

# Energy

# EFFICIENCY

News From BPA - Your Northwest Energy Partner

## Save-a-Watt

Get used to the smiling “watt character” below — it’s here for a while. The water situation looks good this year, but surpluses are unpredictable. It’s important for the uses of electricity in the region to be as efficient as possible. Sustained energy efficiency is one of the best ways to dampen the impact of volatile market prices.



Save-a-Watt is a marketing campaign designed to encourage end-users to make energy efficiency investments such as weatherizing homes and buying energy-efficient appliances. SAW is sponsored by BPA in conjunction with Belo Marketing Solutions and Hydrogen

Advertising. It is part of BPA’s long-term strategic plan to meet the electricity needs of its utility customers and, thus, lessen the impact of price volatility on the region’s ratepayers.

The SAW campaign includes television programming and advertising, print advertising, Internet and other special promotions, and tie-ins for utility-sponsored programs. The initial phase runs through July 2002. The marketing schedule will reach about 91 percent of Northwest homes -- your customers. As with the Community Conservation Challenge, this is a campaign to encourage your customers to take actions to save energy.

BPA is seeking input from local utilities for specific tie-ins. Examples include bill stuffers and other local promotions.

For more information, contact your Energy Efficiency Representative or Jennifer Eskil at (509) 527-6232.



## Happy Cows

In Tillamook County, OR, and many other dairy regions, ancient vacuum pumps that run at high rpm’s are used to suck the milk out of the cows. The vacuum pumps are typically oversized and operate at a high speed to allow for any unexpected airflow, such as when milking units fall off a cow’s udder. The pumps are extremely noisy, spit oil all over the ground, are environmentally unfriendly, and waste a lot of energy. Tillamook PUD signed a Conservation & Renewables Discount agreement with BPA for a number of dairy farm efficiency measures.

With a variable speed drive on the vacuum pump motor, the capacity of the pump is matched to actual requirements. Most of the time the pump will run at a lower, quieter speed. During the “washing out” process, the

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## Earth Day 2002

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# ★★ GALAXY OF STARS ★★

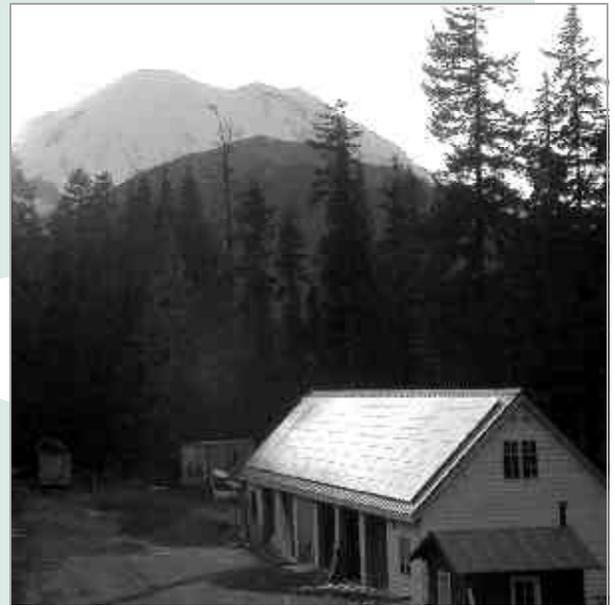


*Dave Barden, left, Big Bend Electric Cooperative, Ritzville, WA, and Bill Cicneros, Plant Manager of the newly constructed Johnson Farm's Organic Fertilizer Plant in Ritzville, stand in front of an energy-efficient infrared heater. The plant uses a patented process to prepare Perfect Blend organic fertilizer. The heater is designed to dry organic fertilizer much more efficiently than conventional convection dryers. Other energy efficient equipment in the plant includes lighting fixtures, lighting controls, efficient motors and efficient process controls. Cicneros says, "This is a tricky process that demands precise control. The design of the infrared dryer provides for that level of control." Big Bend's participation in BPA's Conservation Augmentation Program helped make significant energy savings a reality. (Chris Tash 509-527-6217)*

## Columbia River PUD Torchiere Turn-in Continues



*Above: Brent Barclay and Ken Corliss, Columbia River PUD take a load of used halogen torchiere lamps to Riverside Industries (top, right) for disassembly. Lower right: CRPUD customer Amelia West turns in a halogen torchiere to Ken Corliss.*



