

























Delivering on our public responsibilities through a commercially successful business

BPA 2018-2023 Strategic Plan

To our regional partners:

We are grateful to the many people throughout the region — customers, tribes, federal and state agencies, public interest organizations and other key partners — who contributed to this strategic plan and share a common interest in our long-term success. BPA will need the collaboration and support of a broad range of interests to sustain its role in the Northwest.

The Bonneville Power Administration is an engine of the Pacific Northwest's economic prosperity and environmental sustainability.

That's our vision for BPA. It means we provide high reliability, low rates, responsible environmental stewardship and regional accountability.

Even as the industry in which BPA operates continues to evolve, this vision endures — as does the statutory mission that drives us to deliver the best value for our customers and the region. But going forward, we must address industry dynamics and risks that are working against BPA's cost competitiveness and commercial performance.

This strategic plan describes the actions BPA will take over the next several years to become more competitive and responsive to customer needs, to leverage and enable industry change through modernized assets and system operations, and to deliver on our public responsibilities through a commercially successful business.

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The Way Forward

The Bonneville Power Administration plays a uniquely valuable role in the Pacific Northwest, serving citizens through a multifaceted public-service mission. As a wholesale power marketer and transmission provider, BPA sells its products and services at the cost of production, giving its customers access to 22,000 megawatts of clean, reliable hydropower across 15,000 miles of high-voltage transmission lines. BPA also markets the output of the region's only nuclear plant, the 1,107 MW Columbia Generating Station. By operating a commercially successful business, we are able to fulfill our public responsibilities, driving the region's economic prosperity and environmental sustainability.

Achieving the full scope of BPA's mission requires a careful balance between sometimes competing objectives. For example, as we seek to modernize our system operations and assets, we must also control costs and provide competitive rates. The challenge of maintaining the appropriate balance is often compounded by changing industry dynamics, changing regional interests or other risks that threaten to tilt the scale in favor of one objective over another. Many times over the decades, BPA has had to adjust its focus in light of changing conditions to sustain its vital role in the region. Now is the time to make another of those adjustments.







We developed this strategy in response to the needs and interests of our power and transmission customers, with the overall goal of strengthening our commercial performance in both areas. We have also worked hard to reflect the input of our other valued partners throughout the region who have strong interests in our sustained success.

Our power customers have expressed significant concerns that BPA's recent pattern of rising costs and rates is unsustainable. They have noted that the resurgence of competition in power markets will provide them with alternatives when their long-term wholesale power contracts with BPA expire in 2028. For these reasons, one of BPA's principal strategic goals is to provide competitive power products and services.

As the steward of vital regional assets, BPA provides many valuable benefits to the people of the Northwest.

The clean, reliable hydropower resources in the Columbia River Basin support the region's economy in a number of ways, from job creation and new business development to recreation opportunities and increased agricultural production. And over its vast high-voltage transmission grid, BPA provides the foundation for economic development in communities large and small. This transmission network also enables the development of new renewable power resources, helping the region diversify its clean energy portfolio.

BPA is also in a unique position to balance the economic and environmental benefits of the

hydropower system. Through a comprehensive program, BPA mitigates for the effects of constructing and operating the Federal Columbia River Power System and works to protect and enhance fish and wildlife.

BPA delivers on these and other responsibilities while providing power and transmission services at the cost of production and repaying taxpayers for the federal investment in the system.



Our Transmission customers, on the other hand, have expressed a different concern when it comes to BPA's commercial performance — the complexity of accessing transmission service. BPA is responding with a strategic goal to meet their needs more efficiently and responsively. We will provide more clarity on how to access additional transmission service by standardizing and streamlining our products, services and processes. We will also use a more scalable, flexible, economical and operationally efficient approach to meet future transmission service requests.

We will improve our commercial performance in other ways as well, including strengthening our finances and modernizing our assets and system operations. Investments in grid modernization will support a more reliable, flexible and efficient system, helping to reduce future costs and create new market opportunities for BPA and others. As California and other Western states increase the amount of variable energy resources on the grid, we will proactively seek more opportunities to market the valuable flexibility and capacity services that clean hydropower resources can provide. And in a more carbon-constrained world, power markets may place more explicit value on clean capacity, creating new revenue opportunities for BPA. Industry-leading asset management and continued wise investments in energy efficiency and demand response will stretch existing assets as far as possible, reducing the need for new generation and transmission resources.





Bonneville is committed to executing on this strategic plan by fostering a safe, positive, inclusive culture where people are valued and enabled to

deliver results.

While embarking on this five-year strategic plan in a focused and purposeful manner, we will also continue to engage our customers and the region on the longer-term issues facing BPA, including legal, environmental, economic and power supply risks. BPA will need the collaboration and support of a broad range of interests to sustain its role as an engine of the Northwest's economic prosperity and environmental sustainability.

While no one can predict the future, we can do our best to prepare for the most likely outcomes.

For generations, electric utilities have faced the challenge of predicting and adapting to future market conditions. From the earliest days of Grand Coulee Dam, when critics said the Northwest would never need so much power, to the exuberant 1960s when power producers mistakenly thought they could never overbuild, power markets and the demand for electricity have proven very unpredictable. As recently as 2008, when BPA and its customers negotiated new long-term wholesale power contracts, the prevailing wisdom in the Northwest

was that power prices and loads would increase indefinitely, which created a strong impetus to lock down low-cost federal hydropower under long-term agreements.

Today, the industry looks very different and most observers expect current trends to prevail for a long time. But the laws of supply and demand and the trend toward decarbonization in Western electricity markets could create very different conditions in the future. Other unforeseen events could turn market fundamentals upside down once again.

BPA's strategy assumes a future of relatively low wholesale energy prices and declining costs of alternative sources of supply. If we are commercially successful in such a world, we will have additional upside if power prices recover and the demand for clean capacity increases. As a more financially resilient and responsive organization, we will also be better prepared to respond to future industry changes.



2018–2023 Strategic Goals

- 1. Strengthen financial health
- 2. Modernize assets and system operations
- 3. Provide competitive power products and services
- 4. Meet transmission customer needs efficiently and responsively

Acting on these goals will put BPA on a path to become more competitive and responsive to customer needs, modernize our assets and operations to leverage and enable industry change, and deliver on our public responsibilities through a commercially successful business.

This set of strategic goals is the central reference point for everything we will be doing at BPA over the next five years. Our business units and asset managers will develop operating plans and asset strategies to execute on these goals. Individual performance contracts and performance incentives will align with these goals as well.

