

# factsheet

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## The energy resource you can't afford to ignore

### BPA's energy efficiency program at work

Thirty years ago, the idea that the most important energy resource might be energy efficiency was not conventional wisdom. In those days, energy conservation meant doing without; for example, lowering a thermostat and putting on a sweater.

The Northwest Power Act of 1980 changed all that by mandating that energy efficiency could and should be treated just like any other resource, such as hydropower, gas or coal. And, investments in efficiency, such as installing insulation, should be compared for cost-effectiveness against those other resources.

Unlike the old concept of "shivering in the dark," energy efficiency did not mean doing without. By weather stripping a home, for example, you could heat your home without lowering the thermostat but use less energy to do so.

For nearly 30 years, the Northwest has been a leader in treating energy efficiency and conservation as a power resource. The Northwest learned fast that a megawatt

saved is the equivalent of a megawatt produced. As of 2007, energy efficiency accounted for only 1 percent of all electricity production in the United States.

But in the Northwest, it accounted for 10 percent thanks to collaboration

*"According to the Northwest Power and Conservation Council, the Northwest's [electric] bill was \$1.6 billion lower in 2007 because of conservation."*

— Ralph Cavanagh, senior attorney and co-director of the Natural Resources Defense Council's energy program

among a number of entities – the Bonneville Power Administration, Northwest Power and Conservation Council, regional utilities, state agencies and environmental interests. Together, they have worked to promote the world's most environmentally and economically friendly energy resource.

In fact, energy efficiency has been BPA's biggest resource addition over the last 25 years. The agency has acquired 1,000 average megawatts (aMW) of savings – more energy than The Dalles or Bonneville dams could produce in an entire year. In fiscal year 2007 alone, BPA delivered 58 aMW of energy efficiency into the Northwest – the equivalent energy to power 50,000 homes for an entire year.

### Ways we save

Working with its partners, BPA has brought energy efficiency improvements to hundreds of thousands of homes, commercial buildings, industrial plants and agricultural systems. BPA-sponsored programs have contributed to energy efficiency by insulating homes, building to higher energy standards, improving assembly line production, enhancing irrigation pumping, and installing energy-wise appliances.



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BPA is in a unique position, as retail utilities are its primary customers. The unique partnership of wholesaler and utilities serving local customers has been powerful in developing this valuable resource.

## Cases in point

### **SYSCO Food Services (2005)**

The nation's largest food service marketer and distributor had two construction goals for its distribution center in Post Falls, Idaho: conserve energy and keep operating costs as low as possible. SYSCO sought the help of its power provider, Kootenai Electric Cooperative.

The cooperative was aware of a BPA program that offered incentives to utilities for energy efficiency measures achieved in their service territories. Through the program, BPA partially funded the installation of non-standard energy efficiency measures in SYSCO's new plant. The initial savings helped SYSCO justify the unconventional measures, and the promise of lower energy bills in the near future further contributed to the company's decision to install energy-saving equipment.

The result is a state-of-the-art facility with an energy efficient lighting and refrigeration system. The project saves SYSCO nearly 1.3 million kilowatt-hours (kWh) a year – nearly 41.2 percent less energy than a standard system would use. The savings can serve the needs of more than 100 Northwest homes.

The project also saves SYSCO nearly \$40,000 each year in plant operating costs. Kootenai Electric's energy efficiency incentive for the project was \$152,000.

### **Monte Villa Farms (2005)**

The multi-tenant industrial plant in Bothel, Wash., needed help to reduce its energy costs. Like SYSCO, Monte Villa went to its power provider for help. Snohomish County Public Utility District responded by conducting a field survey of the plant's equipment. In return, the utility received an energy efficiency incentive from BPA of \$33,314.

The survey determined that Monte Villa's compressed air system not only had a larger capacity than needed to support the tenants' use, but it also was operating

inefficiently. The average requirement for a typical production day at the plant was approximately 6 percent of the existing compressor's capacity.

Monte Villa redesigned its compressed air system. The plant now has a high-efficiency system that meets tenant demands.

By changing a single piece of equipment, Monte Villa saves 492,049 kilowatt-hours of electricity per year – an 87 percent reduction. Its electricity costs have decreased \$32,000 per year, which has more than made up for the cost of the upgrade.

### **Retrofitting federal buildings**

Federal agencies offer a significant opportunity for further energy efficiency achievements. Since 1996, BPA has completed more than 750 projects for more than 24 federal agencies. As a result, BPA has helped reduce annual power loads by 170 million kWh, enough energy to serve 14,000 homes.

Sixty of the efficiency projects were completed at 26 dams owned by the Bureau of Reclamation and U.S. Army Corp of Engineers. Comprehensive compact fluorescent light replacements and a new cooling system at the Celilo Converter Station in Oregon saved about 1.2 million kWh a year. Another 2 million kWh a year were saved at Chief Joseph Dam in Washington by installing a state-of-the-art high performance fluorescent lighting system and 1,400 CFLs.

More than 150 more federal agency energy-savings projects are under way today. When completed, they will reduce BPA annual loads by an additional 85 million kWh.

## **The benefits of energy efficiency It protects the environment**

Energy efficiency produces no emissions, and, by replacing thermal plants, it minimizes greenhouse gas and addresses climate change. Given concerns regarding climate change, energy efficiency is more valuable than ever. The 3,700 aMW of conservation achieved in the Pacific Northwest through 2007 have lowered carbon emissions by 13.5 million tons.

## **It's low cost**

Using energy efficiently lowers electricity bills. It's as simple as: use less, pay less. But unlike curtailment, energy efficiency means you enjoy the same amenity levels. Comfort and convenience are not sacrificed.

