



Fact Sheet

July 2013

Sustainability of operations

The green tracks of change are visible all over the 700,000 square feet of Bonneville Power Administration's headquarters in Portland.

Lights and elevators that switch off at 6 p.m. Cascading terraces of water-wise plants on rooftops supported by a tank farm of rainwater in the basement. Low-flow faucets in every restroom. Office supply stations stocked with re-used pens, folders, staplers and scissors. Cafeteria meals served with compostable plates, cups and napkins, or actual dishware. Recycling and composting bins steps from every desk. Racks of employee bicycles at every entrance. A fleet of 86 hybrid-electric vehicles.

At a federal agency whose energy experts, linemen, engineers, biologists and economists share a 75-year history of technical innovation, it may seem only natural to witness new best practices taking root. The most recent leg of BPA's journey to find ways to save resources was kick-started by executive order. President Barack Obama's 2009 order on Leadership in Environmental, Energy, and Economic Performance called on federal agencies to lead by example in seven areas of focus for environmental sustainability.

The seeds of that challenge fell on fertile ground at the agency that helped pioneer energy efficiency, runs one of the largest fish and wildlife programs in the world and markets electricity produced by snow and rain in the Columbia River Basin. Since 2009, BPA has made hundreds of modifications in order to use resources more efficiently and to cut the carbon emissions of our

operations. BPA employees — individually and in teams — have devised, proposed, tracked and refined many of the improvements.

Today, the signs of sustainability are not only evident everywhere you turn in the workplace, they have already generated several million dollars in savings. These steps to save money, energy and other natural resources make good business sense. They also provide fresh examples of BPA's commitment to be a good steward of its ratepayers' money and the environment.

Measuring and reporting emissions

In 2008, BPA became a founding member of the Climate Registry, a nonprofit that serves as the central greenhouse gas registry in North America. BPA has made an annual report of the direct and indirect emissions of its operations for third-party verification and publication since 2010. Most emissions stem from the agency's energy and fuel use, but some are the product of chemicals used in BPA's transmission system, spanning four states.

In 2010, BPA created a sustainability action plan with 27 major goals to reduce the agency's carbon emissions by saving energy, conserving water, reducing waste, cutting petroleum use, constructing green buildings and engaging employees. In December 2012, BPA became the first federal agency to become gold certified by the City of Portland's Sustainability at Work program, achieving 60 out of 74 actions in areas such as transportation, materials and waste, and energy and water use.





BPA's eco-roofs reduce stormwater by capturing and evaporating an average of 60 percent of the rain that falls on them.

Eco-roofs

When re-roofing time rolled around at headquarters in 2011, BPA and its landlord, the General Services Administration, made an innovative choice. They partnered to transform 5,633 square feet of hard surface into a series of four eco-roofs connected in a flowing landscape design.

Among its advantages are lifespan — up to 20 years longer than a conventional roof — and reduction in stormwater runoff, heating and cooling costs. These elevated islands of trees and native plants provide new habitat in the midst of an urban hardscape for birds and insects (as well as staff). The eco-roofs are paired with a basement cistern system that captures 34,000 gallons of rainwater, enough to water all the eco-gardens in the summer.

Energy

Handling electricity with precision and respect is deeply ingrained in BPA's culture. The sustainability initiative is applying that ethic to improve electricity use in BPA's internal operations.

In 2011–2012, BPA headquarters joined area hospitals, government agencies and insurance companies in

an Energy Trust of Oregon pilot to reduce energy use by enhancing building operation and maintenance. After changes to its lighting and heating systems, BPA captured verified savings of 437,809 kilowatt-hours. That's the energy equivalent of saving 218 barrels of oil or 50 tons of coal.

The next major step is metering energy use by floor, allowing the agency to analyze specific savings and recognize opportunities. In 2013, BPA joined another energy conservation challenge, the Northwest Energy Efficiency Alliance's Kilowatt Crackdown. As the auditing and coaching uncovers new ways to make headquarters run smarter, BPA expects to cut its electricity use by another 6 percent in 2013.

Paper and print reduction

Turning trees into paper is the most-water intensive industry in the U.S. When BPA's sustainability initiatives began, its workforce was using a lot of paper — more than 20 million sheets a year.

In 2011, the agency switched from 40 percent to 100 percent recycled-content paper, sourced from a regional supplier. In 2012, it moved all personnel records and pay statements from paper to electronic formats.

An employee education campaign to improve paper and printing habits helped to slice paper use by 10 percent in 2012.