Meeting these strategic goals will require the commitment of the entire BPA management team to foster a safe, positive and inclusive work environment where people are valued and enabled to deliver results.



The actions we take today will shape BPA's future. We have to be even more vigilant about managing costs and prudently spending every dollar we invest back into the Northwest.

I'm proud to be a part of this crucially important task that will involve every single person in the BPA workforce.



Jinah Nakaji | Supervisory Financial Analyst

Strategic Goal 1: Strengthen financial health

Everything BPA does — from maintaining the region's extraordinarily valuable hydropower and transmission assets to investing in fish and wildlife mitigation — hinges on its financial health and providing low, competitive rates. Poor financial health would put BPA's mission at risk, limiting its ability to provide low rates, high reliability and responsible environmental stewardship. Conversely, good financial health will allow BPA to continue to deliver on its multi-purpose mission, providing tremendous value to the Pacific Northwest and its citizens.





Therefore, the financial health objectives in this strategic plan, which are derived from BPA's 2018 Financial Plan, serve as the foundation for BPA's other strategic goals. For this reason, more detail is provided in this section than in others.

As of January 2018, BPA has sufficient liquidity and high credit ratings. But absent any changes, the continuation of some financial policies and practices — particularly those around cost management, debt management and reserves — would put BPA's long-term financial health at risk. BPA's strategic plan addresses each of these areas.

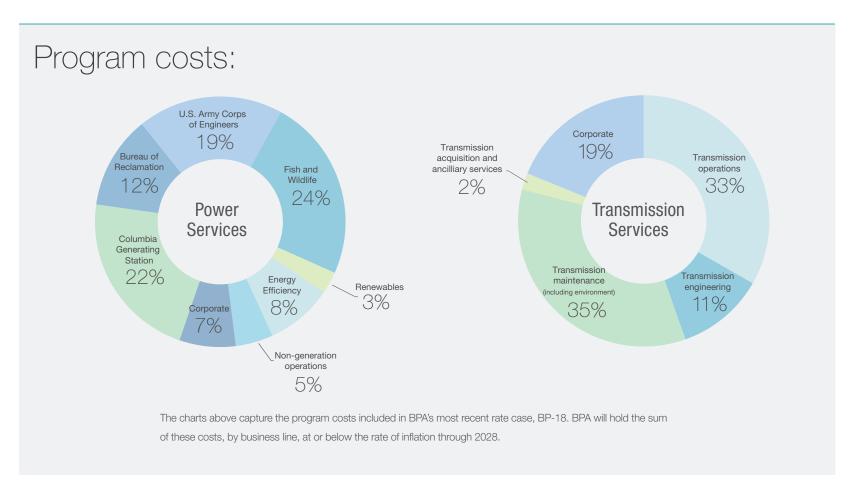
Objective 1a:Improve cost-management discipline

Program costs: Hold the sum of program costs, by business line, at or below the rate of inflation through 2028.

BPA is taking aggressive steps to manage the rising costs of operating the federal power and transmission systems, starting by establishing a cost-management goal to keep the sum of program costs, by business line, at or below the rate of inflation through 2028.

To meet this goal, and in response to customer input, BPA is initiating a new approach for setting spending levels during the Integrated Program Review (IPR) public process. The IPR is the public review process for the costs that will be recovered through rates during the following two-year rate period.







BPA has established a program to solicit regular input from staff on opportunities for business process improvements and cost savings. We will leverage the expertise of our entire workforce to help us meet our cost-management objectives.

Instead of BPA's past practice of determining program costs through a bottom-up approach, BPA will set firm cost constraints at the start of the process in alignment with this cost-management objective. BPA's decisions regarding program funding levels will be guided by the other objectives outlined in this strategic plan.

One area of particular focus to help meet this objective will be reducing corporate costs through functional consolidation, outsourcing and process improvements. For example, we are actively exploring the potential for substantial cost reductions in the areas of supply chain and information technology. BPA has also established long-term workforce reduction targets, which will be met gradually through attrition. These reductions should help to keep total program costs at or below the rate of inflation, or offset other costs that must grow at a rate greater than inflation.

In addition, BPA has established a program to solicit regular input from staff on opportunities for business process improvements and cost savings. We will leverage the expertise of our entire workforce to help us meet our cost-management objectives.

Given the considerable uncertainty in future market prices and loads, which will impact BPA's total revenues and rates, we will closely monitor market conditions to determine if



more aggressive cost-management steps are necessary in the future.

Capital investments: Manage the lifecycle cost and value of assets based on industry-leading standards.

BPA is applying best-practice industry standards to manage the lifecycle costs of federal assets. This is central to maintaining the long-term value and reliability of the power and transmission systems and is discussed further in *Strategic Goal 2:*Modernize assets and system operations.

The asset plans BPA produces are key inputs to the IPR process. This is when capital investment levels are determined for the following two-year rate period, and a forecast is developed for the eight years after — totaling 10 years of planned







capital investments. These investment levels set the direction for maintaining, replacing and adding capabilities for each asset category (power, transmission, facilities, information technology, and fish and wildlife). These influence the financing amounts that BPA will need to acquire, either from power or transmission rates (in the form of revenue financing) or from debt.

Objective 1b:Build financial resiliency

Financial resiliency is the ability of an organization to withstand disruptive events that impact revenues or expenses while continuing to deliver on its mission. BPA seeks to build financial resiliency through objectives for debt utilization, debt capacity and liquidity.

Debt utilization: Achieve a debt-to-asset ratio of 75 to 85 percent within 10 years and 60 to 70 percent in the long term.

The term "debt utilization" describes how BPA uses debt to fund capital investments and how BPA repays that debt. A common industry measure of debt utilization is the debt-to-asset ratio, a comparison of total outstanding debt to the value of revenue-generating assets — the assets that are used to ultimately repay all debt. This is also known as leverage.



Bonneville has historically used debt to finance nearly 100 percent of all capital investments and repaid that debt according to statutory requirements, which is generally 50 years or less. These practices have led to a high debt-to-asset ratio of about 90 percent, relative to the utility industry average of 54 percent. By business line, the current debt-to-asset ratio breaks down to 99 percent for Power Services and 80 percent for Transmission Services. Over the next 10 years, Power Services' debt-to-asset ratio is expected to decline due to current policies and practices, whereas Transmission Services' debt-to-asset ratio is expected to increase.