On average, cost-effective efficiency improvements are about one-third the cost of new generating plants, including wind power. This has helped BPA maintain low rates, which are vital to the region's economic health and to sustaining customer confidence.

Conservation provides a buffer against market volatility. Investments in energy efficiency, along with investments in generation, transmission and natural gas pipeline capacity and storage, will provide the best shock absorber against future resource uncertainties and market fluctuations.

## **It's good for the economy**

As population and energy-dependent technologies increase, investments in energy efficiency stretch the existing energy resource base further, postponing the

## **BPA's energy efficiency programs**

BPA has a wide range of programs to serve distinct audiences with a wide range of needs. Some of them include:

### **Working with utilities**

BPA provides funding for approved methods or equipment that increase energy efficiency in a variety of markets, including agricultural, commercial, industrial and residential sectors. The funding is provided through the Conservation Rate Credit program, where BPA customers receive credits on their energy bills for installing energy efficiency measures or investing in renewable energy. BPA also reimburses utilities for energy efficiency measures installed through custom projects designed to meet individual needs and opportunities.

### **Trade Ally Networks**

Trade Ally Networks offer a way for BPA to reach out to vendors and inform them of energy efficiency programs and incentives. Informed vendors are more likely to take advantage of those programs and incentives and promote them to their customers.

### **Energy Smart Design™ + Office**

The goal of Energy Smart Design™ + Office is to influence energy efficiency decisions at the design stage of new commercial small office construction. Incorporating energy efficient technologies during building design is more cost-effective than replacing less efficient technologies after construction is complete. Measures include enhanced economizers, heating, ventilating and air conditioning systems, windows, lighting and lighting controls. The Energy Smart Design™ program will eventually include options for buildings other than offices. Planning for a retail package is in the works.

### **Low-Income Weatherization**

BPA supports building improvements to cut energy costs for those who need it most. The agency funds the Low-Income Weatherization program that serves Oregon, Washington, Idaho and Montana. Weatherization means modifying a building to reduce energy consumption for heating or cooling. Modifications include adding insulation, installing storm windows and doors, caulking cracks and adding weather stripping.

### **Grocery Store Program**

BPA's Grocery Store Program is offered through Portland Energy Conservation, Inc. PECEI representatives visit regional grocery stores to conduct an energy audit and arrange for installation of energy efficiency upgrades and services. To date, 585 grocery store audits have been conducted, resulting in saving more than 9.5 million kilowatt-hours (1.08 aMW).

### **Green Motors**

Motor service centers are a highly influential set of trade allies that have long-standing relationships within the motor industry. This program allows BPA to engage these allies about motor system efficiency opportunities. The initiative is operated through Green Motor Practices Group.

### **ENERGY STAR®**

BPA is an ENERGY STAR® partner. ENERGY STAR® standards and specifications were developed by the Environmental Protection Agency and the Department of Energy. BPA offers credits and reimbursements for eligible ENERGY STAR® qualified high-efficiency measures such as appliances, fluorescent lighting, duct systems, insulation, windows and heating and cooling systems.

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need to buy new generation and reducing the need to go to the market.

Economic expansion depends on access to energy resources. Energy efficiency will be a vital factor to meet the growing demand for energy while mitigating escalating costs for new power sources due to competition for raw materials and skilled labor.

Conservation stimulates local economic development. Funding flows through utilities to pay for work done by local companies in the private sector that install energy efficiency measures in homes and businesses. Quite simply, energy efficiency creates jobs in the community and keeps saved dollars available for other opportunities.

### **It makes technological sense**

Conservation fits well with new technologies that are opening up significant new opportunities for efficiency. For example, the new generation of meters offers new possibilities for load management and greater customer control of energy consumption.

Conservation also makes us more secure and self-sufficient. Conservation is the ultimate distributed generation and does not require additional transmission infrastructure.

## **Changing consumer choices**

BPA also recognizes the impact of consumer behavior on energy consumption and uses strategies to change those behaviors. Market transformation – changing consumer actions, such as choosing more efficient appliances – has proven highly effective in promoting energy efficiency. BPA partners with and is the major funder of the Northwest Energy Efficiency Alliance (NEEA) to promote market transformation. The alliance brings energy efficiencies to industries such as hospitals, grocery stores and offices.

One-third of BPA's fiscal year 2007 energy savings were achieved by encouraging the use of compact fluorescent light bulbs. BPA participates through Portland Energy Conservation and NEEA to promote energy efficient

lighting at participating retailers. By lowering the cost of energy efficient lighting, more than 6.3 million CFLs were sold in the Pacific Northwest in 2007. Considering the amount of energy that traditional incandescent lights use, these CFLs represent 25.5 average megawatts of energy savings.

The ongoing technological boom is expected to provide many more efficient options, such as smart appliances, programmable Web-based thermostats, use of waste heat from distributed generation and control of energy use in general via the Web. By assessing historical accomplishments, talking with utility customers and assessing the conservation potential, BPA plans to continue to change markets and accelerate the adoption of more energy-efficient products and services.

## **Looking forward**

BPA is continuing to focus its efforts on bringing together allies and partners to create the right mix of energy expertise, technical know-how, financing, installation, operations and maintenance to collectively deliver energy efficiency.

The Northwest Power and Conservation Council estimates there will be at least 2,500 more megawatts of cost-effective energy conservation potential in the region by the year 2030. By working collaboratively and accelerating efforts to tap this vast potential of electric power efficiency, the region will further reduce demand for power, improve environmental quality and lower costs for consumers who face the seemingly never-ending escalation of fuel costs.

BPA is committed to helping the Northwest continue to benefit from energy efficiency opportunities.

## **For more information**

To find out more about BPA's energy efficiency programs, go to [www.bpa.gov/Energy/N/](http://www.bpa.gov/Energy/N/).