

# Energy EFFICIENCY

January 2004 Volume 8, Issue 1

Click on the sections listed below for more articles and information

[News from Around the Region](#)

[New Technology & Programs](#)

[People](#)

[Traveling Exhibits](#)

[Archives](#)

[Contact Us](#)



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Will  
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Click on the image to the left for details

## Highlight on Small Customer Utilities

Without a large conservation staff, it can be challenging for small utilities to offer much in the way of conservation programs. Not so for several small, proactive utilities in Washington and Idaho.

[Nespelem Valley Electric Cooperative \(NVEC\)](#), Nespelem, Washington, with a customer

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## Lighting Retrofits at Oregon Schools

Dave Wimpy of [Tillamook PUD](#) (Oregon) has been very successful in working with local schools to retrofit their lighting systems. The gyms at several schools in the PUD's service territory use 400 watt metal halide lights. Those lights are high wattage, usually 460 input watts, and cannot be turned on for 12-minutes after turning them off. Because of this feature, schools often burn the

## Turning Straw Into Gold

Washington Senator Patty Murray was the honored guest on December 15, 2003, as BPA staff and about 50 other individuals attended a bio-energy plant open house at the Grand Teton Enterprises gasifier manufacturing facility in Spokane, Washington.

Grand Teton Enterprises showed off their first gasifier, the Bio-Gen T60A at the event. This gasifier technology was

[Click here for more . . .](#)

## Washington Fuel Cell Education Program

Over 18,000 Washington students will learn about fuel cells thanks to a grant from the US Department of Energy's Hydrogen, Fuel Cell and Infrastructure Program. The grant was received by the Washington State Department of Community, Trade and Economic Development (CTED) and



## Say, "Cheese!"

Cheese was the operative word as Bonneville Power Administration Energy Efficiency staff viewed completed and planned energy efficiency projects in the [Tillamook PUD](#) (Oregon) service territory, including the [Tillamook Cheese Factory](#). Tillamook staffers Dave Wimpy and Barbara Johnson wowed their BPA guests.

"It is simply terrific to see projects such as the retrofit of the school gymnasiums and know that besides saving energy, the lighting levels are significantly increased," observed Mike Weedall, BPA VP for Energy Efficiency. BPA Energy Efficiency Representative Elly Adelman did wonder if the local team was giving up some form of home court advantage now that quality lighting would be provided for visiting teams.

[Click here for more . . .](#)

## BetterBricks Workshops

Interested in learning more about High Performance Building practices? [BetterBricks workshops](#) are an ongoing series available to utilities and their customers who are involved with commercial building.

[Click here for more . . .](#)

lights all day whether anyone is in the gym or not.

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**Maintenance Engineer Ray Mack (right) explains to BPA Energy Efficiency Representative Elly Adelman and EE Vice President Mike Weedall the processes involved in making cheese at the Tillamook County Creamery Association Headquarters and Visitor Center. (Photo by Barb Johnson, Tillamook Co. PUD)**

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## Harvesting Clean Energy 2004

Register Now for the 4th Annual Harvesting Clean Energy Conference.

This year's Conference is set for January 20-21 at the Oregon Convention Center in Portland, and is co-located with the NW Food Processors Association annual convention. Register by calling 1-800-942-4978 or at [the HCE web site](#).

[Click here for more . . .](#)

[Back to Top](#)



[Back to Front Page](#)

## **News from Around the Region**

### **Bandon Micro-turbine Project**

Early in 2003, the [City of Bandon](#), Oregon, installed a micro-turbine electric generating unit on the Oregon Overseas Timber property adjacent to the Bandon Airport. The propane-fired, 60-kW generator was loaned to the City by BPA, and was tied directly into the City's electric distribution grid during May, June, and July.

The purpose of the project was to test the feasibility of using this technology to generate power in Bandon, particularly in light of the anticipated completion of Coos County's natural gas line to the community in 2004.