As a federal agency with unique statutory obligations and authorities, BPA is unable to raise equity capital. One result is that BPA has traditionally placed less emphasis on leverage as a measure of financial health. We are now giving this issue more consideration because a high debt-to-asset ratio can contribute to financial risks if left unchecked. For example, as the ratio increases, so does the amount of debt service that BPA must recover in rates. Currently, as a result of BPA's prevailing debt utilization practices, about 42 percent of all costs charged in transmission rates and 33 percent of all costs charged in power rates are for capital-related costs, including debt service.

The debt-to-asset ratio also reflects the agency's overall financial flexibility and directly impacts how much U.S. Treasury borrowing authority, BPA's primary source of debt financing, remains available. This metric is also considered by credit ratings agencies in their evaluation of BPA's credit-worthiness.

To continue investing in and maintaining the tremendously valuable federal power and transmission assets, BPA will need to look beyond its traditional financing source and consider an "all of the above" capital financing strategy.





To mitigate the risks of being too highly leveraged, BPA intends to target a debt-to-asset ratio of 75 to 85 percent for each business line and the agency over the next 10 years and 60 to 70 percent over the longer term. BPA will hold a public process on its leverage policy in 2018 to discuss its debt-to-asset ratio targets and the means of achieving its debt-to-asset ratio goals.

Debt capacity: Maintain sufficient debt capacity to fund BPA's capital program on a rolling 10-year basis, and preserve \$1.5 billion of available financing from the U.S. Treasury.

Bonneville's primary source of debt financing is its U.S. Treasury borrowing authority, which works like a revolving line of credit and is capped at \$7.7 billion. At the end of 2017, BPA had consumed \$5 billion of its borrowing authority, leaving \$2.7 billion remaining. Based on projections from BPA's most recent rate filing, this source of financing will be depleted by 2023, putting BPA's future capital program at risk.

This objective ensures planned capital needs are met on a rolling 10-year basis. It also preserves \$1.5 billion of available borrowing authority for operational and capital liquidity to mitigate unexpected changes without having to swiftly and materially increase rates.

To continue investing in and maintaining the tremendously valuable federal power and transmission assets, BPA will need to look beyond its traditional financing source and



consider an "all of the above" capital financing strategy. Other possible financing sources include revenues, financial reserves, third-party leases, additional Treasury borrowing authority, authority to issue debt directly to capital markets, and funds that are freed up by working with Energy Northwest to refinance Regional Cooperation Debt.

To ensure it has sufficient debt capacity to meet this objective, BPA will host a debtmanagement workshop before each rate case. Each possible source of additional capital has its limitations, and BPA will evaluate them within the context of their cost, certainty and impacts on other stated financial health goals.

Liquidity: Maintain a minimum of 60 days cash on hand for each business line, and maintain a 97.5 percent annual Treasury payment probability.

BPA's primary source of liquidity is financial reserves, which the agency uses to meet its financial obligations in the face of cash-flow uncertainty. BPA faces both short-term uncertainty, such as when bills are paid before revenues are received, and long-term uncertainty, such as financial losses that could result from poor market or hydropower conditions.

BPA measures the sufficiency of its financial reserves by the industry-standard metric of days cash on hand, which is how long BPA can continue to pay its operating expenses given the amount of cash it has available. BPA's Financial Reserves Policy provides guidance to ensure both business lines have a minimum of 60 days cash on hand for









basic liquidity needs and to support its credit ratings. The policy also includes a maximum of 120 days cash on hand so that reserves do not grow too high and become inefficient from an investment and rates standpoint.

Currently, Power Services' cash on hand is far below the desired minimum threshold, while Transmission's financial reserves exceed the minimum. BPA's last rate filing included \$20 million per year to increase Power's financial reserves until they reach the minimum of 60 days cash on hand; but at that pace it could take 15 years to reach the goal. BPA will hold a series of financial reserves workshops in 2018 to explore how to build Power's reserves more quickly and discuss other issues, including the cost recovery adjustment clause that would trigger when reserves fall below a certain threshold. Other topics may include exploring opportunities to use reserves for greater rate stabilization.

In addition to financial reserves, the Treasury payment probability standard provides an added layer of short-term liquidity protection and ensures BPA has enough short-term liquidity to make the planned U.S. Treasury payments each year of the rate period. The Treasury payment is significant because, by law, it is BPA's lowest priority payment obligation. BPA makes the majority of the payment at the end of a fiscal year after meeting all other obligations in the year, including nonfederal debt service. BPA sets its rates to



maintain an annual 97.5 percent probability of making this payment. As a result, BPA has made its Treasury payment on time and in full for the last 34 years.

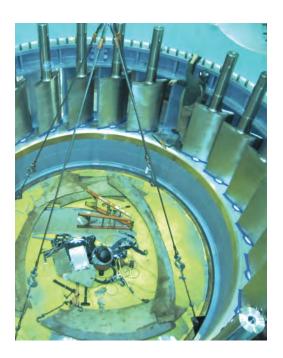
Objective 1c:

Independent financial health assessment

Maintain high investment grade credit ratings from all three ratings agencies.

A credit rating is an independent assessment of financial health that aids investors in their investment decisions. Since most utilities, including BPA, have financial obligations that extend over 20 years, a credit rating is a long-term measure of financial health and ultimately reflects the likelihood that a borrower will be able to meet all of its financial obligations over time. Credit ratings have real cost implications in that they help determine the interest rate levels at which investors will purchase debt. BPA's credit ratings as of January 2018 are Aa1 (stable outlook) Moody's, AA (negative outlook) Fitch, and AA-(stable outlook) Standard and Poor's.

By pursuing the other financial health objectives outlined above, BPA seeks to maintain a high investment-grade credit rating of its nonfederal debt from all three ratings agencies.





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When it comes to investing in the region's assets, we are looking holistically across all of BPA's responsibilities—not only for what is most crucial for safety and reliability, but what creates the greatest value as we modernize and position BPA to leverage market and technology developments.



Bill Leady | Asset Manager

Strategic Goal 2: Modernize assets and system operations

The Federal Columbia River Power System is the nation's largest carbon-free, renewable energy resource. This iconic federal hydropower system, coupled with BPA's expansive high-voltage transmission grid and the output of the region's only commercial nuclear plant, provides power valued at more than \$3 billion annually. These power and transmission assets have played a central role in the region's way of life, and managing them in a cost-effective and economically efficient manner is critical to BPA's commercial success.



