



Bonneville Environmental Foundation Fiscal Year 2023 Annual Report

Submitted to BPA on June 30, 2023

This annual report summarizes activities conducted by the Bonneville Environmental Foundation (BEF) in Fiscal Year 2023 (FY23) to support the mission of the Bonneville Power Administration (BPA)

Driving Market Transformation | Supporting BPA Utility Customer Priorities | Building Community Appreciation



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Supporting BPA Utility Customer Priorities
Building Community Appreciation

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BEF Background and Purpose

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

BEF is a nimble, responsive, and entrepreneurial organization that was created in large part to address priority challenges and needs for BPA and consumer-owned utilities (COU) that cannot be easily solved through current programs led by BPA or COUs.

BEF occupies a unique niche in the region. By maintaining close contact with both consumer-owned utilities and BPA—and seeking to understand the perspectives and priorities for both—BEF strives to address key energy, customer and fish and wildlife priorities that directly serve BPA and COU interests.

BEF's 20+ year history working in partnership with the COU community has created trust which enables us to engage with utilities, understand challenges to the public utility sector and design and deliver essential services.

Leveraging our non-profit status and a deep network of relationships across funders, companies, agencies, tribes, utilities, and NGOs, BEF strives to deliver needed capacity and expertise—while leveraging non-BPA funding to generate positive outcomes needed to sustain a resilient public power sector in the Pacific Northwest.

Through ongoing consultation with BPA leadership and the BPA Principal and Staff liaison to the BEF Board, we have identified and focused on three areas of work that directly serve key priorities for BPA and its customer utilities:

Leverage Non-BPA Funding

BEF leverages its nonprofit status, development team, and regional and national partnerships to increase funding available to support BPA and COU strategic priorities.

Increase Electrification, Demand-Response, and Grid Flexibility

BEF seeks out, identifies, and supports projects, programs, and partnerships that increase grid flexibility to support BPA financial and operational priorities.

Identify and Directly Support Priority Needs of BPA Customer Utilities, Including Developing Local Renewable Energy Resources

BEF responds to COU requests for support with community/customer engagement and local clean energy projects that build understanding and appreciation for regional hydro generation and COU energy services.



Fiscal Year 2023 Impact Highlights

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

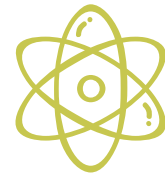
\$9M+ Leveraged to Support BPA and COU Priorities



\$7M+
leveraged in funding, credits, and incentives to expand energy system **benefits for BPA-served utilities, tribes, communities**



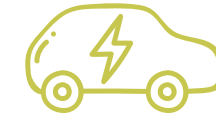
\$5.9M
COU funding request facilitated by BEF as part of federal GRID resilience proposal



\$1.8M
Leveraged for one of Washington's first **green hydrogen electrolyzers**



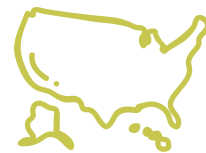
\$1.25B
supported **funding request to US DOE** for PNW Hydrogen Hub



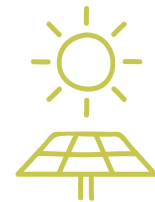
\$500k
funding leveraged for **tribal transportation electrification** planning with 6 BPA-served tribes



\$2M
in new lifetime energy **savings benefits** for low income utility households



\$1.2M
in **COU-led** project funding pending through USDA Rural Energy for America Program (REAP)



Largest
COU-owned community solar project in BPA service territory developed with at least \$3M+ in leveraged funding



\$15M
in state funding **directed to support large-scale floodplain restoration** in Columbia Basin



5
Distinct federal funding opportunities identified to channel funding into BPA and COU priorities



Fiscal Year 2023 Impact Highlights

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

\$9M+ Leveraged to Support BPA and COU Priorities Cont'd



6

COUs engaged in **building community appreciation for utility value, service and hydropower resources** through k-12 energy and grid education



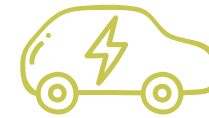
174

teachers representing **12 utility service territories** engaged in k-12 energy and grid education



6

consumer-owned utilities, 3 tribes, 6 local governments, 5 non-profits, 7 funders engaged in **North Olympic Peninsula energy resilience planning**



34

transit agencies across BPA service territory engaged in **fuel cell and electric bus planning**



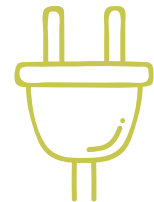
\$1M+

funding leveraged to plant **more than 2M trees** to support regional watersheds, tribes, and partners.



16

Tribal, government, and nonprofit entities engaged in offshore wind planning



75

COU-led smart EV chargers supported to date



Program Highlights

Introduction

In FY 2023, BEF again delivered significant financial, energy, and strategic benefits to BPA-served utilities, tribes, and communities. BEF's work leveraged more than \$9M in private, federal, and state funding and incentives to support energy and watershed priorities across the BPA region. In addition, BEF helped utilities and other partners submit proposals seeking to access more than \$10M in newly available federal funding to support public power priorities that include electrification, EV infrastructure, distributed energy resources, hydrogen development, energy system resilience, and equitable energy benefits for underserved communities. BEF's active role as an intermediary was key in FY 2023 to help underserved utilities and partners align with new federal funding opportunities that will play an important role in grid resilience, electrification, and community renewables.



Program Highlights: Renewables

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

FY 2023 saw steady and growing demand from BPA-served utilities, tribes, and communities for assistance in designing, funding, and implementing local projects that generate clean energy and support transportation electrification. BEF responded to this demand by providing expertise, capacity, and leveraged funding to deliver direct energy benefits to public power. BEF's support included facilitating access to funding, credits, and incentives of \$7M to expand energy system benefits.

Vehicle Electrification

BEF expanded work in FY 2023 to serve growing utility needs related to integrating Zero Emission Vehicles (ZEV's) into existing public utility systems. Work completed in FY 2023 expanded equitable access to ZEVs, facilitated smart charging programs and solutions, and evaluated and promoted lowest cost opportunities for vehicle electrification. To date, BEF has enabled over \$1.5M in funding for zero emission vehicle projects led by 19 distinct consumer-owned utilities (COU) and 6 Tribal nations.

FY 2023 Highlights

- Engaged with more than 30 COUs in five states to advance EV programming.
- Helped secure more than \$500k for Squaxin Island Tribe and Yakama Tribes to advance transportation electrification planning.
- Supported Bingen and White Salmon, WA to secure more than \$180k to advance shared use EV program.
- Launched new solicitation to identify the next round of utility and tribal-led ZEV projects.
- Tracked and documented completion of over \$700k total investment in 11 utility-led Zero Emissions Vehicle Projects funded in FY 2022.





Program Highlights: Renewables

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Renewable Hydrogen

Global interest and investment in hydrogen continues to expand, and BEF played a critical role in FY 2023 to develop funding for regional hydrogen solutions that can convert BPA hydro-electricity into clean fuel and deliver demand-response and energy storage capacity for BPA utilities. Messaging from COUs continues to reinforce that hydrogen will play a synergistic and complementary role to direct electrification. Throughout FY 2023 BEF supported development of two US DOE hydrogen hub applications in an effort to bring over \$5B of investment to the region and deliver benefits to the BPA energy system.

FY 2023 Highlights

- Provided support and technical assistance to secure \$1.8M in additional funding for SW Washington's first containerized green hydrogen electrolyzer.
- Helped secure over \$200k to facilitate engagement with Oregon stakeholders and Pacific Northwest Hydrogen Association to develop applications for federal H2 Hub funding.
- Participated in developing proposals to leverage more than \$1B in federal funding to enable up to \$5B in new hydrogen infrastructure.
- Collaborated with Forest Grove Light and Power, dozens of transit agencies, and industry partners to scope development of a possible first green hydrogen facility in Oregon.





Program Highlights: Renewables

Driving Market Transformation
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Building Community Appreciation

Community Energy

The Inflation Reduction Act (IRA) created a once-in-a-generation opportunity for public power and non-taxable organizations to access funding to create renewable energy assets that directly benefit public power and residential utility customers. The longstanding requirement that tax liability exist to access financial incentives has been removed, and direct payments are now eligible to cover up to 70% of project cost. In addition, new funding from USDA, EPA, DOE, and state sources provides pathways for BPA-served utilities and communities to develop cost-effective, community-benefitting renewable energy assets. BEF used FY 2023 to identify and evaluate pathways to leverage this new funding on behalf of BPA-served utilities and tribes. Even before rules were finalized for these new programs, BEF helped COU partners (i.e. Orcas Power and Light Cooperative and Flathead Electric) position to secure millions in newly available federal funds. BEF's work in FY 2023 set the stage to understand and leverage these new federal funding programs to directly benefit public utilities and the communities they serve.



FY 2023 Highlights

- Collaborated with Orcas Power and Light Cooperative to develop a solar project that will leverage over \$3M through grants and tax credits.
- Supported three COUs (Northern Lights Inc., Mason PUD #1, Hood River Electric Cooperative) to request \$5.9M for grid resilience projects as part of a regional federal funding package.
- Developed with Flathead Electric Cooperative the utility's first low income-benefitting solar project and positioned the project to secure \$400k in Rural Energy for America Program (REAP) grant funds and tax credits.
- Secured funding from Department of Energy and Tribal Solar Accelerator Fund (\$120k+) to advance a new solar project with direct benefits for the Coeur d'Alene Tribe.
- Supported development of \$1M US DOE grant for "vehicle to grid" resilience solutions using electric school bus batteries as emergency back up in Hood River, OR.



Program Highlights: CE – Clean Energy. Bright Futures.

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

BEF's *Clean Energy. Bright Futures. Program* (CE) brings together public utilities, key account holders, and residential customers to engage local students and build community awareness and appreciation for utility services, grid functions, and BPA's role in the region's clean energy future. Furthermore, with over 50% of the utility workforce expected to retire within the coming decade and hundreds of thousands of positions to be filled, CE strives to build a public utility talent pipeline that inspires and prepares the next generation to fill key utility positions that will sustain a resilient public power sector.

