THE VALUE OF THE FEDERAL COLUMBIA RIVER POWER SYSTEM

MARCH 2018

Northwest **Power** and **Conservation** Council

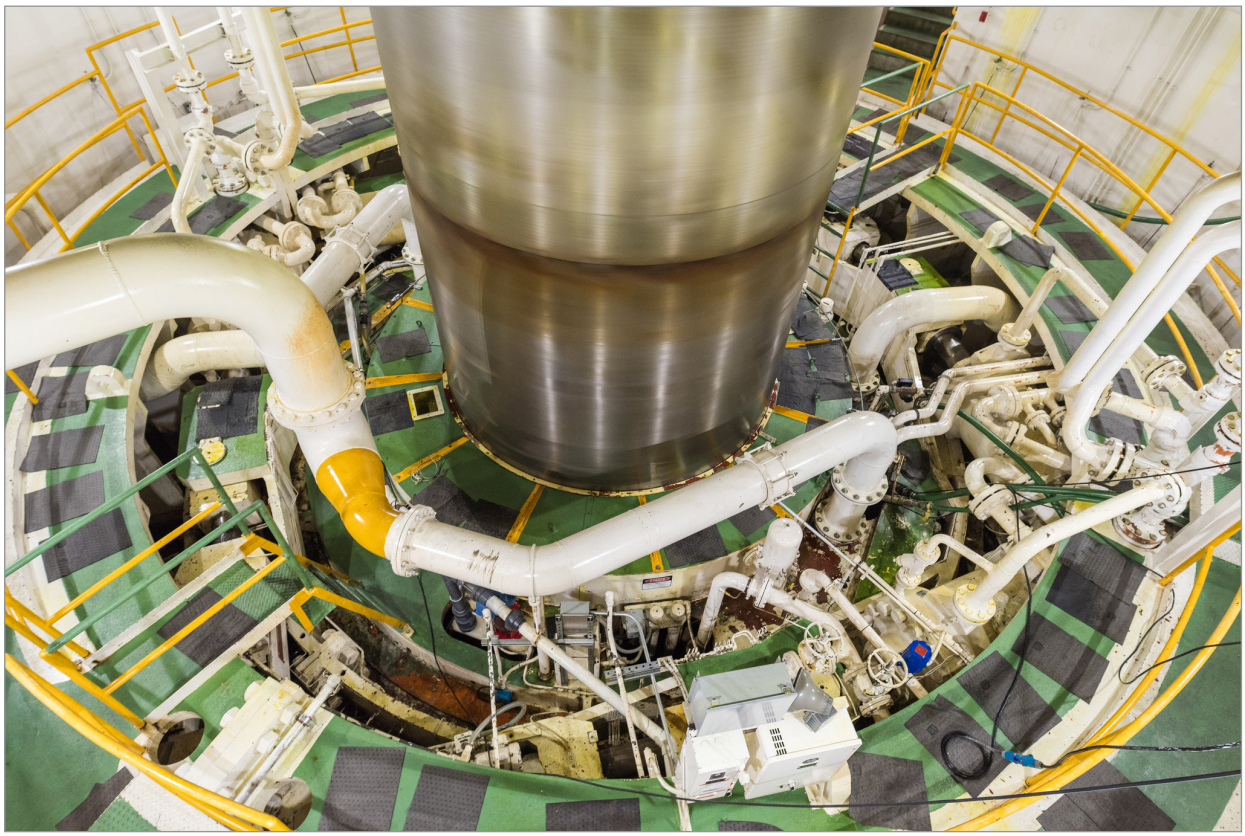
Contents

Introduction

The Federal Columbia River Power System is one of the largest multiple-use river systems in the world. The Bonneville Power Administration markets the electricity, and it owns and operates more than three-fourths of the high-voltage transmission grid in the Pacific Northwest.

