



Fact Sheet

March 2010

The energy resource you can't afford to ignore

BPA's energy efficiency program at work

For 30 years, the Northwest has been a leader in treating energy efficiency and conservation as a power resource. The Northwest Power Act of 1980 called on the Northwest to give energy conservation top priority in meeting its power needs, and the region quickly learned that a megawatt saved is the equivalent of a megawatt produced.

As of 2009, energy efficiency accounted for only 1 percent of all electricity production in the United States. But in the Northwest, it accounted for 12 percent, thanks to collaboration among a number of entities — the Bonneville Power Administration, Northwest Power and Conservation Council, regional utilities, state agencies and environmental interests.

In fact, energy efficiency has been BPA's biggest resource addition over the last 28 years. The agency has acquired more than 1,100 average megawatts of savings — more than twice the energy Bonneville Dam produces in an entire year. In fiscal year 2009 alone, BPA secured approximately 70 average megawatts of energy efficiency for the Northwest — enough energy to power 60,000 homes.

“Nearly 60 percent of the region's new demand for electricity over the next five years, and 85 percent over the next 20 years, could be met with energy efficiency.”

— Northwest Power and Conservation Council,
Sixth Power Plan, February 2010

Today, energy efficiency is more important than ever. It is clean and emission free. It is also low cost relative to new energy generating resources. It serves our national goals of reducing our carbon footprint and enhancing our energy independence. In short, it is the world's most environmentally and economically friendly energy resource.

Ways we save

As a power wholesaler, BPA works with Northwest publicly owned utilities that serve local customers to deliver energy savings. This partnership has brought energy efficiency improvements to hundreds of thousands of homes, commercial buildings, industrial plants and agricultural systems in the Pacific Northwest. BPA-sponsored programs contribute to energy efficiency by insulating homes, building to higher energy efficient





Monte Villa Farms redesigned its compressed air system and is saving \$72,000 a year.

standards, improving assembly line production, enhancing irrigation pumping and promoting energy efficient appliances.

Cases in point

SYSCO Food Services

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 from its electric utility, 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 this program, BPA partially funded the installation of energy efficiency measures in SYSCO's new plant. The initial savings helped SYSCO justify the measures. 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 energy efficient lighting and refrigeration systems. The project saves SYSCO nearly 1.3 million kilowatt-hours a year — about 41 percent less energy than a standard system would use. These 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. SYSCO received \$152,000 in incentives to help pay for the project.

Recent lighting improvements installed in the new facility have provided an additional 600,000 kWh of savings.

Monte Villa Farms

This multi-tenant industrial plant in Bothel, Wash., needed help to reduce its energy costs. Like SYSCO, Monte Villa went to its utility 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 to cover the survey cost and reimbursement for the cost-effective energy efficient measures.

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 a mere 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 at lower cost and lower energy consumption. 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 a year.

Retrofitting federal buildings

Since 1996, BPA has completed more than 1,000 energy efficiency projects at more than 24 federal agencies. As a result, BPA has helped reduce annual power loads by 230 million kilowatt-hours, enough energy to serve 19,000 homes.

Seventy-five of the efficiency projects were completed at 26 dams owned by the Bureau of Reclamation and U.S. Army Corps of Engineers. For example, 2 million kilowatt-hours a year were saved at the Corps' Chief Joseph Dam in Washington by installing a state-of-the-art high performance fluorescent lighting system and 1,400 compact fluorescent lights. Comprehensive lighting replacements and a new cooling system at BPA's own Celilo Converter Station in Oregon saved about 1.2 million kilowatt-hours a year.

More than 150 more federal agency energy-savings projects are under way today. When completed, they will reduce BPA's annual obligations to provide power by an additional 90 million kilowatt-hours.

The benefits of energy efficiency

It protects the environment

Emission-free energy efficiency reduces the need for new thermal power plants, which minimizes greenhouse gas production. Given concerns regarding climate change, energy efficiency is more valuable than ever. The nearly 4,000 average megawatts of conservation achieved in the Pacific Northwest through 2008 have lowered carbon emissions by 16.5 million tons, equivalent to the emissions of more than three million cars.

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 electricity rates, which are vital to the region's economic health.

Conservation provides a buffer against market volatility. Investments in energy efficiency — along



A state-of-the-art high performance fluorescent light system was installed at Chief Joseph Dam, saving 2 million kWh a year.

BPA energy efficiency programs today

BPA has a wide range of programs to serve distinct consumer needs with a wide range of products and services. 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.

Working with contractors

The Northwest Trade Ally Network offers a way for BPA to reach out to contractors and inform them of energy efficiency programs and incentives. Informed contractors are more likely to take advantage of those programs and incentives and promote them to their customers. BPA sponsors the Northwest Trade Ally Network for Commercial and Industrial Lighting, which serves to connect lighting specialists with utility efficiency programs. Now in its second year, the network has more than 340 members throughout the BPA service territory. Through a newsletter, Web site, local training and live support, the network helps lighting-related businesses participate in utility programs.