The cost of generated electricity in this particular test was significantly more than that purchased from BPA, but the City gained valuable information regarding the installation, interconnection, and operation of a small generating unit. The average cost for electric energy from the micro-turbine was \$.14 per kWh, compared to \$.04 per kWh from BPA. Much of the price differential was the result of using propane as a fuel source (since natural gas was not available), the fact that the unit was only operated at two-thirds capacity (40 kW vs. 60 kW), and the fact that the City did not have co-generation capabilities to use the waste heat. The lessons learned could prove important if the City pursues the concept using natural gas to generate electricity.

*Excerpt from the City of Bandon [November Newsletter](#), Matt Winkel, Bandon City Manager*

-- Todd Amundson (503) 230-5491

### **Chelan County Solar Projects**

The [October 2003 BPA Energy Efficiency Newsletter](#) featured an article on the Alcoa Foundation



Solar Endowment that is funding the installation of solar photovoltaics in 35 schools and public agencies in Chelan County, Washington. The photo to the **right** is a digital rendition of how the Performing Arts Center in Wenatchee, the second PV project under this endowment, will appear when complete. The 10-kilowatt installation is part of [Chelan County PUD's Sustainable Natural Alternative Power \(SNAP\)](#) program. Revenues from power generated at the project sites will be used to fund community programs.

-- Tom Hannon (509) 7450.

### **Say, "Cheese" *continued from front page***

Besides the school lighting retrofits, a site on the county fairgrounds was also visited. During the majority of the year when this building is not in use, a local tennis club leases the space. With the installation of high quality lighting, Dave and Barbara reported that memberships in the local tennis club had increased. 'Sort of a win/win/win -- better lighting, lower electricity bills, and increased revenues. As an avid tennis aficionado, Mike Weedall was especially impressed with the quality of the lighting.

The highlight of the day focused on the future: A tour of the Tillamook Cheese Factory to discuss six projects that could yield over 1 aMW of savings annually at that facility through BPA's Conservation



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### **Highlight on Small Customers *continued from front page***

base of 940, goes above and beyond the [Conservation and Renewables Discount \(C&RD\)](#) program requirements by offering incentives to end-users who purchase ENERGY STAR appliances. In addition, NVEC recently helped Nespelem's only elementary school upgrade to energy efficient lighting with rebates from the Limited Standard Offer for Commercial Lighting (LSO). NVEC also signed up for the [Expanded Standard Offer \(ESO\)](#) for 2004-06. Desiring to take advantage of all available programs, Bill Miller, utility manager, chose to participate in the [Residential Loan Program](#) as a way to assist homeowners in securing loans for energy efficient heat pumps, house insulation, or windows. To get homeowners started down the energy efficiency path, NVEC offers free energy audits, provides handouts at the office counter, and refers customers to others who can help. According to Bill, "It's important to teach our members about energy conservation. It puts dollars back in their pockets and they're grateful to us for that. Whether young couples with children or retired, our customers are on low incomes. We'll do

Augmentation Program. Tillamook staff provided a behind-the-scenes view of this fourth most popular tourist attraction in Oregon that not many see. It is obvious cheese factory management and staff recognize the need to stay competitive and manage their costs. But factory staff also realize that, like the high school and tennis facility, there are other benefits to be gained besides energy savings. For example, by undertaking a retrofit of all of their various lighting systems to a single energy efficiency technology, maintenance costs will be greatly reduced while allowing for a single set of spare parts to be inventoried.

With a quick stop for ice cream, BPA folks were back on the road to Portland. Elly and Mike had a great day visiting BPA's partners in Tillamook, and they are already scheming for more field visits in the new year to learn what other creative energy efficiency projects are being pursued by other partners in the region.

*Submitted by Mike Weedall*  
-- Elly Adelman (503) 230-5052



anything we can to help them keep the electricity on.”

Just across from Grand Coulee Dam, the Town of Coulee Dam, Washington, serving approximately 600 customers, offers C&RD incentives to customers who install ENERGY STAR windows. As with NVEC, this is beyond what the C&RD requires. The Town's latest offerings to customers included the LSO and, now, the [ESO](#). The Town found value in signing up for the Residential Loan Program as it fills a need when financing for energy efficient home improvements is not available elsewhere.

