

B O N N E V I L L E P O W E R A D M I N I S T R A T I O N



BPA

SUSTAINABILITY
REPORT

FISCAL YEAR
2017



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LETTER FROM THE CHIEF ADMINISTRATIVE OFFICER

If this year's sustainability report had a theme, it would be "Taking it to the Next Level." Thanks to the passion and skill of our workforce, BPA's commitment to the three pillars of sustainability — environmental, social and economic — has never been more apparent.

BPA's Workplace Services, Supply Chain, Environmental Planning and Analysis and Pollution Prevention and Abatement teams have made our operations more efficient than ever: We completed construction on our first net-zero energy building, and the agency continues to lead the industry in resource conservation and waste recovery. Our new Diversity and Inclusion Office completed a five-year strategy that aims to increase workforce diversity, empower leadership and foster a culture of inclusion. And BPA's Safety group has excelled in a program of both recognition and reporting, which has led to measurable safety improvements across the board.

In the region, BPA continues to support and strengthen the communities we serve. The agency has expanded its energy efficiency incentives in programs that serve vulnerable residents and small businesses, and we are honored to maintain and strengthen our relationships with tribal communities in the Northwest through a wide range of partnerships and education programs. In addition, BPA's Environment, Fish and Wildlife team has achieved remarkable outcomes through its conservation and restoration programs.

Our sustainability efforts go hand in hand with BPA's new strategic plan. Resource efficiency and process improvement projects reduce program costs, which is in line with BPA's strategic goal to strengthen financial health. In addition, the modernization of our operating systems will promote better tracking and management of our environmental impacts. A sustainability mindset will be key to meeting these goals over the next five years.

I am proud of the progress we made in 2017 and of the many members of the workforce who led the way. This report highlights the skill and contributions of our exceptional workforce, and showcases our dedication to sustainability on all fronts: It is the right thing to do, it makes business sense, and our stakeholders demand no less from us. We look forward to another 80 years of serving our environment and the region.


John L. Hairston
Chief Administrative Officer



“Our sustainability efforts go hand in hand with BPA's new strategic plan.”

SUSTAINABILITY METRICS

Environmental

Category	Unit	Baseline Year	Baseline	FY 2015	FY 2016	FY 2017	% Change from Baseline	Cumulative Savings from Baseline
FUGITIVE EMISSIONS								
Sulfur Hexafluoride (SF6)	Pounds	2010	6,473	1,547	3,535	4,246	-34.4%	8,225
PETROLEUM FUEL								
Aviation Fuel Consumption	Gallons	2010	124,902	128,019	141,015	148,717	19.1%	-103,663
Motor Fleet Fuel Consumption	Gallons	2009	1,013,960	934,723	909,242	936,061	-7.7%	956,097
ALTERNATIVE FUEL								
Motor Fleet Fuel Consumption	Gallons	2009	103,647	103,013	96,592	41,781	-59.7%	43,258
FACILITY HEATING								
Natural Gas Consumption	Therms	2015	85,840	85,840	88,687	128,952	50.2%	-131,799
FACILITY ELECTRICITY								
Electricity Consumption	kWh	2015	21,039,940	21,039,940	20,549,275	20,384,387	-3.1%	1,146,218
WASTE								
Waste to Landfill	Short tons	2010	635	561	237	203	-68.1%	1,124
Waste Diverted	Short tons	2010	1,475	3,121	2,122	2,544	72.5%	-5,365
FACILITY WATER								
Water	Gallons	2015	38,611,901	38,611,901	31,659,432	34,809,619	-9.8%	10,754,751
PAPER								
Paper Consumption (Total)	Reams	2008	45,597	25,845	26,828	17,977	-66.0%	68,945
BUSINESS RELATED TRAVEL								
Business Air Travel	Miles	2009	4,975,620	6,188,089	6,086,738	4,842,569	-2.7%	-1,541,796

Workforce

Category	FY 2017
WORKFORCE DIVERSITY	
Minority share of workforce	17.3%
Women share of workforce	29.4%
SKILLED WORKFORCE AVAILABILITY	
Share of workforce born before 1945	0.4%
Share of workforce born 1946 – 1964	40.3%
Share of workforce born 1965 – 1980	43.5%
Share of workforce born 1981 – 2000	15.8%
Turnover rate	6.0%

Safety

Category	FY 2015	FY 2016	FY 2017
Near hits	26.0	105.0	193.0
Safety concerns	81.0	101.0	232.0
Injury frequency rate	1.7	1.1	1.1
Days away restricted or transferred rate	0.8	0.5	0.5

* Tracked on a calendar year

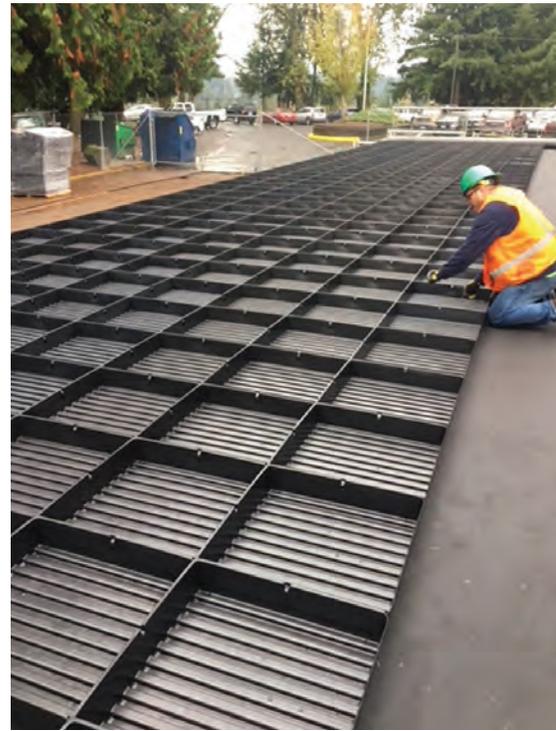
WHAT DOES SUSTAINABILITY MEAN AT BPA?

The term sustainability has evolved over the years, and so too has BPA's approach to it. BPA began its first comprehensive tracking of environmental performance in 2007, responding to a federal mandate that agencies improve efficiency and reduce their operational impacts. In the years since, BPA has realized the many benefits that come from sustainability: not just by doing the bare minimum for compliance, but by continuously seeking to improve and define best practices across the board.

Sustainability increases the efficiency of BPA's operations. It engages the workforce and attracts valuable talent to the agency. BPA's commitment to sustainability allows Bonneville to more effectively pursue its mission of creating and delivering the best value to its customers and constituents, and to better serve communities and ecosystems throughout the Northwest.

In the enclosed report, you will see some of the ways BPA worked to raise the bar in 2017. Over the course of the year, BPA completed its first net-zero energy building, its first green roof on a BPA-owned building, and several xeriscaping projects that have saved millions of gallons of water while improving habitat for pollinators. BPA continued its exemplary work in responsibly disposing of used equipment — through reuse and recycling whenever possible — and won awards for IT stewardship, data center efficiency and community leadership. BPA supported work throughout the Northwest to restore habitat and support fish populations, continuing a decades-long commitment to ecological stewardship.