The federal system has been, and continues to be, the foundation of the Northwest's economy, providing:

- Steady repayment of millions of dollars to the Treasury for construction of the dams and transmissions system, on time and at market-rate interest; the agency is fully self-funded
- Carbon and emission-free power of immense capability and flexibility; hydropower is the region's largest resource, providing nearly half its energy in a year with average rainfall
- Highly reliable and clean electricity generation that helps ensure the health, safety, and security of Northwest residents, as well as providing power for both modern and traditional industries vital to the nation, as a whole
- Investments in energy efficiency, the region's least-cost energy resource, which have contributed to the Northwest having some of the lowest electricity rates in the nation
- Help in integrating renewable resources in the region, further reducing our carbon footprint



Spinning turbine shaft, Grand Coulee Dam Powerhouse 3

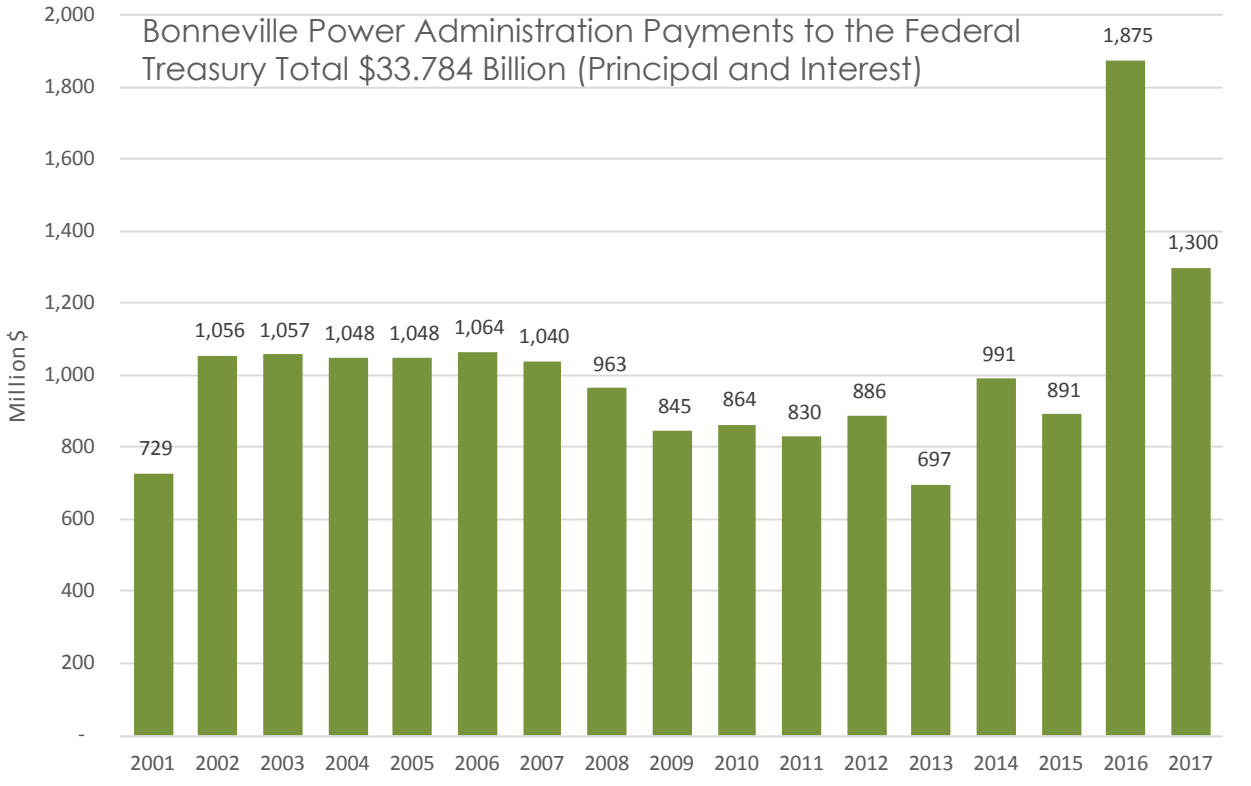
Is BPA Subsidized by U.S. Taxpayers?

Since the 1980s, various administrations have proposed either privatizing the agency, increasing revenues to the Federal Treasury by making BPA change the way it markets power, or by accelerating its federal debt repayments. The justification for these proposals always includes accusations that the regional power system was built by the U.S. taxpayers through low-interest loans (i.e., federal appropriations) that are, in effect, a federal subsidy giving the Northwest unfair economic advantage via low electricity rates.