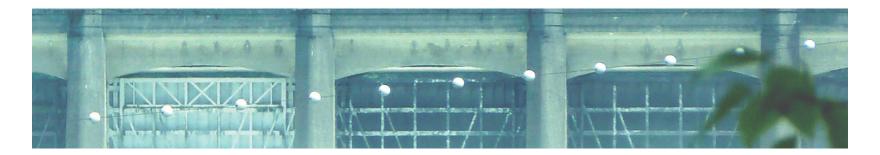
The Northwest's federal power and transmission system

The power BPA sells to its Northwest power customers comes from 31 federally owned dams that are operated by the U.S. Army Corps of Engineers and Bureau of Reclamation. BPA also sells the output of the Columbia Generating Station, a 1,107 megawatt nuclear plant, which is owned and operated by Energy Northwest. BPA recovers the cost of these generating facilities through its power revenues.

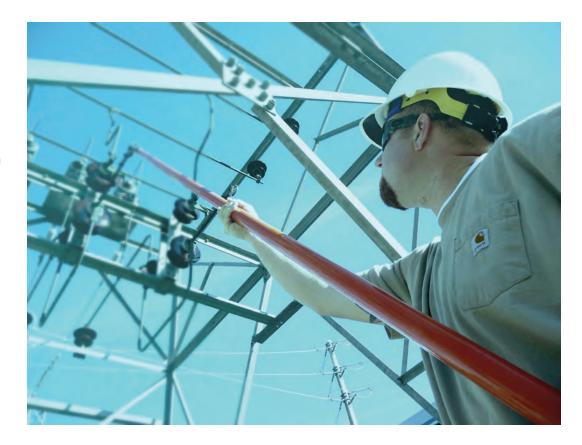
This power is transmitted over BPA's more than 15,000 circuit miles of transmission lines, 260 substations and an extensive network of related transmission facilities, telecommunications and IT infrastructure across six states. This energy highway not only provides low-cost, reliable power to the entire region, but also allows for the sale of surplus power across the West. These surplus sales help to offset BPA's costs and keep rates affordable for Northwest consumers.

BPA also manages facilities, such as substation control houses, warehouses and office buildings; IT equipment and systems; and fish and wildlife assets, such as hatcheries and real property interests for fish and wildlife mitigation. Combined, these assets are worth billions of dollars. It is BPA's responsibility to plan for and fund their operations and maintenance, while also preserving and enhancing physical and cyber security.

BPA is adopting a more rigorous approach to asset management that leads to the most efficient use of resources, recognizing that our assets do not all deliver the same value. This approach will produce the highest economic benefit and derive maximum value from the system, while meeting nonpower purposes and environmental requirements.



BPA must also be prepared to operate these assets in evolving markets to preserve reliability and take advantage of new opportunities for maximizing sales of surplus power. Drivers include large increases in variable energy resources such as wind and solar and the recent expansion of the Western Energy Imbalance Market (EIM), which have changed the pattern of power flows across the Western grid and transformed the way utilities interface with markets. A faster, more volatile resource base has created a need for increased situational awareness and coordination within and among balancing authorities. There are also opportunities to leverage new technologies — such as battery storage, flow control devices, data analysis and demand management tools — in support of more reliable, economical and efficient system operations.









Objective 2a:Administer an industry-leading asset management program

BPA has adopted industry-leading asset management planning standards and begun applying them to make better investment decisions across all of the agency's asset categories: power, transmission, facilities, information technology, and fish and wildlife. We will optimize the life-cycle cost of acquiring, operating, maintaining and disposing of assets to preserve their reliability and value, and prioritize limited resources.

BPA is developing strategic asset management plans for each asset category. These plans inform capital investment level requirements by:

- Understanding our assets' criticality, health and risks.
- Establishing risk-based asset performance objectives (such as lost generation and reliability).
- Using leading analytical methods to prioritize maintenance activities and capital investments for safe, reliable asset performance.

Achieving these goals for power will require collaborative, long-term planning with our federal partners, the U.S. Army Corps of Engineers and Bureau of Reclamation, because their cost structures have major implications on BPA's rates. Through the Asset Investment Excellence Initiative, the three agencies have established prioritized goals to drive aligned investment decisions and improve contracting and project-management practices.



Working with these partners, BPA will strategically evaluate the federal hydropower assets and identify and communicate priorities and goals, including optimization of capital investments to align system capabilities with evolving markets, technologies and regulations. BPA will also work with Energy Northwest to develop a joint long-term asset strategy for the Columbia Generating Station nuclear plant, focusing on its cost and performance.

To take a true value-based approach, our asset management strategy will take into account the relative value and performance of each asset, including the Willamette River Basin hydroelectric resources. And through the Columbia River System Operations Review, BPA and its federal action agency partners will produce a recommendation on the future of the lower Snake River dams after completing a comprehensive analysis.

Bonneville is committed to executing its asset plans effectively to ensure capital projects are delivered on schedule and on budget, while minimizing planned outages. BPA has already begun and will continue to improve project scoping, planning, contracting and project management processes to ensure efficient execution of our capital programs and maintenance activities.

BPA will complete this work in alignment with its objectives for cost management and financial resiliency, outlined in *Strategic Goal 1: Strengthen financial health*.

Achieving these goals for power will require collaborative, long-term planning with our federal partners, the U.S. Army Corps of Engineers and Bureau of Reclamation, because their cost structures have major implications on BPA's rates.





Objective 2b:

Modernize federal power and transmission system operations and supporting technology

While Bonneville works to sustain and modernize its physical assets, we are also updating our business processes and operating systems to ensure they are compatible with emerging markets and advanced technology. BPA's analysis indicates that these investments will increase revenues and asset utilization, and potentially decrease the need for transmission expansion. To this end, BPA has developed a comprehensive grid modernization road map for the federal power and transmission system that will enhance system operations in three major ways: automation, accuracy and visibility.

By automating processes, we will minimize the potential for human error and support a faster intra-hour system dispatch. By incorporating real-time data and analysis into power and transmission operations, BPA will be able to more accurately determine system obligations and monitor operating conditions. Increasing the visibility of loads, resources and flows, including market flows, will also help BPA to preserve reliability, optimize reserve levels and operate the transmission system closer to its physical limits.

To support improved commercial performance, BPA is also refining its Technology Innovation program to reduce expenditures and more narrowly focus investments in



technologies that address BPA's specific power and transmission goals and are likely to reduce operating costs, improve efficiencies or increase revenues.