What does that mean? By reducing paper use from 20.5 million sheets to 18.4 million sheets — BPA saved the equivalent of five stacks as high as BPA's eight-story headquarters in a single year. Viewed another way, it saved \$395,000 of ratepayer money.

Transportation

The nature of BPA's far-flung work — from maintaining 15,000 miles of transmission lines to running one of the largest fish and wildlife restoration programs in the world — entails an array of work vehicles ranging from average to enormous. Similarly, reducing the impact of its transportation activities entails an array of sustainable strategies from micro to macro. Key among them: honing the fleet to align more tightly with today's needs; expanding the use of alternative fuels and making maintenance practices more eco-friendly.

Since 2010, the agency has focused on right-sizing its fleet, retiring older vehicles in favor of those with new engines that emit 90 percent less particulate pollution and 95 percent less total exhaust emissions. So far, the savings has exceeded \$200,000 in yearly operational expenses and approximately \$3 million in avoided vehicle replacements. The transition moves BPA toward attaining carbon emission reductions associated with the American Clean Energy and Security Act of 2009.

To reduce its carbon footprint, BPA now has 475 vehicles powered either by electricity or fuel mixes containing ethanol (E-85) and biodiesel (B20). One interesting subset of the 86 electric hybrid vehicles are 11 man-lifts. The hybrid lifts have enough juice in their battery banks to operate for a full work shift, lifting construction crews and substation electricians without resorting to turning on the engine. A side benefit: They also provide a 110-AC power source for electric tools, eliminating the need to run a generator in the field.

Finally, BPA has made notable strides in adopting environmentally friendly methods of cleaning vehicles, lubricants and fluids. Three new methods — the use of bio washers, hydraulic filter carts and fuel polishers — are saving the agency \$92,721 a year, making work more efficient and reducing BPA's environmental footprint.



Hybrid electric man-lifts are among the new equipment that is helping BPA reduce its carbon emissions.



Conducting an annual trash audit helps BPA identify new opportunities to sharpen its recycling and composting efforts. (Photos: Community Environmental Services/Portland State University)

Waste reduction

When a big organization like BPA puts its mind to intensifying its recycling and composting efforts, progress is measured not by the truckload, but by the ton. Headquarters composting efforts, launched in the café in 2010 and later expanded to every floor, reduced the amount of material sent to the landfill by more than 35 tons in 2012.

Overall, BPA has cut its trash volume by 30 percent since 2008. That's an enormous amount, but the work goes on. To guide its steps, BPA hired an environmental firm to analyze a large sample of its trash at both headquarters and its main facility in Vancouver, Wash. The waste audit identifies types of garbage that could be composted, recycled or not generated in the first place. The 2013 report gave BPA food for thought because, despite its great strides, 27 percent of the garbage headed for the landfill was food waste in 2012. In operational excellence terms, all that undiverted food waste merely represents the next crop of low-hanging fruit on BPA's path of continual improvement.

Responsible use of electronics

As an organization humming along with more than 10,000 electronic devices, BPA has an abundance of opportunities to use this equipment in a better way. The effort starts with applying sustainability considerations to IT purchasing and continues through the life of each device to a good death, with environmentally responsible disposal.

BPA has been nationally recognized for excellence in use of electronics three times (2004, 2011, 2012). Most recently, the U.S. Environmental Protection Agency awarded the agency the highest honor in its Federal Electronics Challenge, singling out environmentally friendly printer settings, power management for printers and desktop computers, and the lifecycle strategies mentioned above. One example: After BPA applied power-saving settings to every eligible computer, automatically dropping them to standby mode after a period of inactivity, agency electricity use dropped by 10,000 kilowatt-hours in the first month.

Likewise, sustainability principles have taken center stage in the transition to the work of the future. A key objective is to design, scale and provision the workplace to reduce the use of natural resources. To accomplish this, BPA is moving to cloud computing, adding wireless



Composting and recycling centers throughout its headquarters have helped BPA cut its trash volume by 30 percent in five years.

Internet, expanding videoconferencing and other remote collaborative tools, and encouraging telework and alternative schedules to diminish undesirable impacts of commuting. Nearly 900 employees have been trained to telework, holding the potential for a substantial reduction in greenhouse gas emissions.

Together, dedicated employees have transformed the sustainability of operations at the agency's central work sites. In the next phase, the focus expands to BPA's roughly 1,000 other facilities and into the field, to improve substation design and construction. Through these actions, BPA carries its history of innovation, and fiscal and environmental stewardship into a new century.