These arguments always miss the fact that BPA is a self-financing agency that does not rely on annual congressional appropriations, and its annual debt repayments have provided the Treasury with an impressive stream of income (see graph below), while ensuring a measure of public accountability for the management of those assets.

After growing weary of the repeated attacks by various administrations and congressional delegations from other parts of the country, the Northwest congressional delegation decided it was time to halt the subsidization accusations permanently. In 1996, Congress passed legislation authorizing BPA to refinance its low-interest loans with the Federal Treasury at current market rates. In addition, BPA was required to pay the Treasury a refinancing fee of $100 million.

This massive refinancing permanently expunged the low interest loans from BPA's debt portfolio. Today, the loans in BPA's portfolio are at market interest rates or slightly higher.



Note: Prior to 2001 BPA paid $16.6 billion to the U.S. Treasury

Trump Administration's FY 2019 Budget Proposals

The Trump Administration's FY 2019 budget includes two proposals affecting BPA. The first would sell the agency's transmission assets to the private sector. This same proposal was included in the FY 2018 budget, but was rejected by Congress. The second proposal would require BPA to sell its power at market rates instead of at cost. Both proposals would result in higher electricity rates and significant increases in the cost of electricity.

> The proposals would mean the loss of regional control and value; the risk of increased costs to consumers; the potential for neglect of remote areas in the system, harming rural communities; and hurt reliability.
> — Public Power Council

The federal transmission system is often referred to as the crown jewel of Bonneville's assets. Consisting of more than 15,000 miles of lines, it is the region's largest, and BPA is the dominant transmission owner/operator. The system was built with loans from the U.S. Treasury, and BPA's electricity customers repay the loans with interest. Bonneville's 2017 Annual Report lists the depreciated value of the transmission system as $6.387 billion, which is higher than the $5.193 billion the Trump budget estimates would be earned in a sale.

The proposal to require Bonneville to sell power at market rates was first proposed in President George W. Bush's FY 2006 budget. Interestingly, that proposal, as well as the current Trump proposal, violates section 506 of the FY 1989 Energy and Water Development Act (P.L. 100-371), which prohibits the expenditure of federal funds by the Executive Branch for the purposes of conducting any studies relating or leading to the possibility of changing federal power marketing administration (PMA) electricity rates from cost-based to market-based. The provision was enacted in reaction to efforts by regions of the country not served by a PMA. President Bush's FY 2006 proposal was rejected by Congress.

Consistent with federal law, BPA's rates are set to fully recover the government's investment, with interest, and to provide the Northwest with a reliable source of power. Bonneville's current long-term power contracts expressly provide for rates based on the actual costs of the power. Accordingly, if this provision were enacted into law, it is unclear how or when it could be implemented. It would almost certainly result in near-term litigation.

As in past years, public power interests, energy advocates, a bipartisan majority of the Northwest congressional delegation, and others oppose both Trump proposals. If enacted, they would have the effect of transferring value from the citizens of the Northwest to the Federal Treasury. Assets that were constructed and maintained by Northwest consumers would be sold off to fund the federal government.

The Economic Impact of Privatizing BPA's Transmission System and Selling Power at Market Rates

The impact of the Trump proposals is significant and comparable to the rate increases from the 2000-2001 energy crisis. Between 1999 and 2002 retail rates in the region increased 36 percent. Because of that crisis, the region's economy lost about $10 billion in 2000 and 2001. The increase in rates reduced demand equivalent to 2 million homes—30 percent of residential demand for electricity.

Electricity-intensive industries such as aluminum smelting and wood products manufacturing either closed business for good or lost significant market share in the national and international markets as their cost of production increased. Over 77,000 jobs were lost between 2000 and 2003 and the unemployment rate rose from 5 percent to over 7 percent.

Besides causing a direct and detrimental impact on power rates, the privatization of the BPA transmission system would leave the region vulnerable to market manipulation by creating artificial transmission restraints. During the 2000-2001 energy crisis, Enron Corporation did just that to boost its profits, which led to market price instability that contributed to the significant loss of one of our key national industries, aluminum production. Having a federal agency in charge of this critical regional asset ensures a more stable transmission system in the region and throughout the entire West.

Effect on Electricity Costs and Rates

As in the 2000-2001 energy crisis, the Trump proposals to privatize federal assets and to increase the price of electricity would hurt public power customers the most.