Grid modernization and preparing for participation in an evolving market is a significant undertaking that will impact many aspects of BPA. The implementation of modernization projects also carries significant risk. BPA will mitigate this implementation risk by conducting the work in an intelligently staged fashion using enterprise architecture — a disciplined approach to modeling business processes and capabilities that informs and improves decision-making — and sound program-management practices. We will design and implement a set of prioritized and sequenced projects that

Evolving markets

Energy and capacity markets in the Western U.S. have changed significantly over the past few years. The Western Energy Imbalance Market (EIM), which is administered by the California Independent System Operator (CAISO), began operations in 2014. The EIM, which has 11 current or planned utility members, dispatches participating

generating resources every five minutes, reducing total operating costs and providing a broader pool of resources to support renewable resource integration.

BPA plays a key role in enabling EIM operations because market participants make intra-hour energy transfers across the federal transmission system. In 2017, BPA and CAISO signed a Coordinated Transmission Agreement to clearly document the business processes and technical requirements for using federal infrastructure for EIM transfers. BPA has also engaged with other Northwest hydro generators and the CAISO to develop a proposal for a day-ahead flexible capacity product. Our goal is to develop a product that compensates resources for providing valuable flexibility and capacity to meet the increasing ramping needs of California's large wind and solar energy fleets.

BPA has always been a major player in markets throughout the West. The grid modernization road map we have developed positions BPA to take a more active role in these evolving energy and capacity markets, while preserving preference customers' statutory rights to the system.





will improve the overall reliability, efficiency and flexibility of federal power and transmission operations.

Grid modernization will also require investment in information technology (IT) and associated business processes. BPA is maturing its IT governance model to drive better investment decisions, eliminate lower-priority work, and improve BPA's ability to design and implement IT projects on time and on budget. This will lead to a better understanding of the linkages between strategic objectives, business functions, applications, data and supporting IT infrastructure, which will ultimately result in a better return on dollars invested in IT and support the larger effort to harness new market opportunities.





We all contribute to BPA's competitive position, not just those in the revenue-producing areas of the agency. For our part in Environment, Fish and Wildlife, it's all about investing in regional efforts that are meeting our environmental obligations, while also keeping those investments cost-effective and financially sustainable.

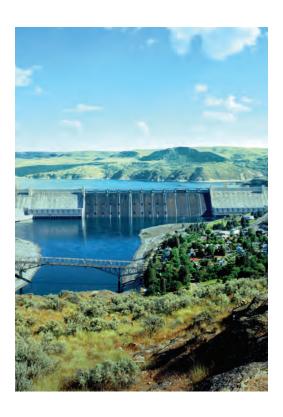


Bryan Mercier | Executive Manager, Fish and Wildlife Division

Strategic Goal 3: Provide competitive power products and services

For most of its history, BPA has had the lowest-cost power available in the region and faced few economic competitors, spurring economic growth in the Northwest. BPA's hydropower-based product remains a dependable, low-cost resource to communities large and small, while also playing an increasingly important role in regional decarbonization efforts.





Bonneville is committed to remaining a cost-effective power supplier, but its cost advantage has eroded. A substantial challenge is low wholesale power prices caused by persistently low natural gas prices and ever-increasing renewable energy expansion during a time when electric loads remain flat. Supply is outpacing demand. Low wholesale power prices entice customers to consider other power suppliers while also reducing BPA's net secondary revenues, which BPA uses to help keep rates low.

Bonneville also faces cost pressure from maintaining aging generation infrastructure, increasing costs to meet fish and wildlife obligations, the cost of the Residential Exchange Program settlement, and flat-to-declining firm power sales.

To maintain Power's competitiveness, BPA must aggressively manage its program costs; increase revenues through new markets for clean capacity and flexibility; manage operational, market and legal risks; and invest wisely in energy efficiency and the FCRPS to maximize the system's long-term economic and environmental value. In addition, because fish and wildlife costs make up a significant portion of power costs, this strategic goal includes taking a more disciplined approach to managing the total cost of our Fish and Wildlife Program. Modernizing the Columbia River Treaty is also an important element of BPA's strategy.

Through these actions, BPA will position itself to negotiate and offer new long-term wholesale power contracts in the 2020s. As we approach contract negotiations, we will work with our power customers to define the contracts BPA will offer for supplying power and services after Sept. 30, 2028, when current contracts expire.



Historical Priority Firm Power Rates FY 2010 – 2019

11 2010 - 2019



As wholesale market prices (blue) have trended downward, BPA's Priority Firm power rates (green) have trended upward. BPA's rates and wholesale market prices are not entirely comparable because there are attributes of our power products that are not fully reflected in market prices. But our public power customers have made it clear that BPA's pattern of rate increases since 2008 is unsustainable. They are also facing competitive pressures and are prepared to look for alternative suppliers when it comes time to renegotiate long-term power contracts in just a few years.





Objective 3a:

Increase power revenues through new market opportunities for clean capacity

BPA will seek to increase revenues from its secondary sales by pursuing new capacity market opportunities and using new and improved approaches for ancillary and control area service offerings. Taking a more systematic approach, BPA will also develop, package and sell a portfolio of products and services to take advantage of real-time, short-term, cyclical, long-term and emerging opportunities.

BPA's long-term objective is to resubscribe the federal system to its preference customers through new long-term contracts in 2028. However, BPA will also target potential sales of surplus or excess federal power to entities that seek low-carbon power or other FCRPS attributes (such as flexibility and responsiveness). These entities may include investor-owned utilities, high-tech facilities and qualified community choice aggregators. Targeting these sales will serve as a hedge against declining secondary revenues and create longer-term sales opportunities if we experience a reduction in the amount of power that preference customers buy from BPA after 2028.

Consistent with *Strategic Goal 2: Modernize assets and system operations*, BPA must modernize its underlying systems so that its marketing strategies can evolve and expand. Power Services will engage in cross-agency efforts to modernize its business processes, technologies and operating systems to realize the full value of its products and services.



7,500 7,000 6,500 5,500 2012 2013 2014 2015 2016 2017 2018* *FY2018 includes forecast loads.

BPA's Preference Customer and Direct-Service Industry Loads

BPA's preference customer and directservice industry loads have steadily declined
since 2014. BPA is now selling more
surplus power at wholesale prices that are
lower than its Priority Firm power rates.
This has reduced total revenues and put
continued upward pressure on power rates.
For example, preference customer load
loss from 2017 to 2018 reduced BPA's net
revenues by \$22.5 million, which equates to
about a 1 percent rate increase.