The City of Plummer, across the border in Idaho, has around 600 customers. With Donna Spier at the utility helm, the City participated in the LSO, the ESO and is now offering the Residential Loan Program to customers who want to install insulation, windows, or heat pumps.

-- Rosalie Nourse (509) 358-7463



**Pictured above is a workshop that Clark PUD recently hosted. The teachers rated the workshop as excellent and were excited about using the kits in their classes. Thank to Rick Closson, Commercial Accounts Representative at Clark Public Utilities, Vancouver, for his help and support**

Metal halide lights in the South Prairie Elementary School gymnasium (above) in Tillamook, Oregon, were recently replaced with energy efficient T5HO fluorescent lights.

## Lighting Retrofits

*continued from front page*

Metal halide lights at South Prairie and Nestucca Elementary Schools were replaced with four-lamp fluorescent T5HO lights that use 234 input watts. In addition to lower wattage, the lights are controlled by occupancy sensors which turn them off when the gyms are not in use. Another benefit of the retrofit is increased light intensity, which has nearly tripled.

Both metal halide and fluorescent lamps have approximately the same lifetime of five to ten years, depending on use. However, the fluorescent lights maintain over 90 percent of their light output over that lifetime, while the metal halide lamps can have as much as a 50 percent reduction.

The cost of the new fixtures is about \$300 each. These retrofits were offered by the PUD through the BPA Conservation Augmentation Expanded Standard Offer Program.

-- Craig Ciranny (503) 230-5865

## Harvesting Clean Energy

*continued from front page*

Sessions will provide insight into the nuts-and-bolts of how agricultural producers can profitably diversify into clean

## Fuel Cell Program *continued from page 1*

is in support of the Northwest Energy Technology Collaborative (NWETC). CTED contracted with BPA to manage curriculum development and dissemination through hands-on teacher workshops.

Two hundred fuel-cell-car-and-curriculum kits will be provided to Washington teachers at these workshops. While the Washington teacher workshops are full, workshops may also be scheduled in Idaho, Oregon and Montana, if additional grant funding is received. For more information on these workshops, please go to: [fuel cell workshops](#).

Workshops are held at either Educational Service District or Public Utility District (PUD) Offices. In January, [Snohomish PUD](#) will host a workshop at their Everett offices, thanks to Sonia Siegel Vexler, Public Education Coordinator, and in February a workshop will be held at [Chelan PUD](#). The final workshop will be held at Tacoma School District's Science Materials Resource Center, and directly supports the District's new Science and Sustainability Program.

Also as part of this grant, an Avista Labs proton exchange membrane (PEM) fuel cell is being installed at Central Washington University for use in their engineering program and for tours and field trips. Additional field trip opportunities to Avista Labs, King County Fuel Cell Demonstration Project, Pacific Northwest National Laboratory, and Portland's Columbia Boulevard Wastewater Treatment Plant Fuel Cell Demonstration Project are available as part of this grant.

The "Save A Watt" poster contest topic

energy production and other bio-product markets, including wind power, biofuels, energy efficiency, on-farm renewable energy, and biogas digesters. There will also be a session on efficiency opportunities for food producer-processors.

-- Tom Osborne (509) 527-6211

[\*Click here to read "Growing Energy on the Farm" by Katy Coba, Director of the Oregon Department of Agriculture.\*](#)

## **Marine Center Installs Energy Saving Measures**

Randy Walker, of [Oregon State University](#), and Stan Bishop and John Peterson, of [Central Lincoln PUD](#), invited BPA engineer Todd Amundson to perform a walk-through audit of the [Hatfield Marine Science Center](#) facilities, Newport, Oregon, in summer of 2002 to identify potential energy efficiency measures.