Water Power and Regional Education Leadership

CE's work in FY 2023 refocused regional clean energy education on water power with the creation and formalization of a STEM water power talent development hub. CE coordinated with teachers located in four public utility service areas to develop STEM curricula designed to build understanding and amplify the value of water power as a key decarbonization solution and high-impact career pathway for the next generation of energy professionals. CE leveraged funding from the [National Renewable Energy Lab](#) (NREL) to expand STEM water power talent development in collaboration with the [US Department of Energy's Water Power Technologies Office](#) (WPTO), NREL, [Hydropower Foundation](#), and the [Northwest Hydroelectric Association](#) (NWhA). In addition to work on the Water Power STEM Hub, CE also launched:

- Clean Transportation curricula in collaboration with teachers from regions served by Orcas Power and Light Coop., Eugene Water and Electric Board, and Consumers Power Inc.
- PNW Grid & Energy Resources Teacher Cohort for regions served by Glacier Electric Co-op, Central Electric Co-op, Seattle City Light, Consumers Power Inc., and Benton Public Utility District.
- Regional Energy Education Action Plans for regions served by Surprise Valley Electric Corp., Clearwater Power Company, Kootenai Electric Coop., and Clark PUD.
- Marine renewable energy and hydropower curriculum and professional development with teachers representing regions served by Emerald PUD, Jefferson PUD, and Clallam County PUD #1.





Program Highlights: CE – Clean Energy. Bright Futures.

Driving Market Transformation
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Building Community Appreciation



Local Utility Engagement

CE's Clean Energy Fellows Program represented regions served by 12 BPA utilities and worked closely with local utility staff to deliver career-connected learning to an ever-expanding range of students. Throughout the course of FY 2023, CE developed and delivered events that connected local classrooms with utility professionals to present viable energy career paths for students. Through several different engagement models, CE helped energy professionals build student awareness of utility value, services, and the clean energy mix provided by BPA-served utilities.

FY 2023 Highlights

- Supported preparation and facilitation of Clark Public Utilities 2023 Solar Car Challenge with over 30 utility volunteers and 66 student teams.
- Facilitated solar car challenge at Nestucca Valley K-8 school with 20 Tillamook PUD volunteers delivering STEM activities and mentoring students in hands-on science activities.
- Facilitated Fall River Rural Electric Cooperative's presentation of utility customer programs, regional energy trends, and energy performance data (from local wind and solar projects).



Program Highlights: CE – Clean Energy. Bright Futures.

Driving Market Transformation
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Unique Energy Resource Pipelines

In FY 2023, CE focused work with teachers and utility professionals to develop new STEM activities—including topics tied to hydrogen and clean transportation—to build student understanding of challenges related to power grid integration. CE’s work with partners launched the Renewable Energy Vehicle (REV) Infrastructure Technician project as an effort to develop system-level thinking and career pathways required to effectively integrate REVs into utility systems. With initial funding from the Washington Department of Ecology, CE and other partners leveraged \$145,000 from [Career Connect Washington](#) to launch the development of career training for the [emerging local hydrogen economy](#) with certification and credit programs established through [Centralia College’s Center of Excellence in Clean Energy](#).

Tribal Engagement

In FY 2023, CE deepened engagement with Tribal Nations served by BPA to expand a tribal career talent pipeline to help fill workforce gaps that can benefit public power and tribal members. In collaboration with the Coeur d’Alene Tribe’s Natural Resources and Education departments, CE co-facilitated [training](#) for teachers from tribal and community schools using hands-on activities that build knowledge of hydropower technologies, the regional energy mix, and fish passage solutions. CE also partnered with [WSU’s Native American Programs](#) to identify strategies for fostering the next generation of tribal engineers and utility professionals. This included support for [Native Youth Exploring Higher Education](#) (NY’EHE) with hands-on electrical engineering activities linked to a student tribal government project. Reaching students from 12 PNW Tribes, BEF’s support for NY’EHE established linkages between tribes and real careers in energy resource management.





Program Highlights: Watersheds

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

For over two decades, BEF has led watershed program work with a focus on identifying and deploying cost-effective pathways to reinforce and expand fish and wildlife funding and recovery outcomes. A primary focus of BEF's work includes catalyzing or leveraging support from state, federal and private funders to complement BPA fish and wildlife recovery objectives and provide benefits for communities across the BPA service territory.

Work below completed by BEF, but not supported with BPA funding

Project Highlight: Funding Leverage for Fish and Wildlife

BEF worked with private companies, philanthropic organizations, and state agencies to help leverage, secure, and/or direct more than \$15M in funding to support habitat, floodplain and forest restoration projects in the Columbia Basin. In FY 2023, BEF:

- Secured more than \$1M in federal and private funding to plant more than 2 million native trees and shrubs with dozens of tribal and community partners across Oregon, Idaho, and Washington.
- Helped facilitate and direct \$15M in State of Washington funding to support priority floodplain restoration projects in the Upper Columbia, Yakima Basin, and lower Columbia.
- Secured approximately \$700k in corporate funding to support water and restoration projects in Columbia Basin tributaries.





Program Details

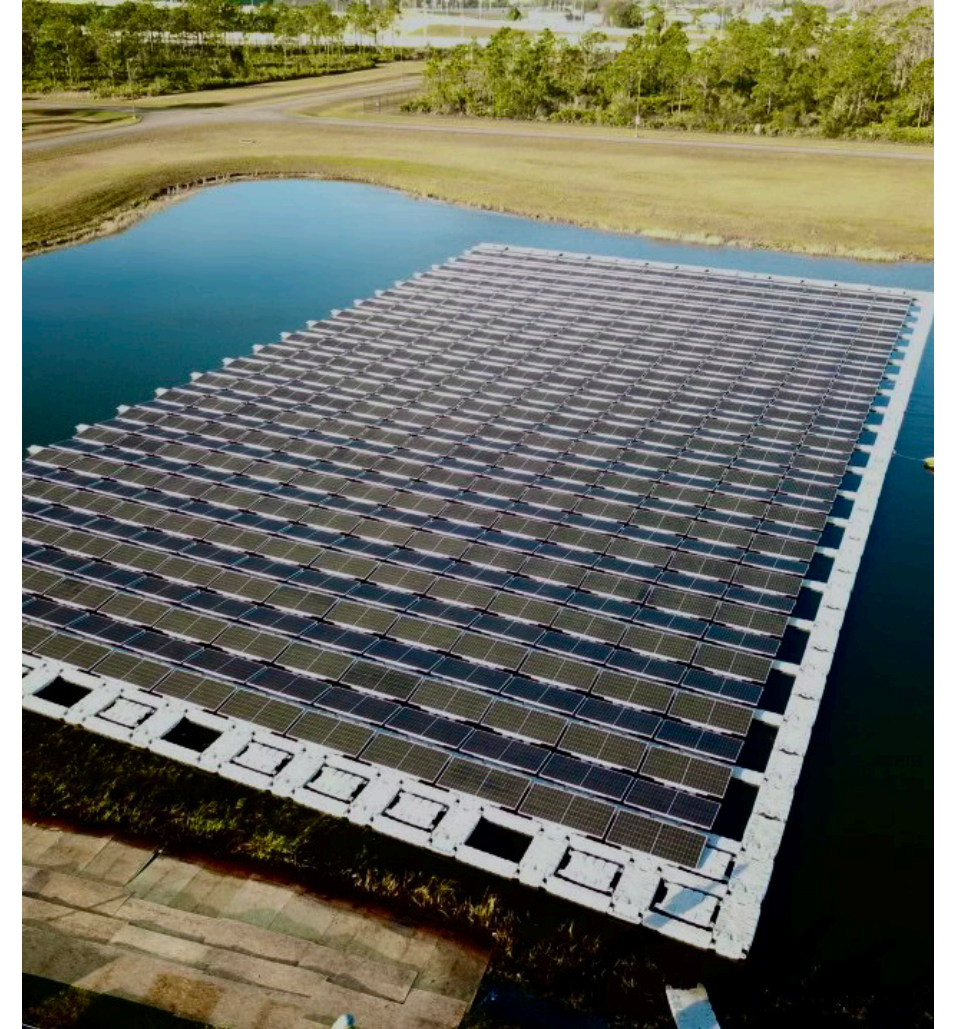
High-level details of program and project achievements delivered by BEF in Fiscal Year 2023 to support the mission of BPA and meet the needs of BPA-served utilities, tribes, and communities





Renewables: Fiscal Year 2023 Program Details

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation



Leveraging capacity and resources through innovative projects and partnerships that increase demand-response, expand grid flexibility, and directly support BPA customer utilities' demand for local renewable energy resources



Renewables: Fiscal Year 2023 Key Partners & Participants

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

BEF’s Renewable Energy Program leverages capacity and resources through innovative projects and partnerships that increase demand-response, expand grid flexibility, and directly support BPA customer utilities’ demand for local renewable energy resources. BEF implements programs and projects that directly support a diverse array of BPA-served utilities and community partners. The list below highlights key entities that directly engaged in or benefited from BEF’s renewable energy programming in Fiscal Year 2023.