Simple Steps. Smart Savings.

Building on the success of regional CFL promotions, BPA launched the “Simple Steps. Smart Savings.” program in 2010. This promotion, offered through BPA utility customers, focuses on increasing the use of CFLs, energy-efficient light fixtures, showerheads and other measures delivered through retail markdown, builder channel promotions and direct installation in residences.

Low-income weatherization

BPA supports building improvements to cut energy costs for those who most need the savings. 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

The BPA EnergySmart Grocer program is available to BPA utility customers. BPA EnergySmart Grocer representatives visit regional grocery stores of all sizes to conduct energy audits and arrange for installation of energy efficient refrigeration and lighting equipment. To date, more than 1,300 grocery store audits have been conducted, resulting in annual savings of more than 74.5 million kilowatt-hours (8.5 aMW).

Green Motors

Motor service centers constitute 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 the non-profit Green Motor Practices Group.

ENERGY STAR

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

with investments in generation, transmission and natural gas pipeline capacity and storage — will provide shock absorbers 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 need to buy new generation and reducing the need to buy power on the wholesale market.

Economic expansion depends on access to energy resources. Energy efficiency will be a vital factor in meeting the growing demand for energy.

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. Energy

efficiency creates jobs in the community and makes dollars, that otherwise would have been consumed, available for other opportunities.

In fact, the Northwest Power and Conservation Council's Sixth Power Plan estimates that investments in energy efficiency will reduce greenhouse gas emissions from the region's power supply by 17 million tons per year by 2030 and create as many as 47,000 new jobs in the Northwest.

Conservation also makes us more secure and self-sufficient. Local investments in energy efficiency can mitigate escalating costs for new power sources due to global competition for raw materials and skilled labor.

Conservation is the ultimate distributed generation and does not require additional transmission infrastructure, thus saving millions of dollars in transmission investments and, at the same time, mitigating environmental impacts of transmission construction.

Changing consumer choices

Market transformation — changing consumer actions to energy-efficient choices such as ENERGY STAR appliances — has proven highly effective in promoting energy efficiency. BPA partners with and is the major funder of the Northwest Energy Efficiency Alliance, which promotes market transformation. The alliance brings energy efficiencies to industries such as hospitals, grocery stores and offices.

More than one-third of BPA's fiscal year 2009 energy savings were achieved by encouraging the use of compact fluorescent light bulbs through the BPA Change A Light, Change the World program. In 2007 alone, more than 6.3 million CFLs were sold in the Pacific Northwest. Compared to traditional incandescent light bulbs, these CFLs represent 25.5 average megawatts of energy savings.



Building on the success of Change A Light, BPA launched the “Simple Steps. Smart Savings.” promotion in 2010. This cost-effective promotion is offered by BPA to Northwest utilities to increase the use of energy-efficient CFLs, showerheads, lighting fixtures and more in the residential market.

Applying new technologies

Technological advances are 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 via the Web.

By creating initiatives related to emerging technologies, smart grid and demand response, BPA can help meet new conservation and carbon

reduction goals, provide new “green” jobs in the region, promote energy independence and invest in the economic future of the entire region.

Emerging technologies

Emerging technologies are technology solutions not yet in common use, but which promise a quantifiable increase in efficient use, production or distribution of energy. Ductless heat pumps, solid state plasma lighting and light-emitting diode street lights are examples of technologies the region has implemented in the past few years.