Along with this commitment to environmental sustainability, BPA continues to deepen its focus on social sustainability. In 2017, BPA finalized its five-year plan to promote a culture of diversity and inclusion, and continues to prioritize safety as a core value. Bonneville partnered with communities and local utilities to reduce energy bills for low-income customers, create education opportunities for youth, and expand opportunities for sovereignty and economic development on tribal lands. As reported last year, BPA is working hard to ensure that its workforce and the communities it serves are as safe, healthy, inclusive and skilled as possible.



OUR OPERATIONS

Winning awards for our stewardship

BPA is no stranger to sustainability awards (see sidebar), but 2017 was a particularly proud year for the agency. In April, the Department of Energy's Sustainability Performance Office recognized the Data Center, Critical Facilities, and Utility Management teams with an Innovative Goal Performance award for improving data center efficiency. Through multiple initiatives, project team members reduced data center energy consumption by an average of 17 percent compared to the previous year.

In June, the Environmental Protection Agency's Federal Green Challenge awards highlighted BPA's successes in electronics, where the IT Asset Management group purchased 100 percent EPEAT-certified electronics over the course of FY 2016. The team increased EPEAT purchases by 63 percent over FY 2015 totals by seeking out powerful and lightweight desktop equipment that also met rigorous energy efficiency criteria.

And finally, the Federal Green Challenge also recognized BPA's Sustainability Program with a leadership award for its work to promote energy efficiency and waste management in the Lloyd EcoDistrict, the neighborhood in which its Portland, Oregon, headquarters is located. The Sustainability Program actively develops strategies, leads projects, benchmarks performance and shares best practices in collaboration with other EcoDistrict partners

BPA IT and Sustainability Program Team members receive award from EPA.

SUSTAINABILITY AWARDS

2017:

DOE Sustainability Awards, Data Center Efficiency
EPA Federal Green Challenge, Electronics
EPA Federal Green Challenge, Leadership

2016:

EPA Federal Green Challenge, Purchasing
EPA Federal Green Challenge, Waste
Association of Oregon Recyclers,
Recycler of the Year (Government), Kevin Kertzman,
property disposal officer

2015:

EPA Federal Green Challenge, Waste,
Seattle Federal Office Building Green Team

2014:

EPA Federal Green Challenge, Transportation
NEEA Kilowatt Crackdown, Highest Performing
Building (Inaugural Year), Portland headquarters

2013:

DOE Sustainability Awards,
Sustainable Communications

2012:

EPA Federal Electronics Challenge, Platinum

2011:

EPA Federal Electronics Challenge, Silver
DOE Achievement Award,
Fugitive Emissions Working Group



LEED Gold and Net Zero

In FY 2017, BPA passed a milestone: the construction of Ross Maintenance Headquarters, the agency's first net-zero energy building. Net-zero energy means that, through energy efficiency measures and onsite renewables, a building produces as much or more energy than it consumes on an annual basis. The newly completed Ross Maintenance Headquarters in Vancouver, Washington, is a perfect example. It offers a host of efficiency features designed to minimize energy use throughout the building, such as LED lighting and occupancy controls, highly insulated hangar doors, an infrared radiant system that reduces energy loss in the high-bay facility, and a system that heats and cools only the occupied spaces in the administration building.

In another important first for BPA, two photovoltaic arrays at Ross Maintenance Headquarters will provide a combined total of 300 kilowatts of solar energy per year. It is the agency's first onsite renewable generation at any of its facilities. To implement this initiative, the Facilities Planning and Projects team worked closely with Clark Public Utilities.

BPA facilities have reduced their electricity use



Celebrating Earth Month

Throughout April, the Sustainability Program hosted several activities in honor of Earth Day. Highlights included:

- In partnership with the Women's Resource Group, a panel discussion spotlighting women who have built careers in different areas of public sector and nonprofit sustainability.
- A volunteer service event in Portland's Forest Park, where employees and contractors spent the day clearing back vegetation and adding drains to the Wildwood, Cumberland and Upper Macleay trails.
- A clean-up event at the Firstenberg Community Center, where volunteers removed debris and improved the grounds at the Vancouver, Washington, facility.
- A month-long discussion group, guided by materials from the Northwest Earth Institute, that dove into how BPA employees can promote sustainable behavior for themselves, their organizations and the agency as a whole.



“We were fortunate to have BPA as a partner for this project and learning experience,” says Matt Babbitts, Energy Services project manager for Clark Public Utilities. “The BPA team was easy to collaborate with, and the joint effort led to a successful endeavor. The project represents the largest single solar array in Clark County, Washington.”

Ross Maintenance Headquarters is also on track for LEED Gold certification, which means that the building incorporates a number of environmental features: conference rooms with reclaimed wood accents, low-flow water fixtures, onsite stormwater treatment and xeriscaping see story on PAGE 9, to name just a few. Apart from enabling BPA to meet its energy targets, this new level of sustainable construction also makes business sense for the agency.

“Over the next 20 years, we estimate that the electricity and carbon costs offset by the PV array, plus local incentives, will exceed the upfront purchase cost of the system,” reports Thane Miller, who managed the project. “And with the built-in capability to integrate onsite energy storage systems through an electrified fleet or battery banks, this could allow for much more resilient operations.”

The Fleet Services building, slated for completion in 2019, will also be designed to meet LEED Gold and net-zero energy requirements.



From leaky roof to living roof

BPA’s Dittmer Control Center is a mixed-use facility at the Ross Complex in Vancouver, Washington. When Dittmer’s basement expansion began leaking, the Facilities Planning and Projects team decided to replace the existing roof with a green one: a first for a BPA-owned facility.

Apart from providing a pleasant green space to employees and contractors, the new roof has a number of sustainability features built in to extend its life and reduce facility energy use. A state-of-the-art detection system, for example, will catch leaks before they can impact critical areas. The vegetation on the roof will also insulate the building, reducing the amount of energy needed to heat and cool indoor spaces.

In addition, the roof’s foundation consists of modular trays that will allow maintenance teams to access and address any problems

without removing the entire roof structure. The area was planted with a species of sedum that requires minimal irrigation, and ballast rocks around its perimeter will allow for more sustainable rainwater management.

The success of the green roof project — which was completed on budget, ahead of schedule and with no recordable injuries — makes it likely that BPA will pursue similar projects at other facilities.

“The team did an exceptional job,” affirms project manager Thornton Smith. “We’re proud to see the benefits this project brings to the environment, facility occupants, and green building practices across the agency. This was a big win for BPA.”

Major water savings from xeriscaping projects

BPA relies on its substations and maintenance facilities to supply safe and reliable power to its customers. About 11 million gallons of water per year — enough potable water to fill 17 Olympic-size swimming pools, and 30 percent of BPA’s total water footprint — were being spent irrigating the grounds of these substations.