Utility Partners

- Ashland Solar Cooperative
- Avista
- Big Bend Electric Cooperative
- Blachly-Lane Electric Cooperative
- Central Electric Cooperative
- Central Lincoln PUD
- Centralia City Light
- City of Ashland
- City of Chewelah
- City of Forest Grove
- City of Milton-Freewater
- City of Monmouth
- City of Port Angeles
- City of Richland
- Clallam County PUD
- Clark PUD
- Clatskanie PUD
- Columbia REA
- Columbia River PUD
- Consumers Power, Inc.
- Coos-Curry Electric Cooperative
- Cowlitz PUD

- Douglas Electric Cooperative
- Douglas PUD
- Emerald People’s Utility District
- Energy Northwest
- Eugene Water and Electric Board
- Fall River Rural Electric Cooperative
- Flathead Electric Cooperative
- Grays Harbor PUD
- Idaho Power
- Inland Power and Light
- Jefferson PUD
- Lane Electric Cooperative
- Lewis County PUD
- Lower Valley Energy
- Mason PUD #1
- Mason PUD #3
- Mid State Electric Cooperative
- Missoula Electric Cooperative
- Nespelem Valley Electric Cooperative
- Northern Lights, Inc.
- Northern Wasco PUD
- Northwest Requirements Utilities

- Okanogan County Electric Cooperative
- Okanogan PUD
- Orcas Power and Light Cooperative
- Oregon Municipal Electric Utilities
- Oregon Trail Electric Cooperative
- Pacific Northwest Generating Cooperative
- Pacific Power
- Peninsula Light Company
- Portland General Electric
- Puget Sound Energy Ravalli Electric Cooperative
- Salem Electric
- Seattle City Light
- Skamania PUD
- Snohomish PUD
- Springfield Utility Board
- Tacoma Power
- Tillamook People’s Utility District
- Umatilla Electric
- WAPUDA
- Wasco Electric Cooperative

Tribal Partners

- Coeur d’Alene Tribe
- Jamestown S’Klallam Tribe
- Kalispel Tribal Utilities
- Quinalt Indian Nation
- Red Cloud Renewable
- Squaxin Island Tribe
- Yakama Power

Other Key Partners

- Accenture
- Black Food Sovereignty Coalition
- City of Bingen
- City of White Salmon
- Columbia Willamette Clean Cities Coalition
- Crook County Fairgrounds
- Electric Bus Learning Project
- Forth
- MioCar
- Mobility Development
- New Buildings Institute (NBI)

- Oregon Department of Energy
- Oregon Department of Environmental Quality
- Pacificorp
- Pacific Ocean Energy Trust
- Pacific Northwest National Lab
- Pacific Northwest Hydrogen Association
- Renewable Hydrogen Alliance (RHA)
- Toyota
- Twende Solar
- Twin Transit
- Washington Department of Commerce
- Washington Green Hydrogen Alliance
- Wy’East RC&D



Renewables: Vehicle Electrification

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Enable utilities to take full advantage of the financial and grid system benefits that accrue from the growth of the electric vehicle market.

Project	Value to BPA	Project Progress	Next Steps
Utility EV Education	<ul style="list-style-type: none"> Supports the expansion of flexible load, increases electrification, and maximizes utility benefits across the BPA service territory by directly supporting BPA-served utilities with resources that advance vehicle electrification programs. 	<ul style="list-style-type: none"> Continued COU vehicle electrification education and engagement through a series of webinars. Engaged with more than thirty COU's in five states to advance EV programming and education. 	<ul style="list-style-type: none"> Deliver utility EV webinars in partnership with Forth. Project Outlook: Ongoing
EV Car Sharing (Affordable Mobility Platform-AMP)	<ul style="list-style-type: none"> Leverages non-BPA funds to expand flexible load and maximize utility benefits by advancing vehicle electrification in underserved COU communities. 	<ul style="list-style-type: none"> Expanded five original EV car share sites into ten sites throughout Oregon COU territories. Deployed EV's and began operations at eight sites in Oregon. Leveraged non-BPA funds totalling \$180k for three additional COU sites in Washington and one in Wyoming. 	<ul style="list-style-type: none"> Track use patterns, analyze data, document and share lessons learned. Prepare for deployment of five shared EVs in Seattle in FY 2024. Project Outlook: Completion FY 2025
Electric Tractor Demonstration	<ul style="list-style-type: none"> Secures and utilizes non-BPA funding to support program expansion and deliver benefits for regions served by BPA. Expands flexible load growth by electrifying agricultural equipment and opening new markets in rural consumer-owned utility territories. Utilizes non-BPA funding to create a pathway for electrification with rural BPA customers. 	<ul style="list-style-type: none"> Published an OSU-commissioned life cycle analysis on the economic and environmental comparison for electric and diesel tractors. Deployed two additional electric tractors in Oregon. Demonstrated electric tractor to stakeholders and consumer-owned utilities in Montana. 	<ul style="list-style-type: none"> Procure and showcase additional electric equipment, such as utility and construction equipment. Create a pathway for clean fuels credit generation for electric tractors. Apply for additional non-BPA funding to expand across the Pacific Northwest. Project Outlook: Ongoing
Zero Emissions Vehicle Innovation (ZEVI) Projects	<ul style="list-style-type: none"> Directly supports proactive electric vehicle programming requested by BPA utilities and Tribes served by BPA. Supports electrification, expands flexible load, and maximizes utility benefits. 	<ul style="list-style-type: none"> Tracked and documented completion of ZEVI-funded FY22 projects. Launched new ZEVI funding solicitation cycle. 	<ul style="list-style-type: none"> Receive and review FY 2024 letters of inquiry. Invite full ZEVI applications. Complete ZEVI application, selection, award process, and contracting. Provide project implementation support to COUs and Tribes as needed. Project Outlook: Ongoing



Renewables: Vehicle Electrification Cont'd

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Electric Bus Learning Project (EBLP)	<ul style="list-style-type: none"> • Directly supports proactive electric vehicle programming requested by BPA utilities and the school districts they serve. • Leverage funding to support COU procurement of Electric Buses. • Supports electrification, expands flexible load, and maximizes utility benefits. 	<ul style="list-style-type: none"> • Contracted with The Environmental Center to provide technical assistance to school districts in COU service territory for electric school bus procurement. • Facilitated a webinar to describe technical assistance availability and promote the \$5B EPA Clean School Bus Rebate Program funding applications to school districts in COU service territory. • Engaged directly with EPA defined “priority school districts” in rural/remote COU territory to leverage non-BPA funding. 	<ul style="list-style-type: none"> • Continue to facilitate technical assistance to school districts in COU service territory. • Support electric school bus education and project development in COU territory as requested. • Promote and support subsequent rounds of EPA Clean School Bus Rebate Program funding applications. • Project Outlook: Ongoing
Electrification of Transportation Systems (ETS) Planning	<ul style="list-style-type: none"> • Leverage non BPA funding to directly support proactive electric vehicle programming requested by BPA-served communities and tribes. • Supports electrification, expands flexible load, and maximizes utility benefits. 	<ul style="list-style-type: none"> • Supported efforts that secured Washington Department of Commerce grant funding (\$515k) for Squaxin Island Tribe and Yakama Tribes’ transportation electrification planning. 	<ul style="list-style-type: none"> • Support and participate in three-year transportation electrification planning process facilitated by WSU Energy. • Provide project development and technical assistance to projects identified in the studies as they move toward funding and construction. • Project outlook: Ongoing
Bingen/White Salmon Zero Emissions Access Program (ZAP)	<ul style="list-style-type: none"> • Leverage non BPA funding to directly support proactive electric vehicle programming requested by BPA-served communities. • Supports electrification, expands flexible load, and maximizes utility benefits. 	<ul style="list-style-type: none"> • Supported the cities of Bingen and White Salmon to secure more than \$180k from the WSDOT Zero-Emissions Access Program (ZAP) to establish a shared-use electric vehicle program. 	<ul style="list-style-type: none"> • Track use patterns, analyze data, document and share lessons learned. • Project Outlook: Completion FY 2025



Renewables: Renewable Hydrogen

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Drive market transformation of renewable fuels generated from BPA’s low-carbon electricity to support flexible load growth.

Project	Value to BPA	Project Progress	Next Steps
Renewable Hydrogen Fueling Station	<ul style="list-style-type: none"> Directly supports public power goals of transportation electrification through renewable hydrogen production. Expands flexible load growth. Leverages significant non-BPA funding from private grants and state funding to drive market transformation. 	<ul style="list-style-type: none"> Provided support and technical assistance to secure \$1.8M Centralia Coal Transition Grant to facilitate onsite H2 production for Twin Transit in Chehalis WA. Obtained approval from funders for BEF to support Twin Transit’s development and operation of H2 fueling station. Executed supply agreements for H2 production and distribution equipment. 	<ul style="list-style-type: none"> Release RFP for equipment and installation. Finalize financing approach for station and production facilities. Identify new locations for additional fueling stations. Integrate work into broader hydrogen hub planning for PNW region. Project Outlook: Completion FY24
Regional Hydrogen Development	<ul style="list-style-type: none"> Responds to market and utility demand to develop large-scale renewable hydrogen facilities. Converts BPA hydro electricity and renewable power into clean fuel. Delivers demand response and energy storage capacity for BPA-served utilities. 	<ul style="list-style-type: none"> In partnership with COU, identified suitable hydrogen development site in Oregon. Conducted outreach with potential users of renewable hydrogen including transit agencies, industrial users, aviation sector, and vehicle fleets. Drafted site control documents, identified land use approval steps, and confirmed utility energy supply. 	<ul style="list-style-type: none"> Align investors, off takers, and integrators to advance key steps to deploy Oregon’s first renewable hydrogen project. Explore, identify, and secure additional viable sites in areas served by BPA. Project Outlook: Ongoing
Renewable Hydrogen Outreach and Education	<ul style="list-style-type: none"> Increases understanding of clean electricity to fuels as a climate and electrification solution. Develops opportunities for public power to sell clean electricity into new markets through production of renewable hydrogen gas. 	<ul style="list-style-type: none"> Secured over \$200k from Breakthrough Energy to enable Renewable Hydrogen Alliance to engage with Oregon stakeholders and Pacific Northwest Hydrogen Association to develop application for federal H2 Hub funding. Delivered many public presentations to expand support for renewable hydrogen development in the Pacific Northwest. Presentations included Northwest Energy Coalition, Engineers for a Sustainable Future, Oregon Public Utility Commission, Washington State Transit Association, state policy makers and others. 	<ul style="list-style-type: none"> Expand public outreach, education, and support for renewable hydrogen. Speak at strategic public events to build awareness and support. Track federal Hub funding process and decisions. Project Outlook: Ongoing



Renewables: Renewable Hydrogen Cont'd

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Hydrogen Hub Planning	<ul style="list-style-type: none"> Leverages significant federal funding to scale up renewable hydrogen infrastructure and catalyze new markets for hydrogen energy. Develops opportunities for public power to sell clean electricity into new markets through production of renewable hydrogen gas. 	<ul style="list-style-type: none"> Provided advisory and logistical support to create a public-private partnership entity to advance a regional hydrogen hub. Served on both the Pacific Northwest Hydrogen Association and the Obsidian Hydrogen Hub Advisory Committees to support the development of regional hydrogen hubs. Participated in investment proposals that seek to leverage more than \$1B in federal funding and deliver up to \$6B in new hydrogen infrastructure. 	<ul style="list-style-type: none"> Support the advancement of hub activities and state level support for hydrogen market transformation. Submit Hydrogen Hub proposals in April, 2023. Project Outlook: Ongoing



Renewables: Offshore Wind

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Build regional understanding and engagement around offshore wind potential and assess how it can complement the transmission and generation of terrestrial wind, solar, and hydropower to benefit BPA-served communities.

