

News from the ALASKA CENTER FOR APPROPRIATE TECHNOLOGY

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Our mission is to promote research and education for Alaskans in sustainable economic development

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DEVELOPING WIND SYSTEMS FOR RURAL ALASKA

We met Saturday, February 5 for a great presentation by Mr. Brent Petrie, Manager of Community Development and Key Accounts for the Alaska Village Electric Cooperative (AVEC). AVEC provides electricity to 52 villages, from Old Harbor on Kodiak Island north to Kivalina (north of Kotzebue). The cooperative purchases about 5 million gallons of diesel each year, and Brent mentioned the price (per gallon) climbed 50 cents in a single year - from \$1.43 to \$1.93. While that's one of several good reasons to begin investing in wind-powered electric generating systems, there are many challenges to actually getting these systems in place.

Brent was obviously well-versed in current happenings across Alaska relative to rural energy projects, and also with the challenges in developing these systems in remote areas. AVEC recently installed four 65-KW turbines in the village of Selawik, and they have ordered seven more turbines for use at two other villages. The wind turbines work in tandem with diesel generators, so these systems are called "wind-diesel hybrid" systems.

Some of the challenges in developing these systems include:

- 1) Having the proper heavy equipment to stand up an 80-foot tower. Because of this, they will often try to coordinate with another building project, such as construction of a new school, when a large crane may be in the area.
- 2) Creating a proper foundation in permafrost areas. It's not often possible to just pour a cement foundation! In many cases they are driving pilings 35-50 feet into the ground (to support the 80-foot tower). This again requires specialized equipment.
- 3) Having enough qualified maintenance people. Brent mentioned there was ONE guy trained to both work on the turbine electric and electronic components, AND climb towers. There are efforts underway to increase the number of

qualified people - Brent used the term "windsmiths" - and encourage local folks to pursue training.

4) Concerns with Wildlife Impacts. Brent mentioned that because some of the agencies responsible for migratory birds have little information on specific movement patterns of bird populations, they tend to require LOTS of information be acquired by AVEC. This can be very expensive, in places where the cost of doing business is already very high. He did mention that ABR, Inc. (an ACAT member) has done studies involving bird movements near the village of Gambell.

5) Need for detailed wind data. While we know western Alaska and the Aleutian Islands have the best wind in the nation, it's still necessary to have local, specific data when developing a particular system. Efforts are under way to develop very detailed wind maps, and the Alaska Energy Authority has developed a wind-monitoring equipment lending program to help village leaders get the proper wind data to help determine feasibility of a wind system.

6) Current village infrastructure, like boardwalks and above-ground water systems, often makes it difficult to move heavy equipment in/around the village.

After his presentation, we had a wide-ranging and enjoyable discussion, including health issues, the possible role of carbon emission "credits" (also called green tags) to possibly help finance new systems, the possible use of re-conditioned turbines from other parts of the world. Like any company, AVEC must look ahead 20 or 30 years and develop "what-if" scenarios about future costs of diesel fuel (and shipping and storage/handling) to help them pencil out the pros and cons of developing wind systems.

In my opinion, this highlights another challenge. While companies like AVEC can look at longer-term costs/benefits, government entities that often help finance rural utility systems typically only look at initial capital costs. With the latter, fossil fuel systems typically appear cheapest. Of course, health and environmental costs of these systems are "externalized," and virtually no thought is given to future costs of "feeding" the system. After all, it's the village that has to come up with the ever-more-expensive fuel to power the system. With a proper, long-term perspective that includes provision for social and environmental costs, renewable energy systems should be the winner, hands down!

For more information about AVEC, you can go to www.avec.org. It's great to see some forward-thinking folks pushing the envelope in difficult conditions! Thanks again to Brent for a great presentation, and thanks to Sandy and Harvey Bowers for the use of the Agate Inn conference room!

PLANNING BEGINS FOR "BEAMING BIONEERS" IN ALASKA 2005

The first general planning meeting for this year's Bioneers in Alaska conference will be held February 18. Again ACAT, Alaska Earth Institute and Alaska Housing Finance Corporation will be involved in planning, and it's expected the core planning group will expand some. There is plenty of room for folks interested in either general conference planning or in developing the "local sessions" highlighting work in Alaska. We have made an initial contact with Richard Nelson, cultural anthropologist and host/creator of the

public radio show "Encounters," regarding a possible keynote speech for this gathering.

It looks like we'll have UAA's Wendy Williamson auditorium for the plenary speakers, once again "beamed" to us via satellite. This auditorium seats many more people than last year, so there's plenty of room for expansion. With the interest generated last year, I'm certain we'll need the larger venue. The nation-wide gathering will take place October 14-16, and we are probably going to kick things off the night of October 13.

We're also working to develop the conference web site (www.sustainak.org) as a "communication tool" among Alaska Bioneers. Margie Warnke has graciously offered to help with this effort, and is helping to make sure we have complete contact information for folks interested in our Alaska network. Our desire is that folks will be able to use the web site to not only get information about this year's gathering, but also to identify and communicate with people of similar interests, thus building other networks.

A specific example of a way to use this web site: at last year's conference we began developing a large spreadsheet with contact info for people working on renewable energy projects in Alaska. This kind of information could be updated and made widely available on the site.

If you have an interest in helping - in any way - with this exciting gathering, please get in touch with me. There will be plenty to do! One way everyone can help is to spread the word among all your various circles. And if you want more information about Bioneers in general, go to (www.bioneers.org).

MEMBERSHIP: WELCOME TO ALASKA BUILDING SCIENCE NETWORK

We are pleased to welcome the Alaska Building Science Network as a new ACAT corporate member! ABSN is a member-supported association of individuals, businesses, and organizations dedicated to promoting energy efficiency as an essential component of durable, safe and affordable housing in Alaska. Their members include builders, energy raters, material suppliers, weatherization contractors, and other building industry members throughout Alaska and North America. You can learn more about ABSN at www.absn.com. ABSN was also a "partner" in last year's Bioneers in Alaska conference.

As most of you know, we send renewal messages by email, so if you've gotten a renewal request lately, please send your member dues! And if your email address changes, please let us know.

VOLUNTEER OPPORTUNITIES

There will be plenty of opportunity to help with the October Bioneers in Alaska conference, and we are constantly seeking someone with a bent for web site development to take our web site under their wing for update and enhancement! Please let me know if you have an interest in either.

YOUR FEEDBACK APPRECIATED!

Don't be shy about providing feedback - about this newsletter, ACAT's programs or projects, whatever. Since I've started putting the newsletter in the body of an email, it doesn't LOOK as fancy, but it's more universally readable. I'm sure some computer whiz could fancify it and keep it readable. A small future challenge. It'd be great to hear from you, about anything!

JOIN US!

Did a good friend send you this newsletter? Help expand the network of folks working to create the Alaska we want to live in! Go to our (developing) web site (www.acat.org) for a membership form, and join up!

For any questions, on anything in the newsletter, please contact Mark Masteller at m.masteller@acat.org or 907-373-0909.