*This 20 kilowatt hybrid solar photovoltaic system replaced a diesel generator at the White River entrance to Mount Rainier National Park. Batteries store the sun's energy; the new, smaller propane generator will only run about 100 hours per year. (Michael Huber 206-220-6778)*

Columbia River PUD, St. Helens, OR, began a torchiere turn-in program last October at a local school childrens' fair. CRPUD expected about 20-25 halogen torchiere lamps would be turned in. Instead they ended the fair with 50 lamps. While they didn't have time to disassemble the lamps, they didn't want them to end up in the landfill. Brent Barclay contacted Riverside Industries in St. Helens, which provides employment for individuals with various challenges, to disassemble the lamps. The Riverside employees enjoy the work and receive payment for each unit. Riverside strips as much metal as they can out of the lamps and separates it by type. CRPUD collects the filled boxes and recycles the materials. They have taken three van loads of lamps to Riverside so far, and expect to take more as the torchiere program will continue at least through the end of April.



## Salem Electric Attends Home Show



Debbie Addison, Salem Electric (OR) Member Services, explained Salem's conservation programs to attendees at a recent home show in Salem.

Salem Electric borrowed BPA's CFL exhibit (at the left side of the photo) to demonstrate the amount of energy required to light a compact fluorescent bulb versus an incandescent bulb.

-- Don Davey (503)230-3124

## Elmira High School Photovoltaic System



Above: Ribbon cutting at the dedication of the new solar photovoltaic system at Elmira High School, Elmira, OR, on February 6. From left: Gene Morgan, Principal, Elmira High School; Elly Adelman, BPA Energy Efficiency Representative; Rich Walker, science instructor, Elmira HS; Jim Brown, Board of Directors Emerald PUD.

The Elmira High School system is a 600-watt solar array and inverter provided by funding from Emerald PUD and BPA. The school curriculum was developed by Frank Vignola of the University of Oregon Solar Monitoring Lab and two high school instructors with the help of a grant from the Million Solar Roofs Coalition. Information will be provided on a regular basis from a BPA meter which records the daily output of the system. Students will receive information as part of a classroom curriculum which will teach the fundamentals of solar energy. Having the system on-site will allow for valuable hands-on training and instruction on a how a PV system actually looks and works. (Article written by Joe Savage, EPUD.)

-- Elly Adelman (503) 230-5052

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motor speeds up and the noise increases somewhat. According to Dave Wimpy of the PUD, "A 60-70 percent reduction in energy use is achieved on the vacuum pumps alone. We have three or four dealers involved in this project, and each has about 12-20 people on their waiting list."

Wet label lighting fixtures are another popular energy-efficiency measure. The Light Edge, Inc., Monsoon T-5HO is constructed of hardy fiberglass with a Lexan lens. These fixtures use about 50 percent less energy per light than the typical mercury vapor barn light. The lights aren't susceptible to corrosion and can be hosed off, which is a huge advantage in a dairy barn where dirt and cobwebs thrive. The Monsoon also puts out more light than mercury vapor.

Another energy waster in the barn is the water heater. Tillamook PUD dairy farmers are encouraged to replace their water heater with an energy-efficient Marathon 105-gallon



A Tillamook County dairy barn was a noisy place (left) before the variable speed drive. It's a much quieter place now (below). The lights below are the new T-5HO fixtures.



water heater. Dairies typically keep their water heater set at a high temperature for sterilization of equipment. The Marathon tank is made out of plastic, an advantage for a unit that normally sits outside the barn in the damp where a traditional unit could rust.

Tillamook PUD provides the dairy farmer a rebate based on actual energy savings. A data logger measures the existing vacuum pump energy consumption for 14 consecutive days. Once the new equipment is installed, it is metered for 14 consecutive days. Rebates are limited to 70 percent of the equipment costs. Most average about 30-40 percent of costs. There are about 170 dairy farms in Tillamook County. The goal is to equip them all to save energy.

Wimpy said, "The new equipment is usually installed between morning and evening milking. The farmers come out of the barn smiling because it's so quiet. And the cows like it better."

