conducted for the community involved youth both as booth facilitators, as well as participants. RurAL CAP involved local youth with the hope that they would be able to capture young people’s attention and instill lifelong behavioral changes, and also to attract the entire family to the functions being held.



Execution

Timeline:

RurAL CAP signed a grant agreement with Alaska Energy Authority on October 1, 2012. Conceptualizing the “Booth in a Bucket” kits happened immediately and components were ordered in late fall 2012. The five energy fairs at which the “Booth in a Bucket” kits were piloted occurred throughout winter and spring 2013, and the “How To” manual was written in summer 2013.

Budget:

The estimated budget for the “Booth in a Bucket” kits before the project began was approximately \$55,000 for staff time and materials related to the creation and deployment of the kits, as well as indirect costs for the duration of the project. This budget did not include a line item for travel expenses as RurAL CAP staff were already planning on being on site for the Energy Wise and START programs and at those respective community energy fairs. The cost to replicate the “Booth in a Bucket” kits is approximately \$100 each, though materials could be gathered from community members at no cost to the person or organization putting on a local energy fair.

Staff:

RurAL CAP tasked existing staff with the development and deployment of the “Booth in a Bucket” community education kits. This project funded .25FTE, split between two employees, for the eighteen month duration of the project timeline. No additional, outside support was required.

Prerequisites for success:

Successful creation and deployment of the “Booth in a Bucket” kits can be attributed to several variables. First, the project was firmly based on Alaska-specific research conducted explicitly to help improve the effectiveness of EE&C public education/outreach efforts. Second, RurAL CAP has extensive experience working with rural communities to lower energy costs through efficiency and conservation measures so they knew their audience well. Third, RurAL CAP always involved local people in the organization of the community energy fairs. Forth, and finally, RurAL CAP was able to attract healthy participation by community members in the energy fairs with poster competitions, door prizes, and refreshments.

Measuring Progress and Success

The primary objective of the “Booth in a Bucket” project was to engage rural Alaskans of all ages in energy efficiency and conservation education during community energy fairs in a creative, fun way that might inspire energy saving behavior over the long term. The intended barrier to overcome with RurAL CAP’s community education kits project was designed to overcome an insufficient public awareness of energy efficiency as an energy cost reduction solution. These are difficult things to measure and therefore project success must be accessed by looking at less tangible metrics. RurAL CAP tracked energy fair participation and project managers on site gauged the feel of the crowd.

The Energy Fairs were exciting events that inspired local energy efficiency advocates while creating a sense of community empowerment. Local youth participated in energy fair activities. Booths, poster contests and door prize opportunities kept everyone busy. By asking youth to volunteer as booth facilitators, RurAL CAP provided them an opportunity to step up as leaders and conduct demonstrations for their own families, neighbors, elders and friends. RurAL CAP also had adult volunteers at the energy fairs to help with some booths as appropriate. Regardless their age, managing the booth gave facilitators a responsibility that the individual internalized. “Booth in a Bucket” participants not only learned about EE but developed ownership over the concept, suggesting that knowledge might be incorporated into every-day action. Booth facilitators as well as community members visiting the booths were taught to think of how the topic relates to their everyday actions. Booth facilitators were encouraged to turn that connection into a conversation with energy fair participants, and by doing so the fun science experiment became a hands-on learning tool for all.

There was a marked difference in community energy fair participation between the five northwest Alaska villages and the eight START communities. Energy fairs in the former were much smaller events. RurAL CAP was the only outside organization participating in these fairs. In the eight START

communities, however, the energy fair was a part of a much larger energy summit with upwards of 10-20 representatives from state and federal agencies, regional tribal organizations, and other relevant entities. Though RurAL CAP's role was the same in all thirteen communities other factors may have influenced the number of energy fair participants, thus the level of community exposure to the "Booth in a Bucket" kits.

Community	Energy Fair Participants*	Total Population	Energy Fair Sponsor
Kiana	31	361	NANA/AEA
Selawik	21	829	NANA/AEA
Kotzebue	25	3,201	NANA/AEA
Deering	15	122	NANA/AEA
Kobuk	15	151	NANA/AEA
Teller	90	229	NREL START #1
Quinhagak	156	669	NREL START #1
Arctic Village	48	152	NREL START #1
Venetie	71	166	NREL START #1
Minto	39	210	NREL START #2
Kongiganak	175	439	NREL START #2
Shishmaref	48	563	NREL START #2
Koyukuk	25	96	NREL START #2

*Participation was tracked via a sign-in sheet that may or may not reflect true fair attendance. Anecdotally, for example, we know participation in Minto was much higher than reported.

A better way of measuring this project's effectiveness in improving general public awareness of energy efficiency and ultimately, in encouraging the adoption of EE&C behavior for energy use reduction to meet the state 15% by 2020 goal, may not be possible. It is important to note that this kind of outreach tool is meant to be a compliment to other energy efficiency and conservation efforts. Improving public awareness of EE&C to the point it significantly affects behavior would likely require a dynamic, collaborative, and long-term public outreach campaign paired with a portfolio of well-funded building-level incentive programs to implement energy efficiency and conservation measures. After all, the barrier targeted by this project is but one of many that have to be overcome to meet short and long term energy efficiency goals.

While the energy fair participant numbers do not show impressive results, anecdotally we know the "Booths in a Bucket" have been a smash hit. Community members participating in the five northwest communities' fairs were heard talking enthusiastically about the bucket booths. Partnership members participating in the START-related energy fairs saw how engaged community members were in the different booths, and perhaps more importantly, how excited the youth facilitators were to be a part of it all. It is clear to RurAL CAP project managers, community participants, and witnesses to the deployment of the new community education tool that this is a positive, successful resource now available for easily, quickly, and cheaply bringing an element of EE&C education to almost any event.

Outcomes

RurAL CAP's project created two new, effective resources for use by EE&C professionals and communities for delivering energy efficiency and conservation public education in rural Alaska and both have already been used beyond the initial scope. Project managers gave a demonstration at the summer quarter meeting of the Alaska Energy Efficiency Partnership; Partnership members now consider the bucket booths one of the resources in the collective arsenal for delivering EE&C public education. RurAL CAP also demonstrated two of the bucket booths at the fall annual leadership meeting for the Bristol Bay Borough where they received positive feedback for their project for its creativity, simplicity, fun, and low cost. Alaska Energy Authority is considering putting together a set of the bucket booths to lend out as a part of the organization's EE&C public outreach program. The "How To" guide has been published to the Partnership's website (www.akenergyefficiency.org) for easy access by the public. Community energy fairs are becoming a more frequent part of EE&C program delivery in rural Alaska. As word spreads about the new resources undoubtedly more opportunities to use the resources will be identified and taken.