To manage this significant water footprint, BPA’s Workplace Services team partnered with the Transmission Engineering and Technical Services group to implement three xeriscaping pilot projects at some of its highest-consuming facilities. Xeriscaping is a type of landscaping that uses plant species and specialized design to minimize the need for dedicated irrigation, with additional benefits that include lower maintenance costs and more native plants to support pollinators and healthy ecosystems.



Savings from xeriscaping projects total more than \$22,000 per year





Outcomes from the pilots were dramatic. After the one-year establishment period for the project, Chemawa Maintenance Headquarters and Substation reduced its water consumption by an average of 43 percent — a whopping 450,000 gallons per year. Results from the Eugene substation were even more impressive, with savings of over 3.4 million gallons each year.

The third pilot had puzzling results: Even after the xeriscaping establishment period, Alvey Maintenance Headquarters and Substation continued to use large amounts of water. However, further investigation from the Workplace Services group and the district's facility maintenance worker discovered several major leaks in a water line. The team brought in a contractor who used sonic and electronic detection methods to pinpoint the location of these leaks. With repairs made, savings of up to 1.3 million gallons are expected per year.



“Locally-adapted plants provide food and habitat to pollinator species — bees, butterflies, hummingbirds — throughout the growing season,” explains Kimberly St.Hilaire, environmental protection specialist. “And the drought-resistant nature of native plants provides benefits through water reductions and cost savings — a triple win for BPA.”

With the success of these pilots, BPA is moving ahead with six additional xeriscaping projects, with the potential for more down the road.

Cleaning up our act at Celilo Converter Station



In 2017, BPA completed a massive upgrade of its Celilo Converter Station, replacing its 45-year-old equipment with new technology that will improve safety, security and performance along the longest commercial transmission line in the country. While this modernization is good news for BPA and its customers, it left a substation yard full of unwanted equipment and obsolete spare parts that, in other circumstances, would be destined for the landfill.

Enter BPA's Investment Recovery Center. The center works year-round to recycle or repurpose BPA's unwanted or surplus materials, and the Celilo Converter Station was just the kind of challenge it was made for. Still, the sheer size of the project was something the center had never faced before. “On our first walk through the area, I wondered to myself, ‘what have I gotten us into?’” jokes Kevin Kertzman,

Investment Recovery Center property disposal officer. “But after some long discussions, things just fell into place. Everyone worked together to make the project a success.”

True to expectations, the job was substantial: Work lasted nearly a year, and by June 2017 the cleanup team had responsibly processed roughly 345 tons of disparate materials that included insulated wire, lighting fixtures, steel poles, ceramic insulators and used oil.

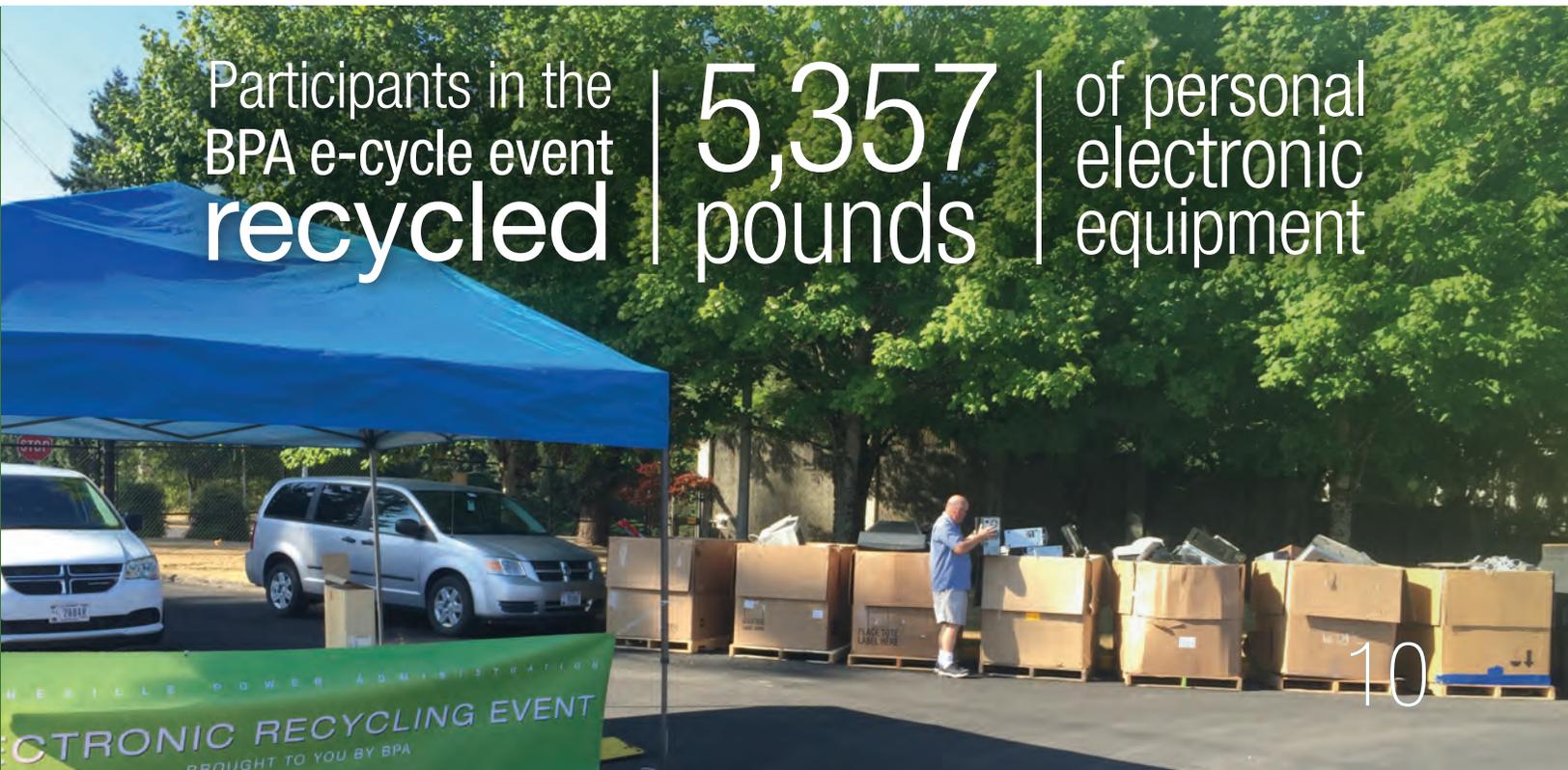
Of this total, the Investment Recovery Center recycled 128 tons of aluminum, steel, insulated copper wire and glass. The remaining 217 tons of oil, bushings and capacitors were recycled by an outside contractor at a nearby facility in Salem, Oregon. Through the careful salvage of scrap materials and still-functional equipment, the Investment Recovery Center recouped nearly \$150,000 in sales. This was an environmental and economic win-win that has paved the way for similar projects, including a yard cleanup at the Port Angeles Substation that has already recovered 31,560 pounds of valuable scrap metal and about \$40,000 worth of materials that can be returned to BPA’s inventory for future use.