Project	Value to BPA	Project Progress	Next Steps
FORWARD (Floating Offshore Renewables Working group to Advance Regional Development)	<ul style="list-style-type: none"> Renewable energy generation on the west side of the Cascades creates the potential to complement new and existing terrestrial generation within the BPA system. Avoids additional costs to BPA associated with transmission and energy storage buildout. 	<ul style="list-style-type: none"> Delivered online educational sessions to build awareness and solicit feedback among a diverse audience of utility stakeholders. Educated participants on the current status of offshore transmission planning, regulatory permitting process, system benefits, and conceptual design planning. Coordinated and aligned work with the Pacific Ocean Transmission Solutions (POTS) working group. 	<ul style="list-style-type: none"> Canvass opportunities to engage with offshore wind planning and development efforts where there is potential to deliver value to COUs and the BPA system. Project Outlook: Completed
Northwest Offshore Wind Conference	<ul style="list-style-type: none"> Renewable energy generation on the west side of the Cascades creates potential to complement new and existing terrestrial generation within the BPA system. Avoids additional costs to BPA associated with transmission and energy storage buildout. 	<ul style="list-style-type: none"> Facilitated nonprofit and governmental participation in the first offshore wind conference in the region. Provided input to build knowledge and awareness of this developing industry. 	<ul style="list-style-type: none"> Identify opportunities to engage in subsequent events. Project Outlook: Completed



Renewables: Community Energy Development

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Ashland Solar Cooperative (ASC)	<ul style="list-style-type: none"> • Directly supports demand from BPA-served community to achieve local, clean energy goals. • Leverages non-BPA funding to achieve renewable, clean energy benefits for BPA-served communities. 	<ul style="list-style-type: none"> • Completed financial model for structuring ownership in community solar projects. • Entered lease negotiations with the City of Ashland for 160kW community solar project. • Pursued site discussions with private landowners in Ashland. • Held first annual meeting of co-op members. 	<ul style="list-style-type: none"> • Support partners in solar development efforts. • Apply for USDA REAP funding. • Facilitate low-income participation in ASC's first community shared solar project. • Project Outlook: Ongoing
Forest Grove Community Solar	<ul style="list-style-type: none"> • Directly supports demand from a rural municipal utility by developing a community solar array benefitting low-income households. • Leverages non-BPA funding to achieve renewable, clean energy benefits for a BPA-served utility. 	<ul style="list-style-type: none"> • Supported Forest Grove Light and Power application for Congressionally Directed Spending (CDS) to support the project. • Assisted utility in submitting application to Oregon DOE C-REP program requesting \$600,000 to support the construction of three 100kw community solar projects located at different substations. 	<ul style="list-style-type: none"> • Identify additional sources of funding for the project. • Support Forest Grove Power and Light in project development. • Project Outlook: Pending funding
MOVER (Microgrid Opportunities: Vehicles Enhancing Resiliency)	<ul style="list-style-type: none"> • Supports School District goals to electrify part of school bus fleet. • Leverages non-BPA funding to achieve resilience and clean energy benefits for BPA-served communities and utilities. • Demonstrates community resilience solutions using electric school bus batteries to provide emergency back-up to a building. 	<ul style="list-style-type: none"> • Supported New Buildings Institute (NBI) invited application for \$1M grant to US DOE. • Coordinated site assessments and preliminary design of microgrid system. • Supported Hood River School District's application for electric school bus rebate from the EPA Clean School Bus program. • Committed funding for Level 2 charging at bus yard. 	<ul style="list-style-type: none"> • Await US DOE funding decision. • Support project development and coordination with local partners. • Project Outlook: Pending funding
North Olympic Development Council	<ul style="list-style-type: none"> • Directly supports demand from BPA-served communities by leveraging private funding to achieve local clean energy goals. 	<ul style="list-style-type: none"> • Developed a coalition of regional stakeholders including local governments, Tribal nations, regional public utilities, and economic development agencies to address the most critical energy needs on the Olympic Peninsula. • Scoped, planned, funded, and delivered an Energy Futures Roadmap Initiative to map out near and medium term opportunities for the Peninsula. • Secured over \$25k in non-BPA match funding. 	<ul style="list-style-type: none"> • Identify and rank near term project implementation opportunities. • Plan project implementation. • Project Outlook: Ongoing



Renewables: Community Energy Development Cont'd

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Flathead Electric Community Solar	<ul style="list-style-type: none"> • Directly supports demand from a rural electric utility by developing a community solar array benefitting low-income households. • Leverages non-BPA funding to achieve renewable, clean energy benefits for a BPA-served utility. 	<ul style="list-style-type: none"> • Committed funding for the utility's first low-income benefitting solar project. • Provided technical support for preliminary solar design. • Consulted with the utility to build understanding of new funding opportunities to support the project. • Applied for USDA REAP grant (up to \$400k). 	<ul style="list-style-type: none"> • Review RFP submittals. • Execute project agreements and begin procurement. • Project Outlook: Construction in FY24
Grid Resilience and Innovation Partnerships (GRIP)	<ul style="list-style-type: none"> • Directly supports demand from rural electric utilities to access federal funding by aggregating projects into federal funding proposal. • Leverages non-BPA funding to achieve energy resilience benefits for BPA-served utilities and communities. 	<ul style="list-style-type: none"> • Managed and facilitated opportunity for BPA-served utilities to join other utilities and several tribes in a five state collaborative program requesting \$250 million from US DOE. • Coordinated with utilities to identify projects that support grid resilience and that benefit disadvantaged communities (DACs) as defined by US DOE. 	<ul style="list-style-type: none"> • Support next steps in proposal submission and review process. • Await funding decision and support fund management for COUs (as requested/needed). • Project Outlook: Funding decision expected in 2023.
Orcas Power and Light Cooperative (OPALCO) Community Solar	<ul style="list-style-type: none"> • Directly supports demand from a rural electric utility to develop community solar resources that benefit low-income households. • Leverages non-BPA funding to achieve renewable, clean energy benefits for a BPA-served utility. 	<ul style="list-style-type: none"> • Completed feasibility report for the utility's community solar project. • Identified up to \$4M in federal funding to match the utility's investment. • Supported a USDA REAP grant application for \$1M (with Investor tax credit of up to \$2.5M). 	<ul style="list-style-type: none"> • Support project implementation. • Project Outlook: Construction in FY24.
Irrigation District Community Solar	<p><i>Work not supported with BPA funding; implemented independently with private funding and resources.</i></p> <ul style="list-style-type: none"> • Directly supports demand from rural irrigation districts to develop community solar projects with energy and financial benefits for irrigators. • Leverages non-BPA funding to achieve regional renewable energy and water benefits that can be replicated in BPA-served regions. 	<ul style="list-style-type: none"> • Formalized partnership with Farmers Conservation Alliance to develop, fund, and deliver community solar projects for irrigation districts. • Engaged with and scoped projects in Medford, Hood River, Bend, and the Klamath Basin. 	<ul style="list-style-type: none"> • Finalize funding sources. • Execute project agreements. • Begin design and procurement. • Develop new projects with new districts. • Project Outlook: Continued in FY24



Renewables: Tribal Renewable Energy

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

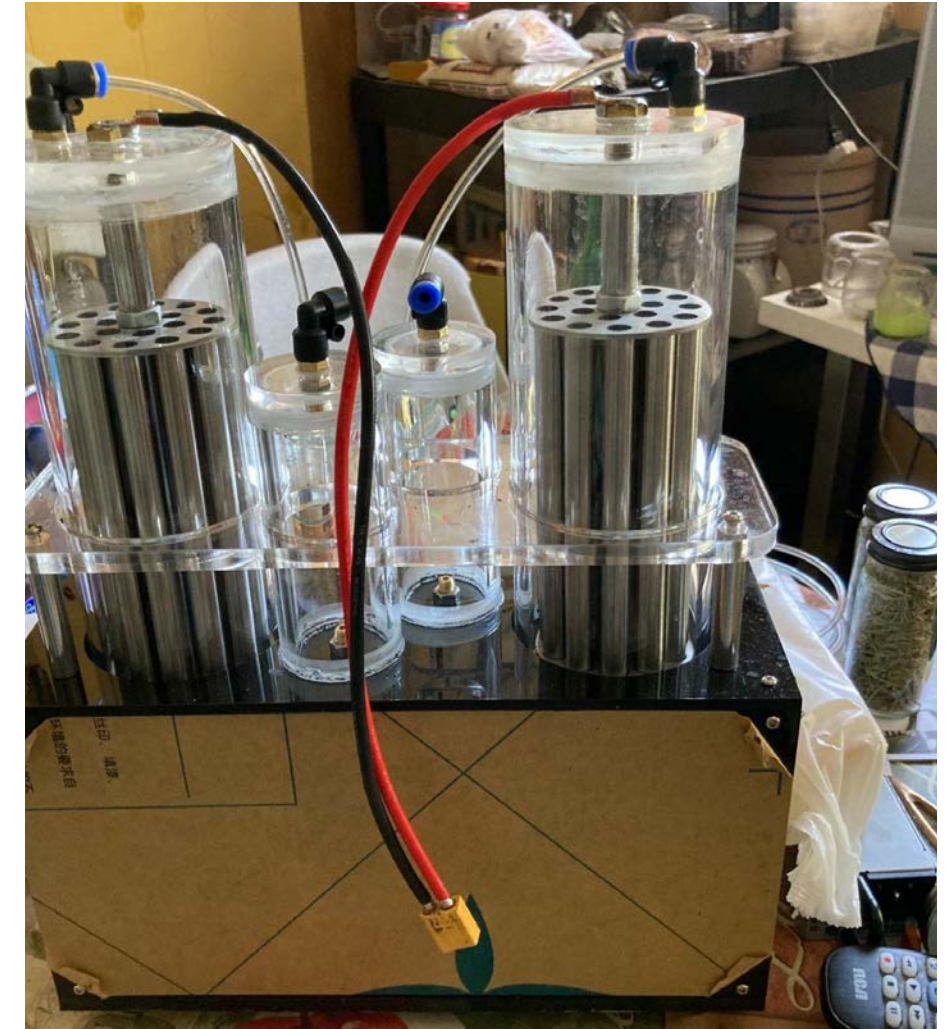
Objective: Support tribal capacity and leverage resources to advance resilient and clean energy systems with direct benefits to tribes in BPA-served communities.