The HMSC shares seawater supply processes with Oregon State University, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and Northwest Fisheries, all located near each other and to the [Oregon Coast Aquarium](#). The Aquarium Visitor Center is approximately 12,000 square feet in floor space area. The Main buildings (Main, East Main, and West Main) total approximately 23,000 square feet. The Education Wing is a 14,146 square foot two-story building. The Main and Education Wing buildings are a combination of offices, laboratories, storage space, and classrooms. The Visitor Center was built in the late 1990s and the Main and Education buildings in the late 1960s to early 1970s.

OSU selected the McKinstry Company, Portland, as a performance contractor to implement several of the energy-efficiency measures identified in the audit. Central Lincoln PUD energy conservation staff -- Stan Bishop and John Peterson -- worked closely with McKinstry and OSU to develop project proposals and completion reports for submission to BPA.

The first implemented measure was lighting upgrades throughout the HMSC. Existing lighting consisted mainly of T12 fluorescents with magnetic ballasts

will be fuel cells and it will be officially announced in mid-January, 2004. The posters must be postmarked by March 9, 2004, and the winner will be notified April 10. The winner will receive a \$50 gift certificate and travel expenses for the winner and one parent to the Earth Day event in Olympia on April 25. This contest is open to all 8th grade students in BPA's territory (Idaho, Oregon, Montana and Washington).

Fuel cells use the chemical energy of hydrogen to generate electricity, cleanly and efficiently. Hydrogen fuel cells have the potential to strengthen our national energy security and to reduce the generation of greenhouse gases, air pollution and global climate changes.

Teaching students about this important technology will give them an edge in this developing field. Those students will play an important part in making fuel cells part of the sustainable future!

-- Rosalie Nourse (509) 358-7463

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Existing lighting consisted mainly of T12 fluorescents with magnetic ballasts and incandescent lights. Replacing these with T8 fluorescents with electronic ballasts saved approximately 206,800 kWh/yr. This project was completed in the fall of 2003.

The second implemented measure was HVAC equipment upgrades in the Library and Education Wing buildings. This upgrade provided direct digital controls in the air-handling units and tied to a campus wide energy management system to perform start/stop functions, night setback strategies, and outdoor air ventilation free cooling.

With these upgrades combined, the project has the potential to save 292,000 kWh/yr. The expected completion of additional phases of this project is late 2004.

-- Todd Amundson (503) 230-5491

## Lighting Upgrades in Vancouver Middle School

McLoughlin Middle School was built over 35 years ago, and serves about 900 students in the Vancouver, Washington, School District. The 128,000 square foot school is a classic brick, single-story building.

Lighting systems in the classrooms consisted of approximately 1,000 two-lamp and 375 three- and four-lamp T-12 fluorescent fixtures. The school also contained over 300 incandescent fixtures ranging from 100 to 900 watts. The District elected to retrofit the T-12 fixtures with T-8's and electronic ballasts, to replace incandescent fixtures with compact fluorescent fixtures, and to replace 30 incandescent exit light fixtures with LED fixtures.

The project was completed in 2002 and produces almost 175,000 kWh in annual electrical savings. All existing fluorescent lamps were recycled, and all

## Expanded Standard Offer Training

On December 19, Adam Perry, [Midstate Electric Coop](#), and BPA's Craig Ciranny conducted training on running BPA's [Expanded Standard Offer](#) (ESO) under the Conservation Augmentation program umbrella.

The program targets commercial and industrial lighting retrofits as well as new light fixtures and sensors. Ciranny explained the latest lighting technologies available, ESO participation requirements, and technical specifications for lighting equipment. Adam Perry went over contractor claim procedures.

Attendees agreed the information was very useful and were appreciative that Midstate is offering this program to its end-users. Approximately a dozen local installers and suppliers attended.

Utilities interested in a similar session call your EER or Craig Ciranny at (503) 230-5865.

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ballasts containing PCB materials were disposed of as hazardous waste. The students and teachers now have more light in the classrooms and a comfortable color temperature of 3,500 degrees Kelvin.