Objective 3b:

Address market and regulatory barriers to capturing the clean energy and capacity value of the Federal Columbia River Power System

The reliable, flexible and low-carbon Federal Columbia River Power System is the cornerstone of the region's clean energy economy. The region's existing hydropower resources can play an essential role in meeting greenhouse gas emission goals at the lowest total cost while maintaining reliability objectives. As the markets in the Western U.S. evolve, BPA and other Northwest hydro generators must be diligent to ensure fair and appropriate treatment of clean capacity resources in emerging state and federal regulations, policies and market designs.

BPA will continue to engage in ongoing state and federal regulatory processes and the development of new markets by informing policies, standards and practices to ensure fair treatment and valuation of FCRPS products and services. Our primary focus is on capturing the full value of our flexible, low-carbon and reliable generation portfolio in resource adequacy policies, emerging clean energy requirements and potential carbon reduction strategies.

BPA's engagement will continue to include close coordination and collaboration with customers, state and tribal governments, other regional resource owners and regional public interest organizations.



Objective 3c:

Prioritize fish and wildlife investments based on biological effectiveness and mitigation for FCRPS impacts; and manage fish and wildlife program costs at or below inflation, inclusive of new obligations and commitments

BPA partners with states, tribes, federal and local governments, the Northwest Power and Conservation Council, and others across four states in the Columbia River Basin to mitigate for the effects of constructing and operating the Federal Columbia River Power System.

Protecting, mitigating and enhancing the region's natural resources that were impacted by the development of the federal hydropower system is an important and intrinsically valuable goal in its own right. It is also legally required. BPA complies with a host of environmental laws, including the Northwest Power Act, Endangered Species Act, the National Environmental Policy Act and the Clean Water Act, while helping to fulfill the agency's tribal trust and treaty responsibilities. In response to recent decisions in the Federal District Court of Oregon, BPA and its partner agencies are in the process of preparing the Columbia River System Operations environmental review and working with our regional partners on the next stage of actions to mitigate the impacts of the federal power system on fish and wildlife. This includes consultations for new biological opinions under the Endangered Species Act.









Fish and wildlife costs account for a sizable portion, about 25 percent, of BPA's direct power costs; combined with the financial impacts of spill, these costs account for about one-third of BPA's power rates. BPA and its partners have made great strides in improving fish survival, fish abundance and providing habitat restoration, and have used BPA's funding to leverage additional resources from others. But going forward, we must continue to be deliberate about controlling Fish and Wildlife Program costs, consistent with sound business principles and in the context of BPA's competitive position, while assuring that fish and wildlife receives equitable treatment with the other purposes of the system, as required by the Northwest Power Act.

Like other programs throughout the agency, BPA intends to manage its fish and wildlife program costs (direct expense and capital costs) at or below the rate of inflation, inclusive of any new obligations that may emerge from litigation or subsequent commitments in current or future biological opinions. To make the most of available funds, investments in fish and wildlife protection, mitigation and enhancement will be prioritized based on biological and cost-effectiveness and their connection to mitigating for impacts of the FCRPS.

BPA will also continue to seek to attract additional regional fish and wildlife funding from governmental and nongovernmental organizations, especially in the vital area of habitat restoration. By nurturing important state and tribal relationships, BPA will work to align the region around a durable, long-term plan for protection, mitigation and enhancement of fish and wildlife.

BPA and its partners have made great strides in improving fish survival, fish abundance and providing habitat restoration, and have used BPA's funding to leverage additional resources from others.







Objective 3d:

Assure that energy efficiency and demand response investments are aligned with the long-term needs of BPA and its customers

The development and acquisition of energy efficiency savings is one of the most important achievements and legacies of BPA and its customers over the past 38 years. Through energy efficiency, BPA and its utility customers have extended the benefits of the FCRPS, avoiding the need to build other, more expensive and less environmentally friendly power resources. Going forward, BPA will increase its focus on targeted energy efficiency and demand response that deliver the most cost-effective solutions in support of BPA's integrated planning and evolving system needs, capabilities and constraints.

We will work collaboratively with the Northwest Power and Conservation Council, our customers and regional public interest organizations to ensure BPA meets its statutory obligations. However, our investments will be more closely guided by BPA's power and transmission system needs and the imperatives of competitiveness and long-term commercial performance.



Objective 3e:

Modernize the Columbia River Treaty

The Columbia River Treaty between the United States and Canada is hailed as a model of collaborative international water management. The Treaty, which went into effect in 1964, concerns the cooperative development of Columbia River Basin water resources. BPA, along with the U.S. Army Corps of Engineers, has been designated as the Treaty's "U.S. Entity" charged with implementing the Treaty.

The Treaty has brought significant flood control, power and other benefits to both countries. While it does not have a termination date, the year 2024 marks an important date for the Treaty: It marks the end of 60 years of prepaid flood control space from Canada and a shift to a different flood-risk management regime under the Treaty. This impending change also presents the opportunity for both countries to reconsider whether aspects of the Treaty's implementation can be modernized post-2024 so that it better reflects today's realities and continues to provide appropriate benefits to the region. BPA is particularly interested in making sure that the downstream benefits of the Treaty are shared equitably between the two countries.

As part of the U.S. Entity, BPA is working with the U.S. State Department to prepare for negotiations with Canada for a modernized framework for the Treaty post-2024. BPA is optimistic that a result can be achieved that will benefit BPA customers, support the development of more competitive BPA products and services post 2024, secure flood control protections and support our natural environment.







BPA has always played an important role in the region's economic growth, and I'm excited about the steps we're taking to carry on that tradition.

By making it easier for our customers to do business with us, removing barriers and aligning our processes with industry standards, we can enhance our positive impact on the Northwest's economy and way of life. ""



Rachel Dibble | Transmission Regulatory Policy Manager

Strategic Goal 4: Meet transmission customer needs efficiently and responsively

BPA energizes the region through an expansive network of high-voltage transmission lines, substations, telecommunications and related equipment. The federal transmission system, which accounts for three-quarters of the high-voltage transmission in the Pacific Northwest, delivers safe, low-cost, reliable power to the entire region, including rural and remote areas, and allows for the sale of surplus power throughout the West.





Today's market transformations are challenging utilities to plan and operate their systems in a more dynamic environment. For example, the rapid growth of variable energy resources and the Western Energy Imbalance Market are changing the flow of power across BPA's system. The advent of new large loads such as server farms is creating planning and service challenges that BPA has not previously seen.