Even if prevailing market rates were lower than BPA's power rates, the Trump proposals would require BPA customers to pay additional costs for transmission, distribution, and other ancillary components that are currently covered in the existing BPA rates. We project that the net effect would increase electricity rates in the range of 20 to 40 percent.

A typical residential customer of public power currently pays about $94 per month for their electricity. The rate increase under the Trump proposals could increase the average customer's monthly bill by 15 percent to 30 percent. Customers in rural areas, where home heating is typically from electricity, could see an even larger increase in their bills. Rural customers of public utilities have some of the lowest income levels in the region and this rate increase would disproportionally affect them, potentially resulting in up to a 3 percent reduction in their disposable income.

Including impacts on commercial and industrial customers, average regional rates could increase by 15 percent with medium market prices and by 40 percent with high market prices.

(See Appendix for an explanation of the method used to calculate future electricity rates.)

Long-term Financial Impact

Uncertainty about future electricity prices would discourage industries from coming to the region. A prime example of this are data centers sited here because of our abundant, affordable, clean power. Just as the energy crisis contributed to the demise of the aluminum industry, this proposal could lead to large industrial customers moving out of the region. Reduced loads and price volatility would reduce the financial strength of Bonneville, hindering its ability to cover its costs.

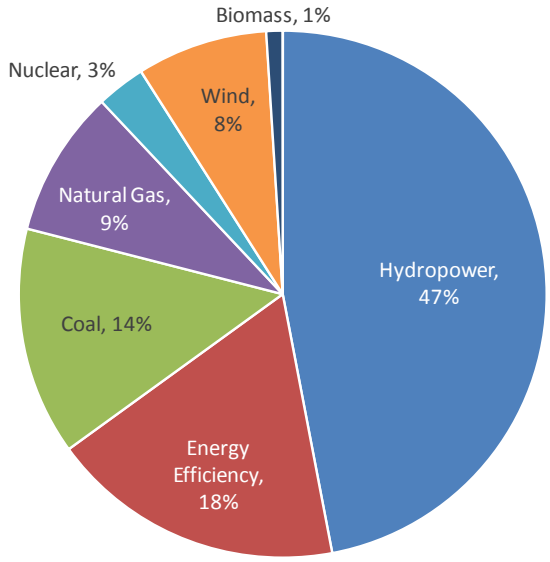
Low-cost, Clean Power

The power generated by the Federal Columbia River Power System is a carbon-free resource of immense capability and flexibility. Hydropower is the region's largest resource, providing nearly half of the energy produced in the region in an average rain year.

It has made it possible for the Northwest to enjoy some of the lowest electricity rates in the United States. For the past five years, when compared to other regions, we have had the lowest industrial and residential rates, and the second lowest commercial rates.

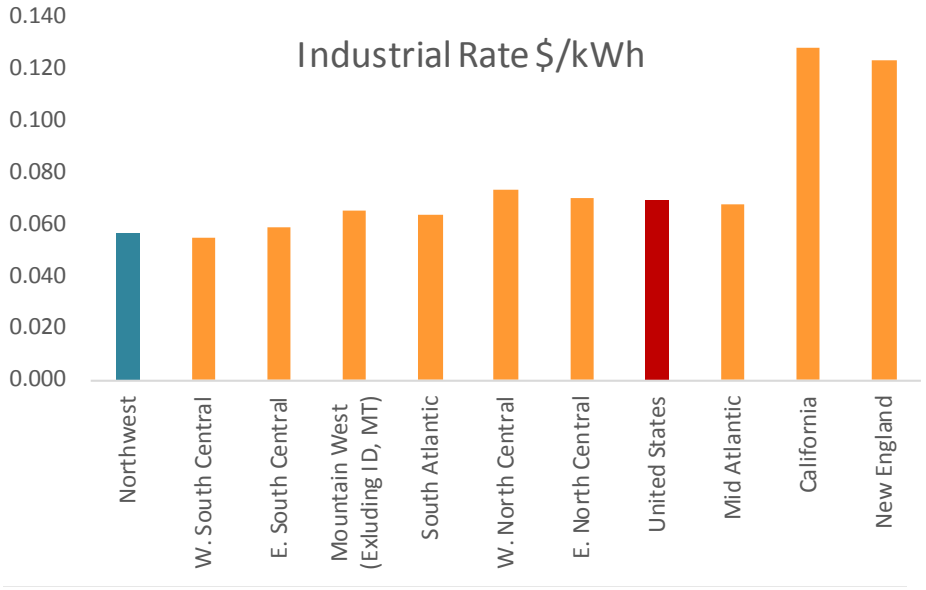
Hydropower, because it can be dialed up or down to help balance the system (flexibility), has been instrumental in helping to integrate renewable resources in the region, further reducing our carbon footprint. In 2016, wind power accounted for 8.4 percent of our generation, while hydro was 47.1 percent. The region is producing over 20 times more energy from wind than 10 years ago.