The payback period for lighting replacements in schools is traditionally long because of the limited number of operating hours per year. Simple payback of this project was about nine years based on the present utility electrical rate. A simple payback of nine years is too long to qualify for 10-year loan funding after paying for normal administrative and interest charges.

The District borrowed most of the funds for the project through the Department of General Administration (GA) Washington State Energy Performance Contracting Program and will pay the loan back using energy savings. Almost \$15,000 of the \$135,000 project cost was funded through BPA's Institutional Buildings (IB) Program and through a contract with the State of Washington for conservation incentives to BPA public facility customers that have no other access to the IB program. Without BPA participation, the project was not financially viable to the District.

The Vancouver School District is served by [Clark Public Utilities](#).

- Robert Johnson, GA project manager
- Patricia Tawney, BPA, (503) 230-4315



## Energy Efficiency: Seeing the Whole Picture

Every once in a while someone asks how the whole energy efficiency picture fits together. When you are up to your eyes in wood chips from the trees you are chopping, the forest seems like a distant concept. Several different activities are needed to have a complete energy efficiency portfolio. No single approach can create all of the savings over a long period of time by itself. We use them all to accomplish the

funding for the elements of energy efficiency in the region changed. In 2003, most large utilities run their own local acquisition programs and some low-income programs. The utilities have pooled their resources into the Northwest Energy Efficiency Alliance to carry out the MT element of their portfolio and, in large part, the infrastructure and R&D fractions of their programs. The guiding principle has become: "do locally, what is best done locally; do

same end goal, just get there by different approaches.

A balanced portfolio of energy efficiency initiatives includes infrastructure development, equity (or low-income) programs, research and development efforts, market transformation efforts, and resource acquisition programs. Infrastructure supports the education, reference, and support service needs of the acquisition, market transformation, and even low-income programs. Research and development (R&D) keeps the pipeline full of new ideas and new technologies for future market transformation and acquisition programs. Market transformation (MT) targets specific opportunities that have good leveraging potential and that, while risky, can have a very high pay-off. This usually means an emphasis on markets, profits, and long-term market changes. Resource acquisition programs accomplish energy efficiency through incentives that get the savings from individual sites. The pace, location, and direct effect can be controlled, unlike MT where the programs are only one tiny part of a dynamic market. Acquisition programs are usually more expensive, but the results are more certain than the impact of MT.

The most important concept is that all of these elements of a portfolio are targeted at the exact same result -- energy efficiency savings. They simply use different tactics to create the savings.

Fifteen years ago, BPA and other major utilities each funded most elements of the portfolio directly. For instance, most Puget Sound

regionally what is best done regionally."

While BPA still supports some infrastructure such as the Regional Technical Forum and the Bright Way solar and Super Good Cents trademarks, most of the regional infrastructure is now supported through BPA's contributions to the Alliance. These include the Lighting Design Lab, ConWeb, Energy Ideas Clearinghouse, NW Energy Education Institute, and AgriMet, a satellite-based network of automated agricultural weather stations operated and maintained by the U.S. Bureau of Reclamation.

Nothing comparable has developed to match the R&D efforts that BPA used to fund, such as the OSU Motors Lab; Motor Master+, ASD Master, and AirMaster, software and tools available through the Department of Energy Office of Industrial Technologies; the Residential Standards Demonstration Program; and the Hood River Projects. Instead, the Alliance supports small efforts such as the development of BacGen for water and wastewater, MagnaDrive for variable speed drive applications, and the small commercial HVAC pilot for rooftop units.

Low-income programs are funded locally in some cases, but more and more through statewide delivery mechanisms. BPA and other utilities continue to support these efforts, just as other utilities support infrastructure and education like the Energy Outlet and the Lighting Design Lab outside of the Alliance.