Project	Value to BPA	Project Progress	Next Steps
Quinault Indian Nation Solar	<ul style="list-style-type: none"> Expands partnership with the Quinault Indian Nation to develop the Tribe's second solar project. Combines renewable energy deployment with workforce development for tribal community members. Leverages non-BPA funding to achieve energy benefits for the Tribe. 	<ul style="list-style-type: none"> Developed new RFP for a roof-mounted system. Helped the Tribe evaluate proposals and select a solar contractor to perform installation. Executed monetary grant agreement to commit BEF match funding to the project. 	<ul style="list-style-type: none"> Plan construction schedule with selected solar contractor. Coordinate workforce development and training opportunities with Red Cloud Renewable. Project Outlook: Completion FY24
Coeur d' Alene Tribal Solar	<ul style="list-style-type: none"> Expands partnership with the Coeur d'Alene Tribe by adding solar to the Marimn Health Coeur Center. Leverages non-BPA funding to achieve energy benefits for the Tribe. 	<ul style="list-style-type: none"> Secured project funding/leverage from the Department of Energy. Secured \$128k in funding from the GRID Alternatives' Tribal Solar Accelerator Fund. Executed a Monetary Grant Agreement to commit BEF match funding to the project. Assisted the Tribe in developing and distributing RFP. 	<ul style="list-style-type: none"> Review bids and select solar contractor to perform installation. Plan construction schedule and coordinate workforce development for Tribal members. Project Outlook: Completion FY24
Tribal Renewable Energy Outreach	<ul style="list-style-type: none"> Establishes partnerships and develops renewable energy assets on tribal lands to generate cost savings and provide job training for tribal members in BPA-served communities. Identifies and leverages non-BPA funding to achieve energy and financial benefits for BPA-served Tribes. 	<ul style="list-style-type: none"> Scoped new tribal projects/partners with the Blackfoot Nation, the Jamestown S'Klallam Tribe, the Yakama Nation, the Native American Youth and Family Center (NAYA), and a workforce development initiative with the Affiliated Tribes of Northwest Indians. Coordinated with GRID Alternatives' Tribal Program to identify new tribal project opportunities that reinforce Tribal and BPA priorities. 	<ul style="list-style-type: none"> Continue Tribal outreach and engagement to establish new partnerships with Tribes served by BPA. Build BEF capacity to develop Tribal energy projects that leverage non-BPA funding and support BPA strategic priorities. Project Outlook: Ongoing
Tribal Renewable Energy Fund (TREF)	<p><i>Work not supported with BPA funding</i></p> <ul style="list-style-type: none"> Leverages BEF corporate and business partnerships to secure non-BPA funding for tribal renewable energy projects located in BPA-served communities. 	<ul style="list-style-type: none"> Secured over \$150k in TREF contributions cumulatively. Continued to refine strategies, expand impact, and develop innovative corporate partnership opportunities that support tribal renewable energy objectives. 	<ul style="list-style-type: none"> Deploy and test strategies to grow impact and engage more corporate partners in funding tribal energy projects. Identify new tribal projects to which TREF funds can be allocated. Project Outlook: Ongoing



CE – Clean Energy. Bright Futures. Fiscal Year 2023 Program Details

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation



Increasing public involvement in progressive, clean energy solutions by raising public awareness of how the grid works, connecting utilities with communities, and showcasing value of utility resources



CE – Clean Energy. Bright Futures. Fiscal Year 2023 Key Partners & Participants

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

BEF’s energy education program implements far-reaching programs that directly support a diverse array of BPA-served communities, utilities, and partners. The list below highlights key entities that directly engaged in or benefited from BEF’s energy education programming in FY 2023.

Utility Partners

- Central Electric Cooperative
- Chelan PUD
- Clallam County PUD #1
- Clark Public Utilities
- Clearwater Power Co
- Consumers Power Inc.
- Emerald PUD
- Fall River Electric Cooperative
- Glacier Electric Cooperative
- Hood River Electric Co-op
- Kootenai Electric Cooperative
- Jefferson PUD
- Lane Electric Co-op
- Mason County PUD #3
- Northern Wasco PUD
- Snohomish County PUD
- Surprise Valley Electrification Corp
- Tacoma Power
- Tillamook PUD

Tribal Partners

- Blackfeet Nation
- BPA Tribal Affairs
- Coeur d’Alene Tribe
- Northwest Indian College
- Quinault Indian Nation
- Confederated Tribes of Warm Springs
- Washington State University Native American Program

Other Key Partners

- Army Corps of Engineers/ Foundation for Water and Energy Education (FWEE)
- Boys and Girls Club
- Career Connect Washington
- Centralia School District
- Chehalis School District
- Clark County School Districts

- Clean Energy Education and Workforce Alliance (CEEWA)
- Coalition of Communities of Color
- Coeur d’Alene School District
- Dufur School
- EcoRise
- Educational Service District 112
- Educational Service District 113
- Educurious
- Foundation for Water and Energy Education (FWEE)
- Fremont County Joint School District
- Google
- Hilltop Heritage Middle School
- Hydropower Foundation
- KidWind Project
- Mary M. Knight School District
- Marysville School District
- Mid Columbia STEM Network
- National Renewable Energy Laboratory (NREL)

- Neah-Kah-Nie School District
- NW Hydroelectric Association (NWhA)
- NW Natural
- Oregon Clean Power Cooperative
- Oregon Department of Energy
- Oregon Manufacturing Innovation Center (OMIC)
- Oregon Science Project
- Oregon State University (Marine Energy Collegiate Competition Team)
- Pacific Northwest National Laboratory (PNNL)
- Pacific Ocean Energy Trust (POET)
- Polk County School Districts
- Puget Sound Educational Services District (ESD)
- School Services of Montana
- STEM Oregon
- Taholah School District

- Teton School District
- Tillamook County School District
- Twin Transit
- University of Idaho Institute for Innovative Climate Solutions
- US DOE Water Power Technology Office
- WA Center for Excellence in Clean Energy – Centralia College
- West Sound STEM/South Kitsap School District
- West Yellowstone School District



CE – Clean Energy. Bright Futures. Educator Training Workshops

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Build knowledge, awareness, and appreciation of regional power grid systems and public utility services.

Project	Value to BPA	Project Progress	Next Steps
Fall River Education Project Regional Educators’ Workshop (Solar + Wind)	<ul style="list-style-type: none"> Increases awareness of utility value, services, and clean hydro resource mix among educators and students in BPA-served communities. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Delivered training for science, career, and technical educators from Teton High School, North Fremont High School, and West Yellowstone High School. Facilitated Fall River Rural Electric Cooperative’s presentation of utility customer programs, regional energy trends, and energy performance data (from local wind and solar projects) through teacher training. Twitter: Teacher Workshop and Fall River Electric Coop Presentation 	<ul style="list-style-type: none"> Project Outlook: Completed
Neah-Kah-Nie School District Renewable Schools	<ul style="list-style-type: none"> Leverages non-BPA funding to expand benefits provided to BPA-served communities. Increases awareness of utility value, services, and clean resource mix among educators and students in BPA-served communities. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Supported project dedication events at Nehalem Elementary School and Garibaldi Grade School with community members and project funders. Collaborated with teachers and administrative staff from each school to identify specific curriculum for student engagement. Tillamook County Pioneer video: Garibaldi Outdoor Play Structure and Solar Ribbon Cutting Tillamook Headlight Herald article: NKN (Neah Kah Nie) School District to Celebrate Upgrades 	<ul style="list-style-type: none"> Engage school leaders in summer 2023 to kick off workshop planning and finalize content. Project Outlook: Completion FY24



CE – Clean Energy. Bright Futures. Educator Training Workshops Cont’d

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Hilltop Heritage Middle School: Commercial-scale Solar	<ul style="list-style-type: none"> Leverages non-BPA funding to expand energy education for BPA-served communities. Increases awareness and appreciation of utility value, services, and clean resource mix among educators and students in BPA-served communities. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Participated in project dedication event with community partners and education team. Collaborated with teacher champion to plan educator training and utilize solar project as community and educational resource. Tacoma Public Schools Video: Solar panels atop Hilltop Heritage Middle School offset building energy use WA Dept. of Ecology Article: Empowering the next generation of change makers: Tacoma middle school solar project engages students in renewable energy and sustainability 	<ul style="list-style-type: none"> Develop customized curriculum and training workshop plan with teacher champion. Project Outlook: Completion FY24
Coeur d’Alene Tribe Energy Education	<ul style="list-style-type: none"> Connects native youth in BPA-served communities to local clean energy resources and utility career pathways. Increases awareness and appreciation of utility value, services, and clean resource mix among educators and students in BPA-served communities. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Delivered training for teachers from Coeur d’Alene Public and Tribal Schools. Collaborated with Coeur d’Alene Tribe staff from education and natural resource departments to integrate hydropower and fish passage activities into teacher training. 	<ul style="list-style-type: none"> Project Outlook: Completed



CE – Clean Energy. Bright Futures. Power Grid Education

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Work directly with public power partners to guide regional energy education and create energy career pathways that develop engineers and utility-industry professionals to meet workforce gaps.