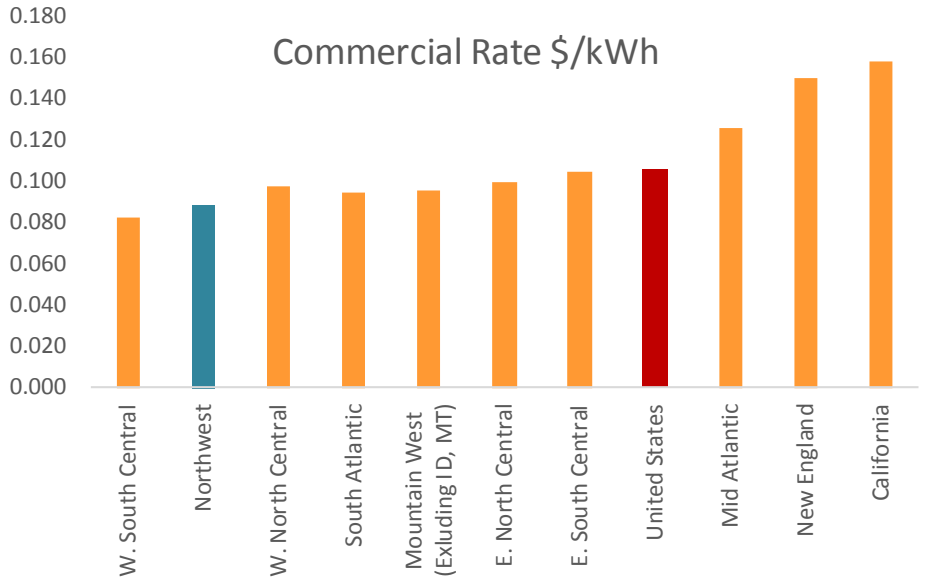
If the output of the hydropower system were reduced as a result of the decommissioning of any federal dams or other measures, the system's ability to integrate

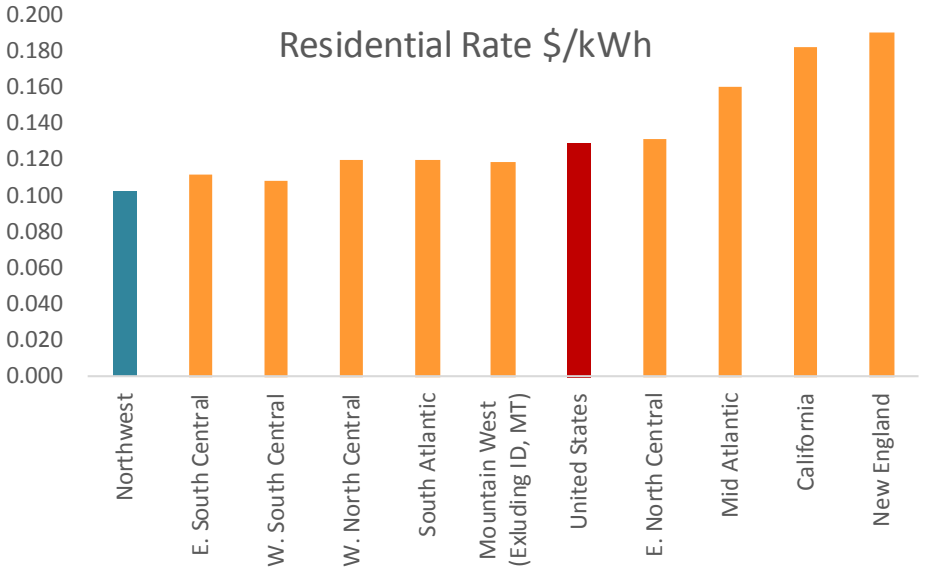


renewable resources would be affected and the ability to import or export power would be diminished.