Although the energy efficiency framework may have appeared to change over the years, the total

area utilities, BC Hydro, and Idaho Power contributed to the Lighting Design Lab; ConWeb, an energy conservation and renewables newsletter, was supported by multiple utilities around the region; and state energy agencies received funding from BPA. The Washington State Code Council was supported by most major utilities, as were code efforts in Oregon. Lane Community College (Oregon) and Edmunds Community College (Washington) ran energy management programs with support, respectively, from [Eugene Water and Electric Board](#) and [Snohomish County PUD](#), and also from BPA. R&D was actively supported through [Electric Power Research Institute \(EPRI\)](#) memberships. In the mid-1990s, with limited funding for conservation and the development of the theory of MT,

portfolio has not changed. All the elements were there in 1985, and they are all here in 2003. The proportionate efforts may have shifted slightly among the elements, with R&D down a little and MT up a little, but there was and is a strong emphasis on resource acquisition and infrastructure. Who does some of it has changed, but the work is still being done. Each element is important, and with the new roles of the Alliance, we have increased efficiency, regionalized and lowered costs, and found clear paths so that acquisition programs contribute to MT and the infrastructure that is established serves both strategic approaches.

-- Ken Keating (503) 230-5857

## **BetterBricks Workshops** *continued from front page*

BetterBricks connects building professionals with the information, tools, training, and consultation needed to design and construct high performance buildings. BetterBricks is an initiative of the Northwest Energy Efficiency Alliance, a non-profit group of electric utilities, state governments, public interest groups, and energy efficiency industry representatives committed to making affordable energy-efficient products and services available in the marketplace.

For more information about BetterBricks visit [www.BetterBricks.com](http://www.BetterBricks.com).

[Back to Top](#)



## New Technology

### Turning Straw Into Gold, *continued from front page*

perfected by Fred Beierle, owner of Green Power Inc, Prosser, Washington, in the early 1980s, and was resurrected during the 2001 energy crisis. Gasification converts carbon based solid waste feedstock into hydrogen and carbon monoxide. This clean syngas can run an engine-generator set.

Eastern Washington grass seed growers need to remove field residue every year. They normally burn their fields. For a number of reasons, mainly environmental, this option is becoming less attractive. The grass growers, U.S. Department of Agriculture, the Agricultural Research Service, Fred Beierle, Inland Power and Light, BPA and Senator Murray teamed together in early 2003 to fire up a solution – using the straw to create useful energy and activated carbon.

Senator Murray was responsible for securing \$750,000 for the Straw –to–Energy Demonstration Project to use new technologies to convert waste, excess grass, or wheat straw into energy. Farm-sized units have the potential to make farming more competitive. “I am proud to have secured this important funding for Eastern Washington,” said Murray. “This technology has the potential to provide long-lasting economic benefits for Eastern Washington. Eventually, our farmers could get paid for their farm



The unidentified man at the top of the ladder (left) lights straw pellets in the gasifier at the Grand Teton Enterprises facility in Spokane, Washington.

Below: Fred Bierle and Senator Patty Murray.

Photos by Tom Osborne



farmers could get paid for their farm waste and our region could have a renewable source of energy." The project will also seek to refine the processing, storage, and delivery of raw materials, to analyze the residues created by the process (waste and emissions), to develop markets for the products produced, and to perform economic analyses to demonstrate economic impact on the family farm.

The goal of the demonstration project on the Gady Farm in Spokane County is to show how these technologies can be adapted to a farm scale production where by a farmer can utilize the residue to produce energy that can be used on the farm or sold in the form of electrical energy or ethanol.

BPA staff assisted in bringing some of the parties to the table. As one of the partners, BPA donated a used 375kW diesel generator set for the pilot plant.

To find out more about gasification, visit <http://www.gasification.org/>

Farm Power was created to manage the project, and Battelle/Pacific Northwest Laboratories will perform some of the research.

-- Tom Osborn (509) 527-6211

## Living Machine: Before and After



The Living Machine uses bacteria to break down and clean waste. Wastewater flows into special bacteria tanks, which have no oxygen. Undigested sludge settles to the bottom eventually to become composted, while the liquid passes into the next set of tanks in a continuous cycle. The other nutrient flows from the tanks



Preston Michie (left), Toyokazu Tamura, and Miharu Kishioka discuss BPA's EnergyWeb program.