Project	Value to BPA	Project Progress	Next Steps
<p>Clean Energy Fellows – Focus Areas: Water Power, Clean Transportation, PNW Grid & Energy Resources</p>	<ul style="list-style-type: none"> Increases public appreciation of the value of hydropower in the regional power grid mix and as a key decarbonization solution. Builds energy literacy among educators, the public and students in BPA-served communities to increase awareness of utility value, services, and clean resource mix. Workforce Development: Provides energy education and career pathways to develop future engineers and utility professionals. 	<p>Selected cohorts of Clean Energy Fellows for 2022-23:</p> <ul style="list-style-type: none"> PNW Grid & Energy Resources Cohort: launched development of regional Action Plans for regions served by Glacier Electric Co-op, Central Electric Co-op, Seattle City Light, Consumers Power Inc., and Benton Public Utility District. Water Power Cohort: launched development of marine renewable energy and hydropower curriculum with teachers representing regions served by Emerald PUD, Jefferson PUD, and Clallam County PUD #1. Clean Transportation Cohort: launched development of clean transportation curriculum representing regions served by Orcas Power and Light Coop., EWEB, and Consumers Power Inc. Facilitated interaction with industry and education partners through Leadership Institute to build content knowledge for 2022-2023 Fellows. Initiated development of STEM implementation toolkits for clean transportation and water power. Engaged Coalition of Communities of Color, EcoRise, and Solar Stewards to facilitate hydrogen and energy justice workshops. Delivered professional development focused on offshore wind careers. Presented Community Action Plans for regions served by Surprise Valley Electric Corp., Clearwater Power Company, Kootenai Electric Coop., and Clark PUD at Clean Energy Fellows event. Twitter: Clean Energy Fellows Opportunity Announcement Twitter: Clean Energy Fellows Info Session LinkedIn: Energy Justice Virtual Panel 	<ul style="list-style-type: none"> Support PNW Grid & Energy Resources cohort to roll out action plans. Facilitate curriculum labs, learning sessions, and planning structures for Water Power and Clean Transportation cohorts. Provide presentations to all cohorts on Tribal energy. Project Outlook: Ongoing with new cohorts selected each year



CE – Clean Energy. Bright Futures. Power Grid Education Cont’d

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Power Grid Education: Grid Kit Loan, Educator & Industry Outreach	<ul style="list-style-type: none"> Increases public understanding and appreciation of the BPA power grid system and regional utility dynamics. Directly engages with BPA and COUs to guide energy education storylines and build awareness among BPA-served communities. Develops energy career pathways for future engineers and utility professionals. 	<ul style="list-style-type: none"> Evaluated effectiveness of new power grid science kits with Kidwind. Developed timeline for finalization of Grid Kit curriculum. Integrated power grid kits into CE programming for educators and utilities in BPA service territory. 	<ul style="list-style-type: none"> Project Outlook: Completed
Microgrids - Energy, Inquiry, and Engineering: Multi-day Educators' Workshop & Field Trip	<ul style="list-style-type: none"> Increases public understanding and appreciation of local COU services and value of the public power grid system and resources. Builds local industry-informed storylines with COU experts to guide and expand regional energy education. Fosters energy career pathway development for future engineers and utility professionals. 	<ul style="list-style-type: none"> Identified timeline with Snohomish County PUD for field trip at utility's Arlington Microgrid education center. Collaborated with Snohomish County PUD to identify education center events and compensate teachers seeking funds for field trips. 	<ul style="list-style-type: none"> Collaborate with Snohomish PUD to plan teacher events at Arlington Microgrid educational facility. Project Outlook: Completion FY24



CE – Clean Energy. Bright Futures. Renewable Energy Engineering Challenges

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Foster innovation and perseverance in students to prepare them for 21st century utility careers while engaging families, communities, and local utilities to expand appreciation for utility value and services.

Project	Value to BPA	Project Progress	Next Steps
Clark Public Utilities Solar Car Challenge	<ul style="list-style-type: none"> Responds directly to COU requests for customer community engagement and energy education through voluntary green power program. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Supported preparation and facilitation of the 2023 Solar Car Challenge with over 30 utility volunteers and 66 teams of students. Confirmed BEF’s role as key education partner in leading regional fall teacher training and planning process for 2024 Solar Car Challenge. Columbian Article: Energy Adviser: Students ready to show off solar cars 	<ul style="list-style-type: none"> Plan 2023 teacher training Recruit new teachers for 2024 Solar Car Challenge. Project Outlook: Annual event led by the utility
Tillamook PUD Solar Car Challenge	<ul style="list-style-type: none"> Responds directly to COU requests for customer community engagement and energy education. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Delivered training at Tillamook PUD for utility employees to coach students in engineering design and exploratory science education. Facilitated solar car challenge at Nestucca Valley K-8 school with 20 utility volunteers working closely as student mentors. Twitter: TillamookPud volunteers at a solar car engineering challenge with Nestucca K-8 5th grade students 	<ul style="list-style-type: none"> Facilitate training for utility volunteers in 2023 and deliver solar car challenge for Nestucca Valley K-8. Project Outlook: Ongoing
Polk County Solar Car Challenge	<ul style="list-style-type: none"> Increases COU customer engagement and appreciation of utility value and services in BPA-served communities. Workforce Development: Provides energy education to develop future engineers and utility professionals. 	<ul style="list-style-type: none"> Identified options to complete engineering challenge that was postponed due to COVID impacts. 	<ul style="list-style-type: none"> Strategize with education partners to identify preferred approaches for engaging students in solar car challenge rescheduled for FY23. Project Outlook: Completion FY23



CE – Clean Energy. Bright Futures. Clean Energy Career Education

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Increase visibility and awareness of clean energy careers and collaborate with utilities and regional stakeholders to increase career pathways for students.

Project	Value to BPA	Project Progress	Next Steps
<p>Clean Energy Talent Hub (CETH) – Water Power</p>	<ul style="list-style-type: none"> Increases public understanding and appreciation of hydropower in regional power grid mix and as a key decarbonization solution. Increases awareness of utility value, services, and clean resource mix among BPA-served communities. Workforce Development: Provides energy education and career pathway development for future engineers and utility professionals with emphasis on water power. Leverages non-BPA funding to expand impact and reach. 	<ul style="list-style-type: none"> Collaborated in development of Career Connect Washington Intermediary Grant focusing on Marine Renewable Energy Career Pathways with West Sound STEM Network. <ul style="list-style-type: none"> Press release Delivered workshops for new hydropower industry volunteers with NWA's Hydropower Ambassadors program. Collaborated with NREL, NW Indian College, and Coeur d'Alene Tribal partners to develop curriculum and regional strategy to prepare future Tribal energy leaders. Presented to US DOE WPTO a model for national expansion that leverages US DOE National Labs network with universities and trade/technical colleges. Participated in NWA Regional events to build educational resources for K12 Hydropower and fish passage curricula. Received \$25,000 in funding from NREL to facilitate Talent Hub and attract additional funding. Developed teacher workshop featuring NREL researchers and Oregon State University's Marine Renewable Energy Collegiate Competition team. Twitter: First Hydropower Collegiate Competition, Marine Energy Collegiate Competition Twitter: Hydropower Ambassadors Volunteer Check-in Event 	<ul style="list-style-type: none"> Continue stakeholder engagement and coalition building. Connect US DOE National Lab, COUs, and Tribal experts with CE Clean Energy Fellows to develop action plan. Support NREL and partners to facilitate collegiate competitions at Water Power Week 2023. Collaborate with NREL and CETH partners to secure additional funding to expand programming. Project Outlook: Continuing through FY24
<p>Native Youth Education and Outreach</p>	<ul style="list-style-type: none"> Creates a career talent pipeline among PNW Tribes to fill workforce gaps for BPA-served utilities. Increases awareness of utility value, services, and clean resource mix in BPA-served communities. Fosters energy career pathways for the next generation of tribal engineers and utility professionals in BPA-served communities. 	<ul style="list-style-type: none"> Conducted student engineering project at Native Youth Exploring Higher Education Summer Camp (NY'EHE) at Washington State University. Reached students representing 12 Tribes—photo archive. Awarded WSU Native American Programs with \$45,000 to support the next 3 years of the NY'EHE summer camp. NY'EHE 2022 Report 	<ul style="list-style-type: none"> Collaborate with WSU Native American Programs to include STEM curriculum and energy career connections in the 2023 camp. Project Outlook: Ongoing



CE – Clean Energy. Bright Futures. Clean Energy Career Education Cont'd

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Clean Energy Career Education and Pathway Development	<ul style="list-style-type: none">• Increase awareness of utility value, services, and clean resource mix.• Workforce Development: Provides energy education and career pathways to develop future engineers and utility professionals.	<ul style="list-style-type: none">• Initiated collaboration with Twin Transit, Centralia College and Center for Excellence in Clean Energy and Chehalis/Centralia School Districts as part of Renewable Energy Vehicle Infrastructure Technician (REVIT) project.• Participated in planning sessions to discuss utilizing Washington Dept. of Ecology funds for curriculum development and creation of certification programs.• Facilitated field trips for REVIT team to learn from regional partners focusing on clean energy workforce development.• Supported REVIT team’s application for Career Connect Washington grant (\$140,000 awarded).	<ul style="list-style-type: none">• Work with REVIT team to begin curriculum development, connect to Clean Energy Fellows projects, and attract additional funding.• Project Outlook: Continue into FY24.



Watersheds: Fiscal Year 2023 Program Details

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation



Leveraging resources and reinforcing local efforts to sustain momentum and achieve Fish and Wildlife Program outcomes in the Columbia Basin



Watersheds: Fiscal Year 2023 Key Partners & Participants

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

BEF works with dozens of funders and watershed partners across the Pacific Northwest to implement key actions that directly support fish and wildlife recovery priorities in the Columbia Basin. The list below highlights select funders and partners engaged in FY 2023.

Key Partners & Funders

- Alaska Airlines
- Arbor Day Foundation
- Blue Forest Conservation
- Collins Family Foundation
- Laird Norton Family Foundation
- Lemhi Soil and Water Conservation
- District
- PEW Charitable Trusts Conserving Marine Life in the US Program
- Broadreach Foundation
- Methow Salmon Recovery Foundation
- Meyer Memorial Trust
- Google
- National Forest Foundation
- Oregon Watershed Enhancement Board (OWEB)
- The Nature Conservancy
- Upper Columbia Salmon Recovery Board
- Upper Columbia United Tribes
- Upper Salmon Basin Watershed Program
- Stillaguamish Tribe of Indians
- Washington Department of Ecology
- World Resources Institute
- Meta
- Confederated Tribes of the Colville Reservation
- Confederated Tribes of the Grand Ronde



Watersheds: Building Customer and Community Appreciation For Resilient Energy and Water Systems

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Leverage non-BPA resources to develop and expand regional funding, highlight the value of local investment, and promote collaboration to achieve BPA’s regional fish and wildlife priorities.