Revenue from refuse

Most of us know how to recycle copy paper and soda cans, but what do you do with a 100-ton, oil-filled transformer? One of the reasons

Participants in the BPA e-cycle event recycled **5,357** pounds of personal electronic equipment





The Investment
Recovery Center
kept over

2,000
tons of waste

out of the
landfill in FY 17.

the Celilo cleanup (see story above) was such a massive undertaking was the presence of 33 out-of-date transformers in need of responsible disposal. These transformers contained several hundred-thousand gallons of oil, which posed increasing environmental risk after the equipment was decommissioned.

Understanding the need for speedy removal, property disposal specialist Steve Jensen looked to outside contractors for support.

“BPA takes its environmental stewardship responsibility seriously, and the fact that we were sitting on half-a-million gallons of oil in decommissioned equipment was just not acceptable,” said Jensen.

Over more than a year, BPA’s partners safely drained and transported the oil for treatment and reuse, dismantling the transformers and recycling their components in the scrap metal market. In the end, BPA responsibly disposed of over 500,000 gallons of oil and nearly 7.5 million pounds of transformers and other equipment.

As a wholesale electric power provider, BPA often faces complicated disposal projects for very specialized equipment.

“This is where the creativity and ingenuity of the property disposal team converge. They used their collective experience to turn a potentially expensive cleanup into a huge win for BPA and its ratepayers,” says logistics manager Michael Ware. “The Celilo yard is clean now and we recovered nearly a million dollars from the scrapped transformers, used oil and oil-filled equipment.”



EMPLOYEE SPOTLIGHT

CRAIG SANDERS

Craig Sanders is one of BPA's unsung heroes for sustainability. As a facilities maintenance worker in the Redmond District, he supports more than 60 facilities spread across 50,000 square miles in Oregon and northern California. An expert in the many, many systems that keep the sites up and running, Sanders has been a key player in over a dozen water and energy efficiency projects over the past two years. He has been instrumental in projects that include LED lighting upgrades, water-efficient xeriscaping, and the rollout of the agency's new facility metering policy.

WHAT DO YOU FIND MOST REWARDING ABOUT YOUR WORK?

When I can make a difference that helps all others around me. From lighting projects to safety upgrades, I want to make it the best environment I can for the people at our facilities. As many say at BPA, we're all here to keep the lights on!

WHAT ADVICE WOULD YOU GIVE TO OTHERS WHO WANT TO MAKE A POSITIVE DIFFERENCE AT BPA?

Do all that you can to make BPA a better place for everyone to work! Smiles are contagious, and so is a positive attitude.





OUR NATURAL ENVIRONMENT

BPA's fish and wildlife protection program

BPA manages the largest fish and wildlife protection program in the nation — we are adding fish to the rivers and so much more. In fact, fish and wildlife mitigation and environmental compliance are essential parts of Bonneville's business and reflect BPA's core values of trustworthy stewardship and operational excellence.

At the center of BPA's mitigation strategy is its work to enhance hydropower system operations and configuration of the dams to provide fish a safe, long-term way to coexist with power production in the Northwest.

CONSERVATION METRICS

Met or exceeded performance standards of



96%
passage for
spring-migrating fish, and

93%



passage for
summer-migrating fish.



Acquired
more than

3,500
acres

of conservation lands for fish and wildlife.



Enhanced
more than

700

tributary stream miles –

improved channel complexity, reconnected floodplains,
improved fish passage.

Restored **53** cubic feet
per second

of in-stream flow, and

secured

more
than

31,000

acre-feet of water.

Completed **2** estuary
projects, and

2

more are in the design phase.

WHAT IS TRANSLOCATION?

Species translocation is a type of conservation activity where members of a species are deliberately moved from one area to another and released into a new site. The practice helps increase the population and range of threatened species, increasing its chances of long-term survival.

At each dam, the U.S. Army Corps of Engineers and the Bureau of Reclamation tailor the amount of spill and type of juvenile fish passage to specific fish behavior and river conditions. Spill levels are also customized to avoid delay of adult fish migrating upstream. Surface passage routes have been installed at all eight dams on the lower Columbia and Snake rivers, allowing juvenile salmon and steelhead to pass dams near the surface where they naturally migrate. Such science-based spill operations have reduced the percentage of fish that go through turbines, decreased fish travel time and increased the overall survival of juveniles through the system. In the spring, most of the juveniles pass the dams through routes other than the turbines.

Because they provide biologically calibrated spill operations, these systems provide some of the highest survival rates of all passage routes and better fish travel times. Approximately 96 percent of spring-migrating fish and 93 percent of summer-migrating salmon now safely travel past each dam. Fish travel times and survival per mile are approaching those of an undammed river.

BPA's Fish and Wildlife protection program
— is the —
largest
in the nation



But because the federal dams still have effects on the environment that are not fully addressed with improved spill and passage, BPA and other federal agencies implement habitat and hatchery enhancements. BPA strives to achieve biological objectives in the most cost-effective manner and uses an ecosystem-based approach to benefit both fish and wildlife. BPA includes actions to account for uncertainty and adaptive management in the face of changing ocean conditions, climate change and other emerging issues. BPA is not responsible for mitigating against climate change, but many of the hydro and habitat actions can provide a hedge against uncertainty. This includes habitat actions such as flood plain reconnection, water acquisitions and barrier removal, as well as dry/warm year hydro operations and water management.

We have a mature program that has been a couple of decades in the making; Bonneville is getting good results for fish and wildlife, and the agency has strong partnerships. BPA's fish and wildlife strategy builds on this strong base of accomplishments.



RESTORATION AND CONSERVATION AWARDS

State of Oregon Governor's Conservation Award

Chinook salmon appeared in the newly-built Catherine Creek stream channel, a tributary to the Grande Ronde River in Oregon, within days after flows were introduced. Over a period of years, BPA and the Umatilla Tribe rehabilitated a 4-mile section of the creek, restoring its floodplain meanders to the way they were decades ago. Since the new habitat was created, the number of young salmon has increased tenfold. This project received a Governor's Conservation Award in 2017.

The Oregon Water Resources Department Award

For more than a century, the Dillon Dam affected juveniles as well as adult fish stuck below the dam. Removing it allowed more fish, including fall and spring chinook runs, to make it to their traditional spawning grounds farther up the Umatilla River, boosting survival and providing more fishing opportunities. The Oregon Water Resources Department recently recognized the project, which BPA helped fund, with an award for best water management and conservation plan by an agricultural water supplier.



Restoring habitat: The gift that keeps on giving

BPA has funded thousands of tributary and estuary habitat improvement actions across the Columbia Basin to restore natural stream channels, enhance flow volume and timing, expand cold-water refuges and open access to habitat. BPA's Environment, Fish and Wildlife organization has conducted this work over a broad landscape, including areas that present restoration challenges due to significant legacy impacts such as dredge mining and disconnected floodplains. The habitat actions provide benefits now and for years to come. That's important because climate change will affect the status of endangered species and aquatic habitat at large. Overall, about one-third of the current cold-water fish habitat in the Pacific Northwest is likely to exceed key water temperature thresholds by the end of this century.