## Japanese Visitors Meet with Father of EnergyWeb

Japanese visitors Masami Kobayashi, Miharu Kishioka and Toyokazu Tamura included numerous power companies in their December tour of companies and plants on the leading edge of technology. They visited BPA to meet Preston Michie, the "father" of the BPA EnergyWeb concept.

In the late 1990s, Preston Michie asked a key question: what will the energy future look like? The answer was an energy web where telecommunications are used to optimize the use of power sources, and where local renewable and co-generated power sources supplement traditional generation. The ideal energy web reduces environmental impacts and costs while increasing electric system reliability.

-- Mike Hoffman (503) 230-3957

## Heat Pumps for Cold Climates

A new heat pump technology about to hit the market will heat effectively at zero degrees and below, resolving a significant drawback of other heat pump systems.

Heat pumps have been used for decades, but their ability to deal with extreme cold has been limited. The new [cold climate heat pump \(CCHP\)](#) can provide

open tanks in a greenhouse. The ultra-violet light from the sun works as a disinfectant while microorganisms, more bacteria, plants and animals such as snails and frogs feast. No chemicals are necessary. It's also an energy-saving technology. The photo on the left shows rather sparse vegetation at the beginning of the Living Machine project. The photo on the right shows the benefits of a bit of sludge. -- Todd Amundson (503) 230-5491

[heat pump](#) (CCHP) can provide efficient heat at 0° F and below.

-- Adam Hadley (503) 230-4631

[Back to Top](#)



[Back to Front Page](#)

## People

Under BPA's Federal Reimbursable Program, agencies request energy audits that are conducted by Energy Efficiency engineers to meet energy savings requirements mandated by law.

The U.S. Coast Guard requested audits of several of their Alaska facilities last summer. Engineers performed energy audits of nine facilities on a cost-reimbursable basis, and also took a few photos for us to enjoy.



## Bonneville Power Administration

<http://www.bpa.gov>

[BPA Home](#) ▶ [EE Home](#) ▶ [Energy Education](#) ▶ **Exhibit Request**

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### Exhibit Request

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Available to Northwest utilities served by Bonneville Power Administration

Below is a list of Energy Efficiency exhibits that are available to reserve for energy-related events.

- Click on the exhibit desired and a request form will open.
- Fill out the form and click "submit".
- Someone will contact you within a business day regarding the availability of the desired exhibit.

<b>Name/Description</b>	<b>Exhibit Photo</b>
<a href="#">Solar Model Home</a> -- Solar Model Home Exhibit with Lrg 3'x4' explanatory poster.	
<a href="#">Crank Power</a> -- 4 to 5 pieces (requires minor assembly). Pedal power has been modified into Crank Power which allows short and tall people to volunteer to generate power required to light a bulb.	
<a href="#">Fuel Cell Videos or CD-ROM</a> -- (3 or 8 minute) VHS or CD-ROM.	
<a href="#">Storyboard &amp; Posters</a> -- Fairchild AFB; Education Offerings; Lighting Materials; EE Programs & Initiatives. Requires either Velcro-friendly background or easels.	
<a href="#">Energy Efficiency Tips Brochure</a> -- Tri-Fold brochure in English (green) or Spanish (yellow)	
<a href="#">Lighting Exhibits</a> -- Energy usage and quality comparisons.	
<a href="#">Mr. Zippy</a> -- Inflatable CFL, requires power outlet for motor and something to tie it down with.	
<a href="#">Save a Watt Marketing Materials</a> -- Costume, banner, face masks, half-page flyer.	
<a href="#">Energy Web Diagram</a> -- Poster	
<a href="#">Sustainability Photo Story</a> -- Over 15 pictures of BPA achievements in sustainability including partnerships with customers. Photos need velcro-friendly display board.	
<a href="#">Solar Hot Water System Model</a> -- The solar hot water system exhibit is a model of a passive system. Explanatory materials included.	