BPA also faces capital and expense pressures as the system ages and becomes more constrained. The majority of our infrastructure is over 50 years old, which requires additional maintenance or replacement at a time when borrowing authority is constrained. As discussed in *Strategic Goal 1: Strengthen financial health*, debt service already makes up approximately 40 percent of the transmission rate. In addition, the cost of new transmission construction has increased considerably over the past few decades.

Given these cost pressures, coupled with the permitting complexities and local impacts of new construction, BPA has begun to develop a more flexible, scalable, economical and operationally efficient approach to meeting the needs of transmission customers. We committed to this approach in 2017 when we decided not to build the estimated \$1.2 billion I-5 Corridor Reinforcement Project in southwest Washington. Instead, BPA will favor alternatives to managing congestion on that part of the grid. While BPA and other transmission providers will not always be able to avoid building new transmission lines, non-wires solutions will play a more important role in meeting service requests in the years ahead.



In this dynamic industry environment, BPA's transmission customers must respond to a diverse array of market opportunities and disruptions, including new regulations, technologies and generation supply choices. Therefore, customers have asked for greater clarity on how to access additional transmission service, and BPA must be better able to anticipate and meet customer needs. BPA will meet its transmission customer needs more efficiently and responsively by standardizing and streamlining its products, services and processes. This requires a cultural shift, and our leadership team is fully committed to driving this change.

Objective 4a:

Address load service, congestion and new transmission service requests by using flexible, scalable, cost-effective and efficient solutions

BPA is adopting a more flexible, scalable, economical and operationally efficient approach to managing its transmission system. To ensure right-sized asset investments, BPA will increase its reliance on advanced technology, robust regional planning, industry standard commercial practices and coordinated system operations. BPA is committed to taking a forward-looking approach with its investment decisions and will first seek to use efficiencies and non-wires alternatives to relieve congestion or increase capacity on constrained transmission paths where new line construction is unfeasible or cost prohibitive.







Objective 4b:

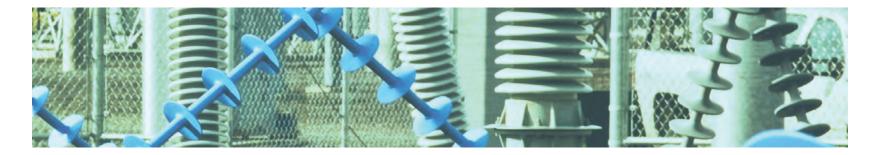
Develop and implement policies, pricing and procedures for regional planning that incentivize grid optimization and efficient regional resource development

BPA will strive to achieve greater alignment of generating resource and transmission planning cycles through proactive, collaborative, repeatable and documented processes. We will work with our regional partners to increase visibility of forecast loads, resources and customers' needs, and share planning and cost information to facilitate customer load and resource siting decisions. We will use coordinated planning and price differentiation to ensure the most effective expansion of the grid to meet demand growth, renewable portfolio standards and other public policy objectives. Accordingly, we will continue to work with our regional partners to pursue the formation of a single regional planning organization that would identify infrastructure benefits and inform investments and power procurement decisions.

Objective 4c:

Meet current and future needs of Network Integration Transmission Service customers through clear business practices and streamlined processes

Over the past several years, BPA's Network Integration Transmission Service (NT) customers have expressed a strong desire for greater clarity about how they will receive service for



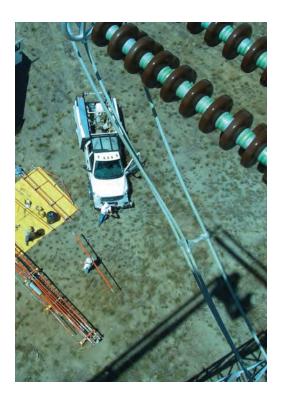
their loads in the future. Many preference customers and several investor-owned utilities take transmission service under BPA's NT product. BPA must ensure clear and transparent requirements and processes for transmission planning, federal and nonfederal power resource designation, queuing and network operating rules (such as redispatch of nonfederal resources) associated with NT service, BPA will partner with its NT customers to plan for load and resource forecasts and set clear expectations with respect to short and longterm transmission planning requirements to secure transmission capacity. While much of this work will continue under Objective 4d, it is important to maintain focus on proactive transmission planning to meet the federal and nonfederal resource and load growth needs of our NT customers.

Supporting economic development

To support the broader economic development goals of the region, BPA is seeking to better understand local economic development priorities and inform customer and stakeholder decisions by proactively providing information about BPA's local load-service capabilities. This level of engagement demands a higher level of stakeholder inclusion than current practice, and it is a starting point for better coordination.

The goal is mutual understanding — BPA needs to know what is being planned, and customers and stakeholders need to know if their plans will be accommodated or constrained by the capability of the transmission system. The method for engagement is joint customer and stakeholder meetings in specific regions of BPA's service territory. The information provided at these meetings is consistent with Transmission's NT customer focus group "Deep Dive" initiative and includes details about BPA's existing transmission capabilities. BPA asks stakeholders and customers to share their economic development plans so that BPA can better understand and address them in its transmission planning and infrastructure development processes.





Objective 4d:

Offer more standardized products and services by better aligning BPA's Open Access Transmission Tariff with pro forma and industry best practices

In the world of open access, nondiscriminatory transmission service, the fundamental underpinning of a transmission provider's business model is its tariff. When the Federal Energy Regulatory Commission created the proforma tariff in 1996, its purpose was to standardize the terms and conditions for transmission service while providing flexibilities to efficiently and economically plan and operate the transmission system.

As a federal power marketing administration, BPA is not subject to the same standards that apply to FERC-jurisdictional public utilities, but we believe there is value in adopting the pro forma tariff to the extent possible. By offering an open access transmission service product portfolio that is consistent with industry standards, we will leverage the flexibilities provided within the pro forma tariff to proactively plan for the operation, maintenance and expansion of the transmission system to optimize our transmission assets. BPA has developed a detailed work plan to update its tariff and associated practices and is actively engaged with customers in the rollout of the plan.

Measuring Success

The goals and objectives in this strategic plan are designed to strengthen BPA's ability to deliver on its public responsibilities through a commercially successful business. BPA will measure its success in executing on this strategic plan and meeting rate case commitments through a set of Key Performance Indicators (KPIs) that track safety, reliability and financial performance. Bonneville will periodically review and update these KPIs as needed.





Safety

Incident frequency rate: an industry standard metric that represents the number of injuries and illnesses per 200,000 hours worked.