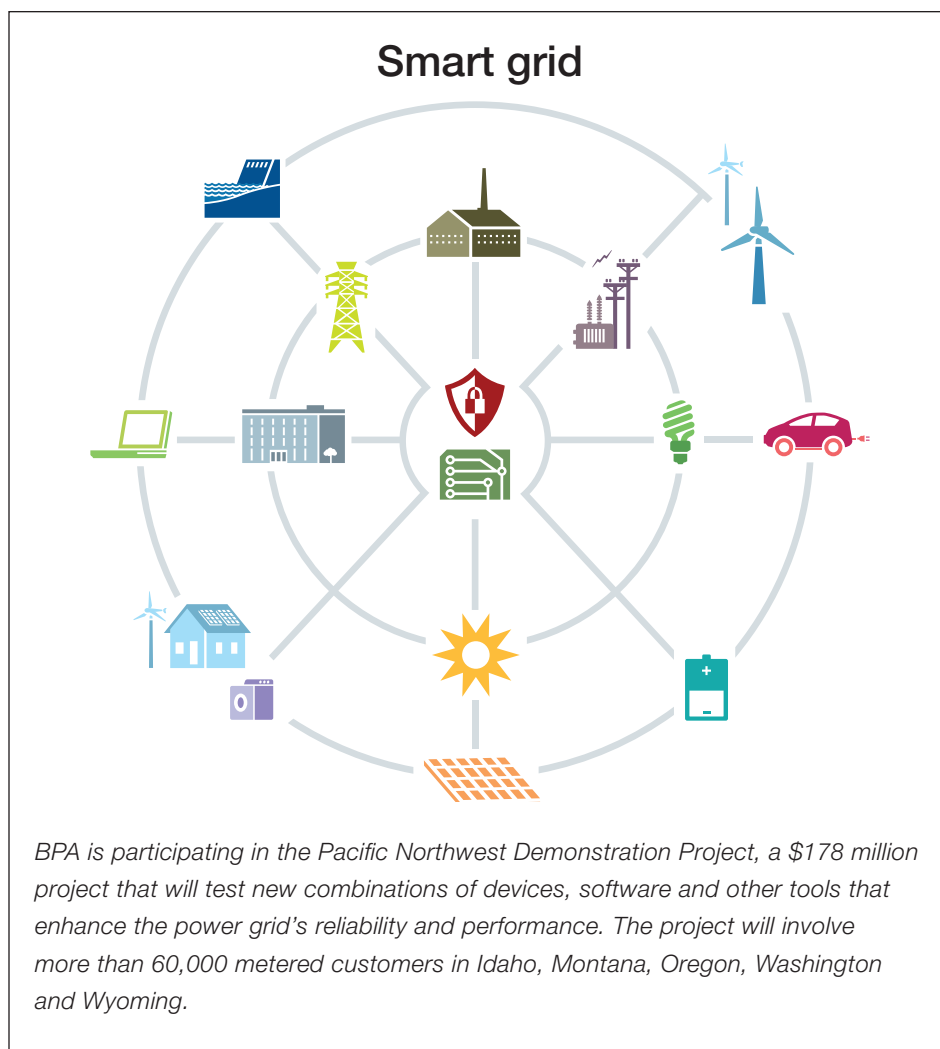
BPA is undertaking a multi-year program to identify, assess and develop emerging energy efficiency technologies. The goal is to realize significant regionwide energy savings through

an ongoing collaborative effort, effectively “filling the pipeline” with energy efficiency solutions.

The program focuses on near-to-market and commercially available technologies that can be developed in five years or less. Typical development activities might include establishing testing standards or specifications, testing lab equipment, or through small scale demonstration of projects. These projects will be designed to hand off to utility programs or through other delivery mechanisms.

Smart grid

Smart grid is an electric grid system that uses digital technology to enhance delivery and efficient use of electricity through intelligent two-way communication.



Power generators, suppliers and users are all part of the solution. Smart grid technology includes a wide range of products, from appliances in homes to sensors on transmission lines and upgrades to substations.

Think of the smart grid as the Internet brought to the electric system. With increased communication and information, a smart grid can monitor activities in real time, exchange data about supply and demand and adapt power use given load requirements.

In November 2009, the Department of Energy selected a Pacific Northwest team, including BPA, to conduct a regional smart grid demonstration project designed to expand upon existing electric infrastructure and test new smart grid technology. The team combines energy providers, utilities, vendors and research organizations.

Total estimated cost for the Pacific Northwest Smart Grid Demonstration is \$178 million. DOE will provide half the funding through the American Recovery and Reinvestment Act. The project's participants, primarily utilities and industry partners including BPA, will provide the remaining funds.

The Northwest study will involve more than 60,000 metered customers in Idaho, Montana, Oregon, Washington and Wyoming. At its peak, the project could create about 1,500 total jobs in manufacturing, installation and operating smart grid equipment, telecommunications networks, software and controls in the five states.

Demand response

Demand response uses technology and incentives to change electricity consumption by end-use customers. It can result in a reduction in energy consumption at times of peak use and at times of high wholesale market prices.

Demand response offers benefits to both utilities and consumers in the form of increased electric system reliability and reduced price volatility. It



Digital electric smart meter.

uses a wide range of technologies, offering a variety of options for both peaking and energy capacities across the electrical system. Voluntary demand response offers consumers incentives to voluntarily reduce their electric loads at system peaks. The advantages of reducing peak use and flattening electric consumption throughout the day is that it eliminates the need to acquire expensive resources or power purchases that would only be needed during peak use.

Direct load control involves a utility-controlled appliance at a customer site, while distributed generation is normally used to start back-up generators when peaking resources are needed.

In 2010, BPA is collaborating with utility customers in a series of pilot projects. Planned pilot projects will include activities in the residential and commercial sectors.

Coordination is key

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

The Northwest Power and Conservation Council anticipates more than 5,800 average megawatts of cost-effective conservation potential over the

next 20 years in the Northwest in its Sixth Power Plan, and calls on the region to acquire 1,100 to 1,400 aMW of conservation over the next five years. 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/. To find out more about BPA's Energy Efficiency Innovation efforts go to www.bpa.gov/go/eeinnovate.