In 2017, BPA acquired more than 3,500 acres of conservation lands for fish and wildlife. The agency enhanced more than 700 tributary stream miles by adding channels, reconnecting floodplains and improving fish passage. We've restored 53 cubic feet per second of in-stream flow, and secured more than 31,000 acre-feet of water to improve streamflows and temperature.

For example, chinook salmon appeared in the newly-built Catherine Creek stream channel, a tributary to the Grande Ronde River in Oregon, within days after flows were introduced. Over a period of years, BPA and the Umatilla Tribe rehabilitated a 4-mile section of the creek, restoring its floodplain meanders to the way they were decades ago. Since the new habitat was created, the number of young salmon has increased tenfold. Oregon Gov. Kate Brown honored the Catherine Creek Project and its partners, including BPA, with an Oregon State Land Board award.

Removal of the fish-blocking, canal-clogging Dillon Dam on the lower Umatilla is another project garnering recognition. For more than a century, the dam affected juveniles as well as adult fish stuck below the dam. Removing it allowed more fish, including fall and spring chinook runs, to make it to their traditional spawning grounds farther up the Umatilla River, boosting survival and providing more fishing opportunities. The Oregon Water Resources Department recently recognized the project, which BPA helped fund, with an award for best water management and conservation project submitted by an agricultural water supplier.

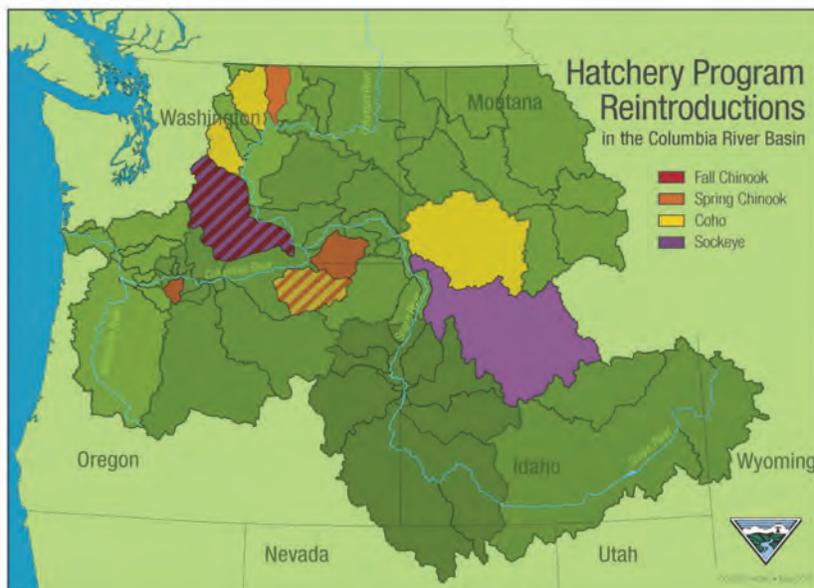


The importance of conservation hatcheries

For more than a century, the Pacific Northwest has used hatcheries to help support fish populations and allow for continued fishing opportunities that provide economic, social and cultural benefits in the Columbia Basin as well as on the West Coast. These hatcheries help the federal government meet its treaty and trust responsibilities to Northwest Indian tribes. We also use hatcheries to help sustain endangered populations such as critically endangered Snake River sockeye and to supplement populations of other Endangered Species Act-listed salmon and steelhead.

Northwest tribes, federal and state partners use hatcheries to bring fish back to rivers where they were extirpated or nearly extirpated. Examples include Columbia and Snake river coho, Umatilla and Okanogan spring chinook, and Snake River fall chinook. Without these hatchery programs, there would be only handfuls or no fish in these key habitat areas.

In 2017, BPA funded upgrades for existing facilities and paved the way for groundbreaking for several hatcheries, including the Melvin R. Sampson Hatchery in the Upper Yakama and Naches river watersheds, which will raise up to 700,000 coho smolts, and the Walla Walla Hatchery, which will rear up to 500,000 spring chinook yearlings.





Yakama Power performs vegetation management work around BPA's lines

BPA's Transmission Vegetation Management team plans and supervises vegetation management operations over thousands of miles of high-voltage power lines. Accidental contact between trees and power lines is the most common cause of electricity outages in the U.S. and Canada, and this critical work keeps trees and other debris from interfering in the safe, reliable transmission of power.

Many of BPA's transmission rights-of-way cross lands owned or managed by federally recognized tribal governments. BPA sends its employees and contractors to evaluate and control vegetation on its system.

"Overall, we were satisfied with work our contractors did on BPA transmission corridors across tribal lands in the region," said Kurt Lynam, account executive on BPA's Tribal Affairs team. "However, when several of our tribal partners expressed an interest in doing vegetation management work, we realized we had been missing an opportunity."

At that point, Tribal Affairs and the Transmission Vegetation Management group developed a pilot program, contracting directly with a tribal utility, Yakama Power, to complete vegetation management work along 72 miles of rights-of-way that cross the Yakama Reservation in central Washington.

The work was demanding: BPA's transmission lines cross several sensitive environmental areas, requiring teams to take special care to avoid disrupting delicate ecosystems. Some of the terrain in this corridor was so rugged that crews had to hike in and out of the area, carrying all the tools needed for cutting and trimming vegetation in their packs. Jerry Martin, line crew supervisor, remarked the work reminded crew members of wilderness firefighting.

"The work was physically challenging and was a good professional development experience," he reported. "The before and after condition of the vegetation along the lines gave us a sense of pride in the results."

In spite of these challenges, Yakama Power crews successfully completed their work across all 72 miles of corridor. BPA's Tribal Affairs and Transmission Vegetation Management groups consider this success a definitive proof of concept, and are hopeful that this partnership will be a model for other tribes that have the capacity to take on high-voltage vegetation management work.

EMPLOYEE SPOTLIGHT

STEVE SANDER

Environmental scientist Steve Sander heads up the sustainability efforts in the Pollution Prevention and Abatement work group, which provides environmental consulting, planning and implementation to BPA's Transmission Services organization. His work minimizes BPA's environmental liability, encourages energy and water conservation in fish and wildlife program facilities, and maintains an auditable environmental management system.

BPA employees might be familiar with Sander's work in BPA's electronics recycling program. In 2017, Sander worked with the sustainability program manager to find a new electronics waste vendor and negotiate a low-cost e-cycle event that lets employees properly dispose of their personal electronic devices. This helps keep harmful toxins out of the environment, and reduces pollution associated with the extraction of raw materials and the manufacture of new products.



WHAT DO YOU FIND MOST REWARDING ABOUT YOUR WORK?

Working with very talented and dedicated people in my chosen areas of interest – environment and sustainability – and hopefully making a difference for the agency.

WHAT ADVICE WOULD YOU GIVE TO OTHERS WHO WANT TO MAKE A POSITIVE DIFFERENCE AT BPA?

Find something that you care deeply about and believe in and look for opportunities to weave it into the fabric and goals of the agency.