-- Elly Adelman (503) 230-5052

## Coffin Butte Microturbine Test

BPA recently acquired a Capstone 60kW microturbine. The power system, which is loaded on a trailer and complete with propane tanks with a total capacity of 250 gallons, can be operated in almost any location where power is needed. The system was purchased by BPA to provide interested customers an opportunity to experience distributed generation technology so they can assess the technology in grid-connect operation, stand-alone, and/or automatic grid/stand-alone switching options. In terms of expense, the customer has to deliver the trailer mounted, US Government licensed, power supply system to their facility and pay for the propane fuel stored in 250-gallon capacity tanks.

In January, Pacific Northwest Generating Cooperative (PNGC) offered BPA Energy Efficiency staff a walking tour of their Coffin Butte (OR) Landfill power generating facility.

*Top right: Capstone Microturbine. Lower Right, from left to right: PNGC Landfill Gas Plant Technician, Roger Manke, PNGC Vice President of Engineering, Kevin Watkins, and an unidentified Port of Portland employee, gather around a computer for shut-down and start-up of the microturbine system.*



ties. Coffin Butte is the first test site for the microturbine, where a consortium of customers is sponsoring a ten-week series of tests. A satellite phone up-link feeds information from the site to schedulers at PNGC. The system is queried and power output is updated at PNGC several times a minute.

The demonstration of shutting down and restarting the microturbine system through the Microsoft Windows-based Capstone operating software was successful: approximately two minutes to slow down the 76,000+ RPM shaft to 0 RPM, and approximately a minute or so to get it running back to the full-speed of 76,000+ RPM. 'That was easy!' and 'Cool!' was repeated around the room. The display screen can be configured to the operators' needs. PNGC opted for four system parameters: engine speed, turbine exit temperature, output voltage, and fuel inlet pressure, and with one click of

the mouse can view various other system parameters.

The system can follow load in an off-grid situation and has a bank of sealed gel batteries to provide inrush current for motor starting and to provide immediate power to meet changing loads. The turbine idles on air-suspension bearings at 56,000 RPM, and spools up from idle to 90,000 RPM at full load in less than a second. The AC frequency is programmable, so the system can serve as a variable frequency power supply for large electric motors. The system can be accessed and controlled using a computer through a modem or direct connection. The system is expected to run for 4,000 to 8,000 hours before the first maintenance interval, when the air filter is replaced.

Depending on the success of the testing at Coffin Butte, the system will be available to customers who would like to try the technology for serving specific loads. Customers pay for fuel (propane). BPA will offer several system operation and training sessions on the west side and east side.

— Todd Amundson (503) 230-5491

## Borrow These Ideas

*What is the best (most effective) activity your utility is doing in energy efficiency education?*

**In region:** Sonia Siegel Vexler at Snohomish County PUD (WA) states, "Our biggest bang for the buck is hiring a certified teacher to do conservation lessons in the schools. Starting last fall we offered our elementary and middle schools a chance to request a visiting teacher for three conservation lessons. In the Energy Detective lesson, for example, the kids determine energy use in the classroom and school. This hands-on method has a big impact on student behavior, and we're probably reaching 1,000 students each month. Now the conservation teacher is booked every school day!"

**Out of region:** The Energy Center of Wisconsin is a private, non-profit organization dedicated to improving the markets for energy efficiency products and renewable energy in Wisconsin. They are funded through contributions from Wisconsin's utilities, state public benefits programs, and Department of Energy programs. They provide application-oriented energy education programs to Wisconsin professionals. Classes cover a broad range of topics, from energy efficiency in industrial processes to energy efficiency in buildings and homes. Professional development opportunities are listed on the Energy Center's web site: [www.ecw.org](http://www.ecw.org)

-- Becky Clark (503) 230-3158

## Community Earth Day Events

Earth Day is April 22. The national theme is "Protecting the Home".



BPA and the Bonneville Environmental Foundation, will sponsor a one day public event on Sunday, April 28, 2002, at the Oregon Zoo, Portland, OR, to celebrate Earth Day. The schedule is still in the planning stages, but activities will include entertainment and talks by experts, and a visit by Miss America. Exhibits are planned on environmental issues such as clean air and water, clean sustainable energy, green building practices, transportation, recycling, toxic waste, plants, animals, food, agriculture, rivers and dams, forests and wilderness, education and research.

The Green House Network and the Earth and Spirit Council, two Portland area environmental groups, will also have an Earth Day run and a "Parade of the Species" geared towards children.