Project	Value to BPA	Project Progress	Next Steps
Columbia Basin Private Sector Funding Leverage	<i>Work not supported with BPA funding</i> <ul style="list-style-type: none"> Deploys BEF’s national business engagement program to leverage private investment to: Fund projects that contribute to regional fish and wildlife recovery goals. Implement new strategies that test and scale up delivery mechanisms for regional restoration. Scope and prioritize new fundraising strategies that have potential to increase private funding that supports BPA fish and wildlife objectives. 	<ul style="list-style-type: none"> Worked with four Fortune 500 companies to secure commitments of over \$700k in private sector funding to benefit Columbia Basin fish and wildlife objectives: <ul style="list-style-type: none"> Scoped project and funding opportunities in the Umatilla, Hood River, Deschutes, Snake River subbasins. Identified projects and secured private funding commitments. Supported design phase of innovative financing project to leverage private sector funding for Wenatchee Subbasin forest/water resilience. 	<ul style="list-style-type: none"> Continue Columbia Basin project identification for FY 2024 corporate funding. Present project funding opportunities to companies. Secure and invest funds. Project Outlook: Ongoing
Floodplains by Design	<i>Work not supported with BPA funding</i> <ul style="list-style-type: none"> Organizes partnerships and capacity to leverage state funding to achieve floodplain restoration actions that integrate floodplain management with large-scale fish and wildlife recovery in Washington State. 	<ul style="list-style-type: none"> Finalized \$15M allocation of state funding to support four Columbia Basin projects including two in the upper Columbia, one in the Yakima Basin, one in the Columbia estuary. Developed \$97M project portfolio with state funding recommendations for 10 projects in the Columbia basin (Yakima, Methow, Lower Columbia, Cle Elum, Ellensburg, Walla Walla, Chelan and Okanogan). Collaborated in media event showcasing project funding match and fish and wildlife outcomes for conservation and fish and wildlife recovery objectives in the Lower Columbia (Steigerwald site). Initiated work with BPA and other partners to explore pathways to streamline permitting and funding processes to accelerate restoration progress. 	<ul style="list-style-type: none"> Finalizing Cooperating Technical Partnership with FEMA to support cross agency alignment and streamline funding. Garner political support for \$100M investment in Washington floodplain projects. Support project contracting. Project Outlook: Ongoing



Watersheds: Building Customer and Community Appreciation For Resilient Energy and Water Systems Cont'd

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Project	Value to BPA	Project Progress	Next Steps
Columbia Basin Tree Planting	<p><i>Work not supported with BPA funding</i></p> <ul style="list-style-type: none"> Leverages private, state, and federal funding to implement large-scale riparian restoration and fire recovery efforts to complement larger Columbia Basin fish and wildlife recovery objectives. 	<ul style="list-style-type: none"> Secured \$1.3M in private funding to support regional riparian and forest restoration. Signed agreement to direct ~\$375K in funding for Colville Tribes fire recovery. Leveraged funding to plant over 2 million native trees and shrubs in 2022 with dozens of partners in Oregon, Washington, and Idaho. Finalized funding agreements with three Willamette Watersheds and an indigenous co-lead to support increased capacity for integrated watershed management. Coordinated national event with Arbor Day Foundation to develop funding opportunities. Developed capacity funding programs to expand capacity for Tribes and other partners in WA state. 	<ul style="list-style-type: none"> Distribute federal funding to scale up capacity for expanded forest management and fire recovery in Willamette basin. Submit application to WDFW for capacity funding program. Finalize funding contracts with NGO and tribal partners. Project Outlook: Ongoing



Watersheds: Building Resilient Regional Fish and Wildlife Implementation Partners

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Objective: Provide third party funding, leverage, and technical support to help BPA priority fish and wildlife initiatives sustain effective and long-term operations to achieve key fish and wildlife goals for the region.

Project	Value to BPA	Project Progress	Next Steps
Upper Columbia Restoration Partnership	<ul style="list-style-type: none"> Amplifies effort in high priority BPA watersheds for fish and wildlife recovery. Identifies and fills operational gaps that limit progress toward recovery goals. Leverages external resources to scale up fish and wildlife recovery progress. Raises profile of Upper Columbia recovery efforts to increase engagement needed to sustain recovery progress. 	<ul style="list-style-type: none"> Upper Columbia Floodplain science workshop was held in January, 2023. Initial landowner listening sessions in priority salmon recovery geographies hosted by Okanogan County Commissioner and Upper Columbia Salmon Recovery Board (UCSRB) Program Manager. UCSRB worked with US Forest Service leadership to secure federal funding to support fish passage projects in the Wenatchee and Methow subbasins. 	<ul style="list-style-type: none"> Monitor and evaluate project status and progress. Provide technical support and capacity through periodic team check-ins. Project Outlook: Continuing into FY26
Upper Salmon River Flow Enhancement Evaluation	<ul style="list-style-type: none"> Explores opportunities to fill critical recovery implementation gaps and/or leverage funds to accelerate fish and wildlife recovery success in priority BPA basin. 	<ul style="list-style-type: none"> Launched work by University of Idaho to evaluate effectiveness of process-based hydrologic restoration actions in the upper Lemhi River, Idaho. 	<ul style="list-style-type: none"> Project completed. BEF will monitor ongoing efforts in the Lemhi River basin. Project Outlook: Completed



Financials





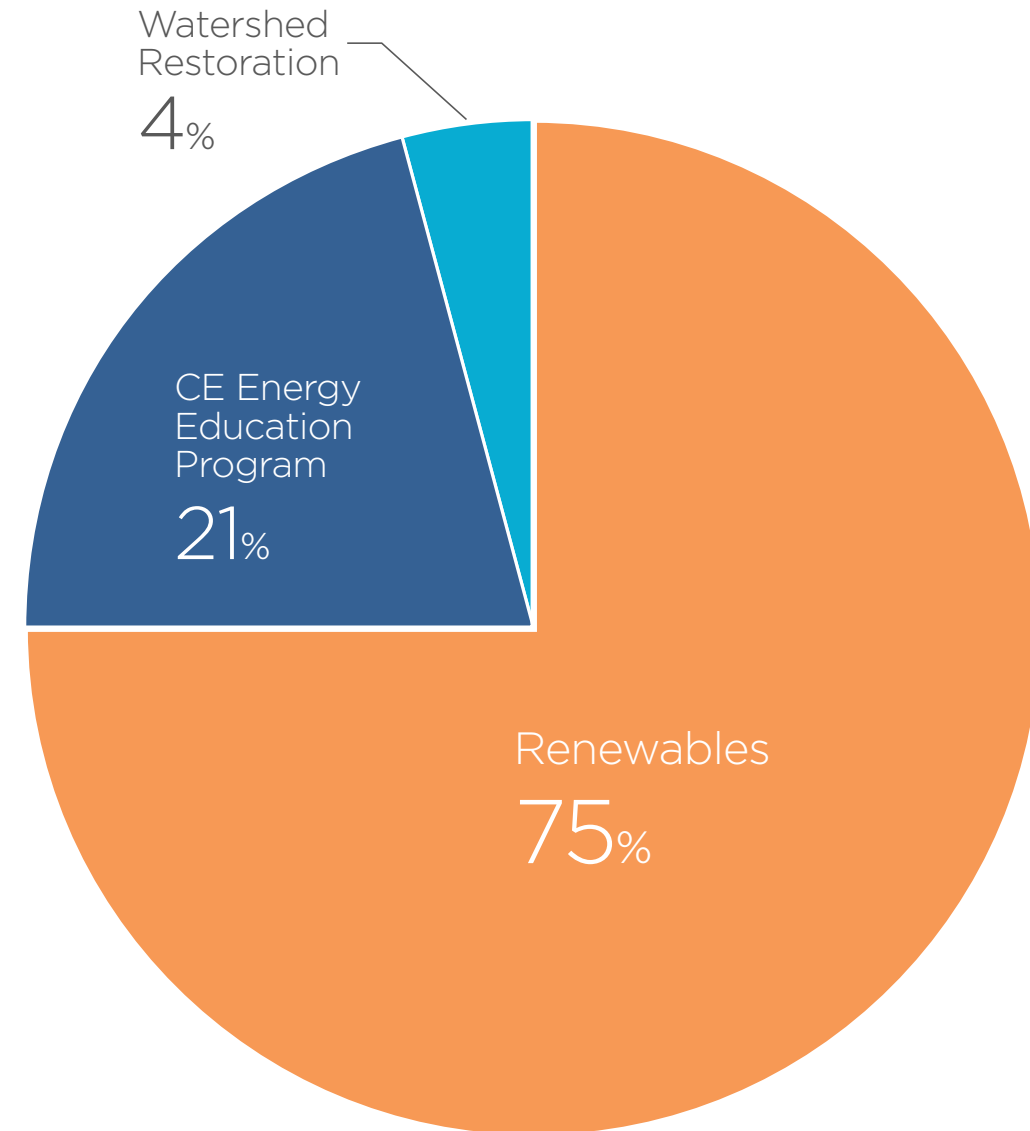
Financials: Fiscal Year 2023 Summary

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Revenue	
Beginning Balance	\$26,344.92
Earmarked Funds	\$430,032.45
Additional Funds Received	\$1,598,584.00

Expenditures	Funds Spent	Earmarked Funds
Renewable Energy Research, Demonstration, and Outreach	\$982,600.39	\$497,274.05
CE Energy Education Program	\$396,651.28	\$10,550.00
Watershed Restoration	\$78,850.48	\$0.00
Balance as of 3/31/23	\$89,035.18	

Expenditures: Funds Spent



BEF started FY23 with a fund balance of \$26,344.92 plus \$430,032.45 in earmarked funds and an additional \$1,598,584 was added during the course of the year. Spending in the categories above totaled \$1,965,926.19 of which \$507,824.05 is earmarked for projects that are currently in process or under contract. The fund balance at the end of the year is \$89,035.18. No funds were transferred to BEF Renewable Inc., BEF's wholly-owned subsidiary during the year. No assets were sold, leased, or otherwise permanently disposed.