OUR PEOPLE

Diversity and Inclusion five-year plan

In 2017, the Diversity and Inclusion Office unveiled its five-year plan: a roadmap to cultivate a sustainable culture of inclusion where people who look, talk and think differently are valued and can come together to generate innovative solutions that benefit the communities that BPA serves.

This plan was the culmination of a long and in-depth process involving the Diversity and Inclusion Office, its advisory council, and the executive team. The resulting strategy revolves around three critical success factors:

- Increase workforce demographic diversity by recruiting and retaining a highly talented workforce that reflects the communities that BPA serves.
- Empower leadership at all levels by engaging the entire BPA workforce in creating and sustaining a culture of inclusion.
- Foster a culture of inclusion by leveraging personal stories to connect with one another through shared purpose, self-awareness and creating opportunities for safe dialogue.

“Through this strategy, we can empower employees, promote engagement and encourage innovation,” explains Administrator Elliot Mainzer. “We will be better able to overcome the challenges we face in

Portland Commissioner Chloe Eudaly, the keynote speaker for Women’s Equality Day event sponsored by the Women’s Resource Group.

Employees tabling at the BPA booth at Portland Pride Festival.



today's changing business environment, build even stronger collaborative and effective relationships with tribes and stakeholders, provide the level of service our customers expect, and ultimately ensure our long-term commercial success.”

The Diversity and Inclusion Office is already hard at work, building on the projects and partnerships it has cultivated over the past year. Plans for 2018 include a deep review of the barriers to the hiring and retention of under-represented groups and a campaign to heighten competency and commitment around diversity, equity and inclusion at all levels of the agency.

Uncovering Unconscious Bias training

BPA works hard to promote an environment where diversity is valued and where people who look, talk and think differently can collaborate productively. To this end, the Diversity and Inclusion Office partnered with BPA's Recruitment and Classification group to develop the “Uncovering Unconscious Bias in Hiring” course.

“We developed this training to give BPA hiring teams the tools and strategies they need to continue implementing a fair and unbiased hiring process,” explains Colleen Fields, the human resource specialist who proposed and helped develop the course. “We weren't responding to a specific problem, but our job will always be to select those candidates who will best help us meet our mission — unconscious bias has the potential to get in the way of that.”

The training introduces participants to the concept of unconscious bias, examines how it can show up in candidate interviews and selection, and teaches how to apply strategies to defeat unconscious bias during the hiring process.

Responses have been enthusiastic.

“People don't wake up in the morning wanting unconscious biases; we are just built that way from years of living life,” says Chief Information Officer Benjamin Berry. “Knowing we all have unconscious bias is the first step to embracing diversity and reshaping our organizational culture.”

The Diversity and Inclusion team will offer the course six times in 2018, including a specialized session for all managers in the Chief Administrative Office.

TRIBAL TRAININGS

In FY 2017, BPA offered the following tribal trainings to employees.

- Everything You Wanted to Know About Indians But Were Afraid to Ask.
- Tribal Governance, History, Culture and Communication
- Tribes and the Supreme Court
- Working Effectively with Tribes
- Tribal History, Trust Responsibility and Consultation



Maria Mondragon-Almy giving district diversity training.



Encouraging a safety mindset through recognition

Preparation goes a long way toward avoiding incidents, but the truth is that not all safety hazards can be planned out of projects. Studies show that human error plays a part in most safety incidents, which is why promoting a “safety first” mindset is so important. BPA has taken this to heart, implementing a number of programs to promote safety-mindedness and strengthen the safety culture. One of these started in 2016, when the agency added a safety category to its popular People-to-People awards program.

This celebration of safety-minded thinking paid off almost immediately: In 2017, employees recognized each other by sending 346 electronic cards and 4,747 People-to-People awards, highlighting behaviors employees took to keep each other safe. Examples ranged from removing a hazard to helping a stranded driver on the side of the road.

“When everybody takes responsibility for safety, the concept goes beyond just reporting,” says Brad Bea, chief safety officer. “It’s people taking action to remove a hazard or to offer help to ensure someone’s safety.”



BPA uses reporting tools to prevent injuries, not just record them

The best way to prevent an injury is to proactively focus on reducing the likelihood of future incidents. While policy and procedures are essential cornerstones to mitigating known hazards, BPA works hard to identify other hidden behaviors, habits and systemic conditions that could result in an injury or fatality down the road.

One way to find those trends is by analyzing safety concerns and reported near hits. A safety concern is when someone sees a condition in their work environment that, if not corrected, could result in an injury, illness or fatality. A near hit is an incident where no property was damaged and no one was injured, but where, given a slight shift in time or position, damage or injury could have occurred.

In 2017, employees reported 193 near hits and 232 safety concerns.

“Near hit reports have almost doubled since 2016 and reporting of safety concerns has more than doubled,” says Bea. “This tells us that people are being mindful of their surroundings, recognizing hazards and taking that next step of reporting issues both inside and outside their control so the hazards can be addressed. When they see something they say something.”

With more reporting comes follow-up work to assess and fix safety hazards. In FY 2016, BPA tracked and completed 53 corrective actions, which were primarily derived from an FY 2015 external audit. In FY 2017, BPA tracked 878 new corrective actions resulting from limited scope and root cause assessments, facility inspections, OSHA inspections and select near hits or safety concerns. The bulk of these came from facility inspections, and although some of these actions were already taking place, there was no visibility or formal tracking to ensure and verify that corrective actions were getting completed.

The BPA Safety organization implemented a tracking method for these items as well as an escalation process to increase transparency and ensure these actions were being completed. As a result, 674 corrective actions were tracked to completion in FY 2017, a 1,172 percent increase from FY 2016. This expanded tracking system is the main reason for the increase in corrective actions completed.



EMPLOYEE SPOTLIGHT



SAFETY AMBASSADOR TONETTE HARMON

In addition to the dedicated staff who work to promote safety and maintain compliance, BPA depends on its workforce to take personal responsibility for their own safety and that of their co-workers. Tonette Harmon is a perfect example of this mindset. In her daily work as a System Protection Control craftsworker in Pasco, Washington, she performs preventative and corrective maintenance on the relays that protect BPA's transmission lines and other equipment.

She has also been actively involved in safety for most of her career. As a BPA safety ambassador, Tonette supports safety-minded projects such as BPA's Arc Flash team, which serves as a conduit between management and those employees who work on or near energized infrastructure and equipment. She promotes safety awareness by watching for and correcting unsafe conditions, conducting hazard analyses and job safety briefings and providing training to developing craftsworkers.

WHAT DO YOU FIND MOST REWARDING ABOUT YOUR WORK?

I get to be a member of the Human and Organizational Performance team. Human performance looks at melding safety, incident prevention and an understanding of the human element behind these things. I truly believe this is a key to making large strides toward incident prevention. When correctly implemented, it can't help but build trust and respect between BPA management and other employees. It's very rewarding to be a part of something I fully believe in.

WHAT ADVICE WOULD YOU GIVE TO OTHERS WHO WANT TO MAKE A POSITIVE DIFFERENCE AT BPA?

Get involved. When you see something unsafe or that could be improved, say something or do something. Be a good example; you never know when you'll be an influence on someone – good or bad. And, when you're sitting in safety training, take a sincere look at how to implement it in the daily work you do.