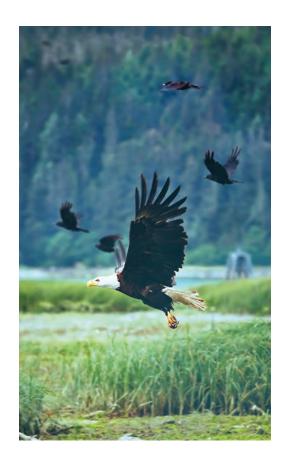
Power and transmission system reliability

- Transmission SAIDI/SAIFI: the frequency and duration of unplanned outages on our high- and low-voltage lines.
- Federal hydropower forced outage factor: the percentage of hours the federal system is not available to run due to unplanned events.
- Columbia Generating Station availability factor: the percentage of time Columbia is available to serve demand.



Financial performance

- **Total revenue:** the total of BPA's power and transmission revenues, compared to rate-case projections.
- **Total expense:** the total of BPA's power and transmission expenses, compared to rate-case projections.
- **Net revenue:** the total of BPA's power revenues less power expenses, and transmission revenues less transmission expenses, compared to rate-case projections.
- Capital expenditure: capital investment program expenditures for the year, compared to rate-case projections.
- Percent of capital work plan completed: the percentage of work completed against the percentage of budget spent.
- **Debt-to-asset ratio:** the proportion of BPA's revenue-generating assets that are financed through debt.
- **Days cash on hand:** the number of days BPA can continue to pay its operating expenses, given the amount of financial reserves available.
- Available U.S. Treasury borrowing authority: tracks BPA's \$7.7 billion borrowing authority cap, less the amount outstanding.





Strategy and Culture

This strategic plan represents transformational change on many fronts for BPA, from new approaches to cost management and comprehensive changes in system operations, to major improvements in the efficiency and responsiveness of our Transmission Services organization.

Delivering on our strategy will require the commitment of the entire BPA management team to provide a safe, positive and inclusive work environment where people are valued and enabled to deliver results.







We are also introducing a new mechanism to increase overall agency accountability for delivering results — a revamped Quarterly Business Review meeting that will be operated along the lines of an earnings call for an investor-owned utility. The BPA administrator and other senior executives will report out on the Key Performance Indicators referenced earlier to ensure we are delivering on the cost management and financial goals embedded in this plan and meeting our rate case commitments.

A culture rooted in safety

BPA's culture is guided by our core values of safety, trustworthy stewardship, collaborative relationships and operational excellence. The first of these values, safety, is our top priority. There is nothing more important than the safety of our people — at work and at home, 24 hours a day, seven days a week.

At the heart of a strong safety culture is a work environment where employees and contractors are equipped with the skills to identify hazards and are empowered to report them. When people feel safe at work and when leaders listen to and respond to safety concerns, workers begin to feel enabled to voice their opinions about other workplace issues. Employees and contractors who are engaged in safety are not only involved in fewer incidents, they are more productive and likely to identify other areas for process efficiency and cost savings, ultimately improving commercial performance.



Since BPA named safety its top core value in 2014, the agency has aligned around a common objective to ensure employees go home safely every night. Through front-line leadership training, an effective Safety Office, a highly motivated group of safety proctors, and the day-to-day dedication and leadership of personnel throughout the agency, we have made significant improvements to the safety of our workforce. But there is more work to do.

Bonneville has set a long-term goal of zero injuries in the workplace and intends to become one of the safest utilities in the United States. We will continue to work tirelessly to improve BPA's safety culture and safety performance and will closely monitor leading indicators, such as nearhit reports and safety concerns, as well as the industry standard measure, incident frequency rate.





As a former field employee, I've had an upfront view of the impact a healthy safety culture can have on a crew. A safe and valued team is stronger, more resilient, and at the end of the day, produces great results. We owe it to our peers to look out for each other, but it's also much bigger than that — we owe it to the Northwest citizens who depend on us 24/7 to deliver on BPA's mission.



Josh McEllrath | Director of Field Safety



Consider it done

Just as BPA has invested in safety, we are investing in other workforce needs that are essential for engagement, productivity, customer service and delivering results. This includes making sure performance expectations are clear and employees have the tools they need to meet their objectives.

Through an agency-level workforce strategy, BPA will ensure its workforce is the right size and composition with the right skills to accomplish the agency's goals. To ensure BPA is able to create effective teams and support workload, an operational excellence initiative in Human Capital Management is improving the efficiency of external hiring processes and internal moves.

We will also continue to advance our Diversity and Inclusion program and increase the demographic diversity of federal and contract personnel. Our goal is to encourage safe dialogue and foster a culture where people feel valued and accepted, and where diverse teams are created and supported. A more diverse workforce and a more inclusive culture improve employee engagement and business performance.

Bonneville seeks to continually strengthen leadership skills and practices. We have developed and put into practice a set of clearly defined leadership behaviors that set a common standard for management excellence at BPA. The goal is to bring out the







best in our managers and unleash the inherent strengths and capabilities of our workforce. The leadership behaviors are also essential to help improve strategic alignment, prioritization, communication and execution across the agency.

Finally, to help BPA achieve its strategic plan and fulfill its vision, the Business Transformation Office will work collaboratively with organizations across BPA to ensure cross-agency initiatives are prioritized and sequenced to maximize efficiencies and ensure effective execution. Strong leadership and effective change management are critical to the commercial success of an organization of BPA's size and scope that is also facing many challenges and opportunities in a rapidly changing electricity industry.



BPA developed these leadership behaviors with the goal of embedding and reinforcing these actions in our leadership culture and supporting strategic alignment, prioritization, communication and execution.



Conclusion

This strategic plan is centered on what BPA intends to do in the near term to deliver on our public responsibilities through a commercially successful business.

To meet the challenges and leverage the opportunities of a rapidly changing industry, BPA has developed this strategic plan with wide input from the region. BPA will: strengthen financial health by meeting objectives for cost management, liquidity, debt utilization, debt capacity and credit ratings; modernize assets and system operations to leverage and enable industry change; provide competitive power products and services; and meet transmission customer needs efficiently and responsively.

Meeting these strategic goals will require the commitment of the entire BPA management team to foster a safe, positive and inclusive work environment where people feel valued, accountable and enabled to deliver results. BPA is calling on the collective strengths of its entire workforce to implement this strategic plan.

We look forward to continued collaboration with our many partners throughout the region who share an interest in sustaining Bonneville's role as an engine of the Northwest's economic prosperity and environmental sustainability.







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