The zoo is offering a \$1 discount off adult admission and 50 cents off child admission IF the person can bring proof that they have done something earth friendly. For more informa-

tion on the BPA/BEF event and the discount, please visit the website at: [www.bpa.gov/earthday/](http://www.bpa.gov/earthday/)

-- Becky Clark (503) 230-3158

A number of regional utilities have planned special events in conjunction with Earth Day 2002. Several have planned or have already conducted community events featuring \$15 torchiere fluorescent lamp coupons. To name a few . . .

- City of Bandon: Lighting show, March 15 featuring lighting retailers and TFL coupons
- Lakeview Light & Power: Annual dinner meeting with customers and TFL coupon giveaway, March 19
- Klickitat County PUD: Torchiere turn-in and coupon giveaway, April 28



*Energy Efficiency's Ray Classen reads in comfort by the light of an energy-efficient fluorescent torchiere lamp.*

## Solar Workshops

The Solar Energy Association of Oregon (SEAO) is launching a monthly workshop series about photovoltaics in Western Oregon. They also plan to schedule talks on solar site analysis, solar/energy-conserving remodeling, and solar cooking, and are planning hands-on construction workshops. SEAO is also looking for speakers who would like to address other topics. Do you have an interesting solar project, program, or product you'd like to discuss in a workshop? Please call the SEAO office at 503-231-5662 for more information about the workshop dates and locations or about speaking opportunities. The SEAO website is at [www.solaror.org](http://www.solaror.org).

## Energy Ideas Clearinghouse

The Energy Ideas Clearinghouse (EIC) provides commercial and industrial sector energy information and assistance in the Pacific Northwest through a toll free line, 1-800-872-3568, and a website ([www.EnergyIdeas.org](http://www.EnergyIdeas.org)) full of energy-related resources .

The Washington State University Cooperative Extension Energy Program (WSU EP) operates the Clearinghouse with funding from the Northwest Energy Efficiency Alliance.

Visit Energy Efficiency's website at:  
<http://www.bpa.gov/Energy/N/index.shtml>

## Hand-Held Power Meters

A hand-held power meter is a device primarily used for instantaneous power measurements and limited power quality measurements. The key to this device is the direct measurement of real power (Watts or kW) as opposed to Volts and Amps as readily available from the common multi-meter. Some models have leads for poly-phase measurement and display 3-phase power directly. Others measure one at a time and, thus, require two or more measurements for a 3-phase power system.

This meter is commonly used in commercial and industrial applications to check instantaneous loads, confirm readings from other meters, and for limited power quality troubleshooting. The meter can complement the use of run-time loggers (see the January Energy Efficiency Newsletter). For loads that have a relative constant power draw, such as lighting and some HVAC loads, taking an instantaneous power measurement coupled with accurate run-time hours can yield a robust energy-use analysis.

EE has some equipment available for loan to utilities and end users. Please contact your EE Representative to learn more about what meters are available and to make your request.

For more information, please visit the EE website at <http://www.bpa.gov/Energy/N/>

-- Tony Koch (206) 220-6777



On February 7 and 8, BPA hosted an Open House/ Career Day for area high school and college students interested in a career at BPA. About 30 students visited Energy Efficiency and learned about various aspects of EE projects. The community college students above learned from



Hand held power meter

## Energy Standard for Buildings

Do you have builders or installers who want more information about ASHRAE/IESNA Standard 90.1-1999, the *Energy Standard for Buildings Except Low-Rise Residential Buildings*?

Energy Efficiency has tapes of the satellite broadcast on the standards made October 30, 2001. Presenter Merle McBride from Owens-Corning says viewing is for those who want "insights not available by a reading of the standards."

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) continues its efforts to cut energy use by buildings and to reduce the nation's

dependence on nonrenewable fuels. Standard 90.1-1999 produces source energy savings of 20 percent over the previous 1989 version of the standard, one study showed. Highly efficient heating and cooling equipment has reached the market, glazing products have advanced, and new lighting technologies have been developed. Standard 90.1-1999 is written so that federal, state and local government agencies can use its language in their building codes.

Call your Account Executive or Energy Efficiency Representative and request both tapes. Tape 1 has 75 minutes devoted to the Envelope, and 85 minutes on Mechanical. Tape 2 has 75 minutes on Lighting. The same format is

followed for all three topics: the presentation of material is followed by a question and answer session.