OUR COMMUNITY

Energy Efficiency Incentive program

BPA pursues energy efficiency as a cost effective power resource to meet the needs of our customers. Energy efficiency is a unique power resource that is implemented in homes and businesses throughout the Northwest, opening unique opportunities to meet BPA's resource needs and improve comfort, performance, and affordability in the many communities BPA serves.

2017 was a good year for energy efficiency in the Northwest. Last year BPA expanded three of its popular residential energy efficiency





The Energy Efficiency metering team at work.



Weatherization work in progress.

programs, and in ways that are likely to strongly benefit low-income households.

In addition to the grants BPA provides to Northwest states and tribes for work in low-income households, BPA works through customer utilities to offer low-income residents incentives for energy efficiency upgrades. BPA designed this program to reduce or eliminate the cost of efficiency upgrades and to help minimize the overall cost of power for those who most need assistance. This program has historically provided financial incentives to weatherize single family, multifamily and manufactured homes. Last year, the agency's Energy Efficiency group extended its low-income offerings to include heat pump water heaters and air-source heat pumps: Both technologies are two to three times more efficient than their conventional counterparts.

In addition, BPA also offers a new incentive that gives participating utilities the option of replacing older manufactured homes with new structures that meet higher energy efficiency specifications. Utilities and nonprofits across the region have requested this measure to help support customers who live in older manufactured homes in a condition that is too poor to weatherize.

Finally, BPA's Energy Efficiency team also developed a new multifamily construction incentive specifically designed to meet the needs of affordable housing developers. The measure provides payments for high-efficiency and zero-energy-ready multifamily construction in buildings that will have very low energy use and, as a result, very low energy bills.

BPA's commitment to serving the needs of its most vulnerable ratepayers is ongoing, and the Low-Income Workgroup it convenes quarterly helps create opportunities for utilities and regional nonprofits to do so.

"BPA is committed to working with our utility customers to support their low-income residents," says Kim Thompson, vice president of Energy Efficiency at BPA. "This work helps support our efficiency mission, but more importantly, it's a way BPA can help the people of the Northwest continue to thrive."

Small business promotion lights up

In mid-2016, BPA funded a Small Business Lighting Promotion, which was designed to encourage energy efficiency retrofits in buildings smaller than 20,000 square feet. In partnership with 62 utilities throughout the region, BPA provided enhanced incentives that helped small businesses — a market that typically lacks the upfront capital for larger efficiency upgrades — secure the financial resources to invest in energy-saving lighting projects. Initially set to last six months, BPA decided to extend the pilot into 2017 after its initial success far outpaced expectations.

Local utilities were also excited to see the program expand.

“Cost containment is a critical component to the success of any small business,” says Ryan Davies of Central Electric Cooperative. “This promotion expanded the opportunities available and allowed a number of small businesses in our territory to move forward with lighting upgrades.”

In the space of a single year, the program incentivized over 400 projects with estimated savings of more than 13 million kilowatt-hours. The benefits went beyond just energy savings, however. Small lighting contractors benefited from increased demand for their services, leading to “an economic win-win” for all parties, according to Willie Ball of Salem Electric.





Michelle Lichtenfels, commercial sector lead at BPA, notes, “The Small Business Lighting Promotion lit the way for us to think more creatively about how we reach underserved markets, or break through new markets with existing technologies. I look forward to seeing how we can directly carry these lessons learned into our future commercial program offerings!”

25th anniversary of Women in Trades

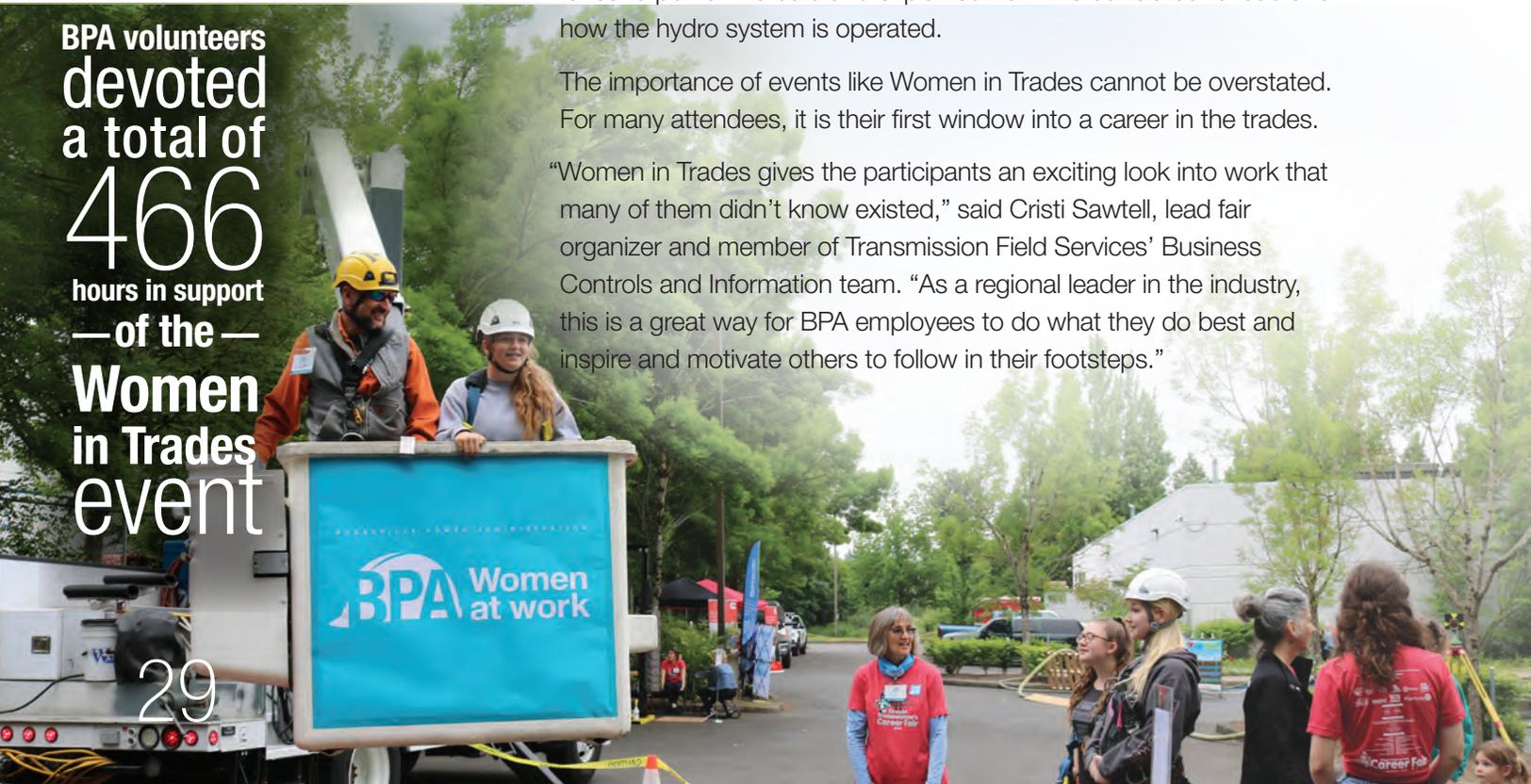
Since 1993, the Women in Trades Career Fair has provided an opportunity for women and girls to learn about lucrative and highly skilled careers in the building, mechanical, electrical and utility trades. BPA has been a platinum sponsor of this event since 2007, leading hands-on workshops to demonstrate the tools and know-how that BPA’s field employees use every day.