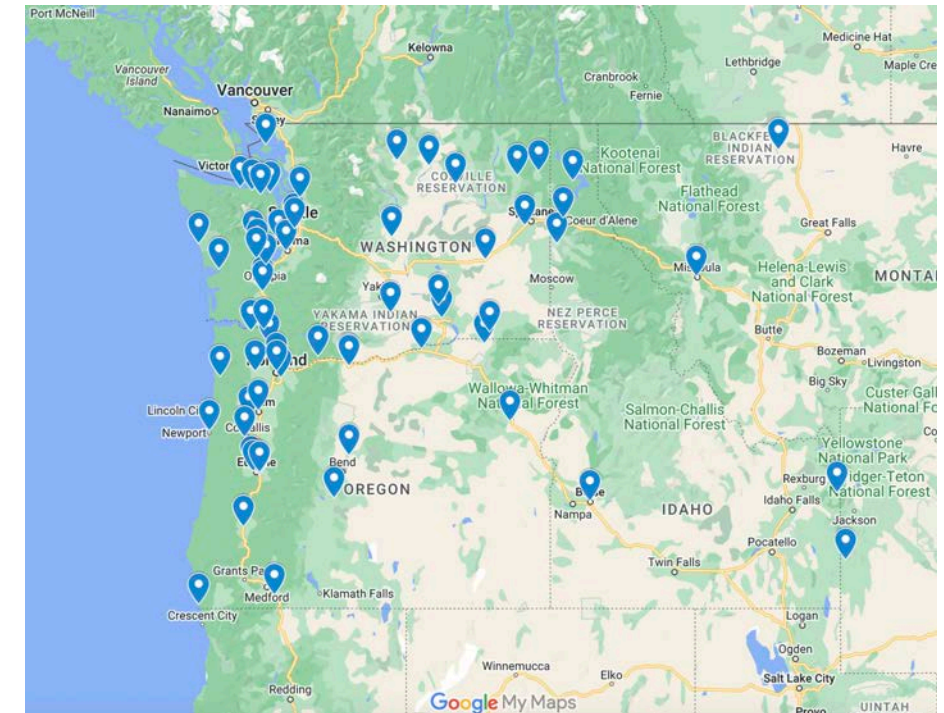
Financials: Fiscal Year 2022 Program Areas and Project Details

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

Renewables	
Vehicle Electrification:	
EV Car Sharing	\$50,200.00
Electric Tractor Demonstration	\$5,701.65
Grants to Utilities for Zero Emissions Vehicle Innovation (ZEVI)	\$110,439.95
ZEVI Grants: Outreach, Program Design, RFP, Solicitation	\$35,689.40
Utility EV Infrastructure Education & Engagement	\$21,005.16
Utility Outreach, Program Development & Management	\$148,767.35
Renewable Hydrogen:	
Renewable Hydrogen Fueling Station	\$15,046.96
Utility Green Hydrogen Project Development	\$35,727.23
Renewable Hydrogen Alliance	\$31,952.46
Utility Outreach, Program Development & Management	\$86,599.07
Offshore Wind:	
Utility Education, Planning & Valuation of Offshore Wind	\$46,471.52
Tribal Energy Projects:	
Coeur d'Alene Tribal Solar	\$50,000.00
Quinault Indian Nation Microgrid	\$50,000.00
Tribal Outreach, Program Development & Management	\$110,133.35
Community Energy:	
Jason Lee School	\$30,000.00
Grid Interactive Building Demonstration	\$29,110.52
Ashland Utility Solar	\$9,446.18
North Olympic Development Council	\$25,425.72
Utility Outreach, Program Development & Management	\$90,883.87
Total	\$982,600.39

CE - Clean Energy. Bright Futures	
Educator Training Workshops:	
Fall River Energy Education	\$24,062.18
Neah-Kah-Nie School Energy Education	\$1,764.01
Hilltop Heritage Middle School Energy Education	\$1,850.75
Coeur d'Alene Energy Education	\$14,421.00
Quinault Indian Nation Energy Education	\$76.99
Educator Training Program Management & Development	\$18,034.35
Power Grid Education:	
Water Power, EV & BPA Region - Clean Energy Fellows	\$149,838.55
Power Grid Education	\$195.35
Power Grid Education Program Management & Development	\$64,154.58
Renewable Energy Engineering Challenges:	
Tillamook PUD Solar Car Challenge	\$8,285.05
Engineering Challenge Program Management & Development	\$3,542.69
Clean Energy Career Education:	
Clean Energy Talent Development Hub - Water Power	\$34,080.21
Native Youth Education and Outreach	\$29,935.98
Utility, Educator & Stakeholder Engagement	\$304.73
Clean Energy Career Education	\$1,021.05
Career Education Program Management & Development	\$27,886.46
CE Program Management:	
Web-based Educator Resources & Curriculum	\$1,367.19
CE Program Evaluation & Monitoring	\$10,640.16
CE Website and Evaluation Program Management	\$5,190.00
Total	\$396,651.28

Watersheds	
Building Resilient Regional Restoration Programs	
Upper Columbia Restoration Partnership	\$67,353.45
Columbia Basin Project Scoping	\$11,497.03
Total	\$78,850.48



Geographic representation of a portion of the BPA-served utilities, tribes, and communities engaged by BEF in FY23 to support the mission of BPA.



Future Plans

Leveraged Funding - A Once in a Generation Opportunity

The Bipartisan Infrastructure Law (BIL) has made unprecedented federal funding available to support clean energy, resilience, transportation, watershed, and tribal priorities across the BPA service territory. It's critical that large amounts of this funding be secured, directed, and invested in support of public power priorities. BEF dedicated significant effort in FY 2023 to identifying and exploring pathways to access federal funding to expand value to consumer-owned utilities and communities across the BPA system. In the coming years, BEF will align its capacity, expertise, and relationships to secure and/or channel funding into public power priorities that include electrification, EV infrastructure, hydrogen development, tribal and community energy resilience, watershed restoration, and equitable benefits for underserved communities.



What's Next for Renewables?



Expanding Community Solar Portfolio

Since 2016, BEF's Renewables Program has focused on expanding the benefits of renewable energy to disadvantaged and underserved communities. Through projects and programs supported by BEF, communities have received millions of dollars in savings for low-income households. With significant new funding opportunities for this work, BEF expects to play an expanded role in leveraging federal funds to support utility and community-led solar projects that reduce energy costs for underserved communities across the region.

Innovating with Zero Emission Vehicles

The path to transportation electrification includes many obstacles for utilities and the power grid. In FY 2024, BEF's Renewables Program will continue to partner with COU's to identify and support solutions that can maximize utility benefits derived from vehicle electrification and effectively integrate zero emission vehicles into utility systems. BEF will build and maintain strong partnerships with utilities, governments, nonprofits and tribes to continue advancing important demonstration projects that utilize EV car sharing, hydrogen fuel cell electric vehicles, e-bike programs, and electrification planning. Looking forward, BEF will advance e-mobility hubs, explore pathways to integrate medium and heavy duty vehicle electrification, and work to mitigate and manage impacts of DC fast chargers (DCFC's) on the grid.

Program Expansion

With hundreds of millions of federal dollars now available to support community and utility priorities, BEF will explore expanding staff capacity in an effort to increase the number of projects, utilities, tribes, and communities that can take advantage of federal funding to support local energy priorities. In addition, the Renewables Team will continue to explore new focus areas that have direct relevance to the BPA system (and may be able to secure federal funding), such as offshore wind development, energy storage, hydrogen, and a spectrum of electrification measures.



Future Plans

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

What's Next for CE?

With the Clean Energy Fellows model now delivering scalable STEM and energy education benefits that align with public power, CE will expand in FY 2024 to deliver more curricula and services to a) increase public awareness of utility value and service; b) fill the utility workforce development pipeline; and c) expand BPA-served regions that benefit from this work. By increasing K-12 STEM experiences that are linked to clean energy careers and leveraging national STEM networks, CE will harness federal funding and momentum to deepen program impact that directly benefits public power communities.

Amplifying Access to New Tools

The CE program will scale the deployment of new tools created through CE Water Power and Clean Transportation cohorts to expand benefits to a broader set of communities across the BPA service territory. CE's hydropower and clean transportation curricula will be disseminated through CE's teacher professional development programming beginning in Fall 2023.

Talent Development Leadership

CE will continue to play a leadership role in its partnership with the U.S. Department of Energy and National Renewable Energy Lab to strengthen water power workforce development in the PNW. CE will support and facilitate collaboration between efforts such as the [Hydropower Collegiate Competition](#), [Hydropower STEM Academy](#), and regional Clean Energy Fellows teacher training.

Utility Engagement

CE will continue to leverage real-world clean energy projects and public utility professionals to inspire students to pursue energy careers in their communities. CE will deliver teacher trainings linked to electric bus deployment in Mason PUD territory and continue supporting engineering challenges with utility volunteers from Clark PUD and Tillamook PUD.

Tribal Energy Education

In FY 2024, CE will engage with Tribal educators and youth to explore energy education opportunities tied to local communities. CE will provide teacher support and training linked with energy projects in the [Taholah Village Relocation plan](#) and deliver support for the 2023 [NYEHE summer camp](#) at WSU.



Future Plans

Driving Market Transformation
Supporting BPA Utility Customer Priorities
Building Community Appreciation

What's Next for Watersheds?

BEF's FY 2024 work will continue to leverage private, state, and federal resources to support and expand priority fish and wildlife recovery actions. BEF will maintain focus on being a "connector" to help identify and channel federal funds into projects that advance floodplain reconnection, irrigation modernization, riparian restoration, and fish passage priorities. As a non-profit agent of BPA with extensive regional partnerships, BEF strives over the next 3-4 years to exploit an unparalleled federal funding opportunity to help partner organizations maximize investment into regional conservation and restoration outcomes.

Piloting Innovative Finance

BEF will launch work to test a pathway to effectively link riparian tree planting with carbon markets that may be able to generate expanded funding for restoration. In FY 2024, BEF will launch a pilot to test this revenue generation approach in the lower Columbia.

Scaling and Funding Floodplain Restoration

As the backbone entity for the Floodplains by Design Program in Washington, BEF will provide capacity and technical support to help regional partners and tribes develop large-scale floodplain projects that contribute to regional recovery goals. BEF will seek to secure federal and state funding to increase the scale and number of funded projects that can benefit the Columbia Basin.

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