-- Becky Clark  
(503) 230-3158



EE's Phil Choma (503-230-5327) about steps BPA has taken at its Portland headquarters building to save energy and how energy use is tracked and analyzed. Above: The same students spent time with EE's Craig Ciranny (503-230-5865) and learned about compact fluorescent lights and how they compare with incandescent lights. Other tour subjects included the Demand Exchange, Fuel Cells, and the role of the Energy Efficiency Representative. (Photos by Sherry Lind.)

## Conservation & Renewables Discount

BPA has decided to treat Green Tags, purchased from the Bonneville Environmental Foundation (BEF), the same as BPA's Environmentally Preferred Power sales in the C&RD Program. If a C&RD-eligible customer purchases Green Tags from the BEF, payments or donations to the BEF will be treated the same way with regard to the C&RD. A utility customer can rate base the cost of the Green Tags or they can hold and re-sell them once to that utility's retail

## Not All ENERGY STAR® Dishwashers are Equal – To Rebate or Not to Rebate?

National energy efficiency advocates are losing patience with appliance manufacturers who are dragging their feet on new testing procedures for dishwashers. New technology has leap-frogged over the US DOE testing procedures that were designed for older technology. The current testing procedures allows dishwashers that may be very inefficient in the real world to appear efficient with the required test procedures. The Consortium for Energy Efficiency, representing utilities and states from across the country have requested that ENERGY STAR® stop allowing the use of its label on “dirt-sensing” dishwashers until the test procedure is improved. The problem is that the dishwashers are tested with clean dishes, so any machine with a dirt sensor will turn off quickly – looking very efficient.

BPA tries to give the best available information to our customers as they spend their C&RD money and to otherwise encourage energy efficiency for their consumers. With over 34 regional utilities providing rebates or other incentives for dishwashers, we believe that it is timely to remind consumers that dishwashers that are ENERGY STAR® qualified without “dirt-sensing” technology will always be very efficient. Those that use dirt-sensing technology may be efficient or they may be energy hogs. Some of the “sensing” machines may work well, no one can tell you which ones.

BPA will work with the State of Oregon tax credit program, the Regional Technical Forum and national energy efficiency groups to correct this by the time the C&RD revisions are made for next year. In the meantime, if utilities feel that they must treat all ENERGY STAR® dishwashers equally, they might reduce their exposure by reducing incentive levels, or at least warn their consumers that dirt sensing machines can't be guaranteed to be efficient.

-- Ken Keating (503) 230-5857

end use customers, at which point they have to be retired.

Additionally, BPA will begin the annual C&RD Program review process in June. All petitions for changes to the program requirements and technical information must be in by June 15 to be considered. There will be a 30-day comment period on the petitions received, followed by a public meeting in early August to discuss the petitions.

-- Mark Johnson (503) 230-7669

## Washington Woman Wins Car

Tina O'Brien, a Washington resident, won the Honda Insight given away as part of the Community Conservation Challenge sponsored by BPA this fall.

The hybrid electric/gas car was donated by Ron Tonkin, a Portland car dealership.



The Community Conservation Challenge was a campaign to raise consumer awareness of the need to be energy efficient. As part of the campaign, pledge cards were distributed to consumers in a variety of ways. Consumers pledged to save energy, and mailed the cards to Fisher Broadcasting to enter the drawing for the Insight.

## Keeping the Lights on Around the Clock



Three BPA Energy Efficiency staff members won the “Most Creative” category in BPA's recent employee photo contest. The

theme of the contest was “BPA Employees Keeping the Lights on Around the Clock”. The EE entry was titled “Keeping the Right Lights on Around the Clock”. The three employees split a \$25 gift certificate.

**Energy Efficiency Newsletter**  
**Bonneville Power Administration**  
**Mail Stop: PND-1**  
**P.O. Box 3621**  
**Portland, OR 97208-3621**



## **BPA's Energy Efficiency Representatives**

Elly Adelman .....	(503)	230-5052
Frank Brown .....	(206)	220-6774
Shannon Greene .....	(206)	220-6775
Tom Hannon .....	(509)	358-7450
Margaret Lewis .....	(503)	230-7552
Rick Miller .....	(509)	358-7464
Rosalie Nourse .....	(509)	358-7463
Mike Rose .....	(503)	230-3601
Chris Tash .....	(509)	527-6217

*Energy*  
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**Editors:** **Jean Oates** (503) 230-5861  
jaoates@bpa.gov  
**Becky Clark**(503) 230-3158  
rlclark@bpa.gov