The 2017 event was a milestone: the fair’s 25th anniversary. The BPA team turned out in force, with 53 volunteers on hand to help the two-day event run smoothly. At BPA’s “Get Energized about Energy!” workshop, volunteers guided participants in hands-on land surveying activities, welding and security activities. Participants also tried out BPA’s electric bicycle to see if they could pedal fast enough to power a light bulb. While participants rode the bicycle, volunteers flipped switches that either increased or decreased the amount of energy it takes to power the bulb and explained how this correlated to load and how the hydro system is operated.

The importance of events like Women in Trades cannot be overstated. For many attendees, it is their first window into a career in the trades.

“Women in Trades gives the participants an exciting look into work that many of them didn’t know existed,” said Cristi Sawtell, lead fair organizer and member of Transmission Field Services’ Business Controls and Information team. “As a regional leader in the industry, this is a great way for BPA employees to do what they do best and inspire and motivate others to follow in their footsteps.”

BPA volunteers devoted a total of **466** hours in support — of the — **Women in Trades** event



A new tribal utility

While over 120 public utilities operate in the Northwest, the formation of a new public utility is uncommon. Only nine have been formed since 1949. It is so rare because the barriers are high. Among other requirements, the applying body must have ownership control over a distribution system for the area served, it must demonstrate the capacity to perform routine and emergency operations and maintenance, and it must be legally formed in accordance with local laws to establish a general utility responsibility within the service area.

This is why the formation of the Kalispel Tribal Utility in 2017 was a victory for both BPA and the communities it serves. The process was a long one. The Kalispel Tribe of Indians first approached BPA in 2011, and it took six years of work from over 20 internal BPA groups before the new tribal utility started service. It is now one of only 12 tribal utilities active in the United States.

The benefits of the new utility are many. According to Kalispel Chairman Glen Nenema, the new utility will “provide the Kalispel Tribe with lower power rates, expanded opportunities for economic development, greater self-sufficiency, job creation, and enhance sovereign ability to provide essential government utility services to our reservation.”

Kalispel also provides a model for other tribes interested in forming their own utility. The collaborative process was built on strong partnerships with local electric power utilities, businesses and BPA.

Kalispel
Tribal Utility
is 1 of only 9
new public
utilities
that have formed in the
Northwest in the
past 69 years.

Administrator Elliot Mainzer congratulates Ray Pierre III, vice chair of the Kalispel Tribe of Indians after a signing ceremony at the Northern Quest Resort and Casino in Spokane.





Confederated Salish and Kootenai Tribes members conducting a pedestrian survey of the Kalispell-Kerr transmission line right-of-way during the cultural resources survey.

“What the Tribe has accomplished here is impressive,” said Administrator Elliot Mainzer. “This is a milestone. Getting a utility up and running, successfully putting all of the metering, scheduling and operation and maintenance in place is a big deal. It takes a lot of technical work and they did a fantastic job.”

Preserving cultural resources

The Kalispell-Kerr transmission line spans 40 miles, including lakeside terrain in western Montana. Seventeen of these miles cross the Flathead Reservation of the Confederated Salish and Kootenai Tribes. So when aging wood poles forced BPA to rebuild this transmission line, BPA collaborated with both the Tribes and a cultural resources firm to perform a cultural survey of the area. This survey, completed in 2015, documented important cultural and traditional resources that would be adversely affected by the project.

BPA spent nearly two years working with the Tribes to develop a memorandum of agreement regarding impacts from the transmission line. Under the terms of this MOA, BPA will fund traditional language programs, first foods, cultural and historic preservation activities, and other programs that further education and understanding of local tribal culture.

CSKT member collecting measurement data for a cultural resource referred to as a rock feature located along the Kalispell-Kerr Line Rebuild project.



EMPLOYEE SPOTLIGHT

KAREN GRAVES PYRCH

Karen Graves Pyrch directs the Customer Support Services organization, which includes Customer Billing, Contract and Customer Systems, Contract Administration, Load Forecasting and Metering Services. She enjoys many activities within the BPA community and outside: favorites include the American Indian/Alaskan Native Council (a BPA employee resource group), BPA Associates' Women's Softball team, the Associates Foundation, and the American Indian Science and Engineering Society local professional chapter. Being involved in activities provides enjoyment, learning opportunities and ability to form lasting relationships with great people.

WHAT DO YOU FIND MOST REWARDING ABOUT YOUR WORK?

I am motivated by the opportunity to make efficiency improvements, streamlining processes and standardizing procedures, all in order to make things work better. I love the variety of the work and the ability to mentor and help others with their careers. The diversity and inclusion or intercultural work within BPA has been a passion of mine, and I especially enjoy coordinating the Native American Heritage Month events and trainings.



WHAT ADVICE WOULD YOU GIVE TO OTHERS WHO WANT TO MAKE A POSITIVE DIFFERENCE AT BPA?

My best advice would be to jump in and engage with your work and co-workers. Sharing ideas and working to make a difference will make your work very enriching and enjoyable. We all have something to share, so bring in your positive thoughts, words and actions to continue to make BPA a great place to work.



SUPPORTING STUDENTS FROM WARM SPRINGS IN LEARNING ABOUT STEM

This summer, BPA partnered with the Army Corps of Engineers and the Confederated Tribes of the Warm Springs Indian Reservation to provide an educational opportunity for Warm Springs high school students on energy, STEM (science, technology, engineering and math) and the Federal Columbia River Power System. Highlights of the program included tours of the Bonneville Dam, Oregon Bonneville Fish Hatchery and BPA's Ross Complex. At the Ross Complex in Vancouver, Washington, the students had the unique opportunity to visit the Dittmer Control Center and high-voltage laboratory where they watched BPA staff conduct various science experiments and learned about the physics of electricity.



"We are glad BPA was able to partner with the Confederated Tribes of the Warm Springs Indian Reservation and Army Corps to provide this unique opportunity for tribal high school students," says Corrina Ikkakoula, who helped coordinate the trip. "The students were very engaged and asked great questions about the power and transmission system. It is exciting to think that programs like this could spark a student's interest in a future STEM career!"



VISION

The release of the 2018-2023 Strategic Plan represents a sea change for BPA and its operations. It is well established that resource efficiency is good for business, and that modern technologies are instrumental in managing environmental impacts. So as we work toward our strategic goals — to strengthen financial health, modernize our assets and system operations, provide competitive power products and services, and meet transmission customer needs efficiently and responsively — the three pillars of sustainability will remain front and center.





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