Bonneville is able to offer integration services to developers as well, helping to spur additional growth in the private sector.


Industrial Rate $/kWh
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
Northwest
W. South Central
E. South Central
Mountain West (Exluding ID, MT)
South Atlantic
W. North Central
E. North Central
United States
Mid Atlantic
California
New England


Commercial Rate $/kWh
0.180
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
W. South Central
Northwest
W. North Central
South Atlantic
Mountain West (Exluding ID, MT)
E. North Central
E. South Central
United States
Mid Atlantic
New England
California


Residential Rate $/kWh
0.200
0.180
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
Northwest
E. South Central
W. South Central
W. North Central
South Atlantic
Mountain West (Exluding ID, MT)
United States
E. North Central
Mid Atlantic
California
New England

Energy Efficiency in the Northwest: Our Second Largest Resource

Since 1978, the Northwest has been a leader in achieving energy efficiency. Over time, this has saved consumers billions of dollars, created thousands of jobs, and helped meet the region's growing demand for electricity.

The region has saved more than 6,300 average megawatts—enough to power five cities the size of Seattle. In 2016, energy efficiency saved consumers $5 billion in lower electricity bills, nearly 50 percent from the residential sector. It has lowered the region's carbon emissions by 23 million tons annually, and it has enabled the Northwest to produce more with less energy compared to the national average.

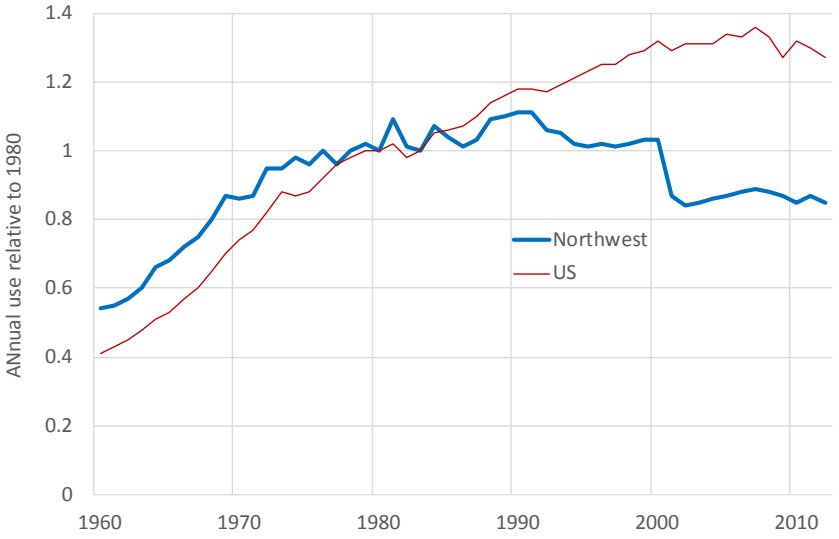
> Without Bonneville's stable funding for energy efficiency, the region's power system costs, and consumers' electricity bills, would be substantially higher.

Bonneville plays a key role in this success. The agency provides a steady, long-term financial commitment to programs implemented by its customer utilities, guiding investments and conducting research and evaluation on technologies that would otherwise be cost-prohibitive for an individual utility to do on its own. Through Bonneville, over 100 small, publicly owned utilities are able to offer energy efficiency opportunities to their customers, resulting in greater regional savings, making it possible for more Northwest residents to share in its low-cost power.

Energy efficiency is the least expensive means to meeting growing energy demand because it is the strategic approach to assuring our power supply. It offers the greatest benefits to the power system with the least long-term risk. It reduces the region's exposure to a number of risks—overbuilding the power system; fluctuating fossil fuel costs; carbon emissions; and expensive investments to expand the transmission grid.

Without Bonneville's stable funding for energy efficiency, the region's power system costs, and consumers' electricity bills, would be substantially higher.

Northwest Produces More with Less Energy

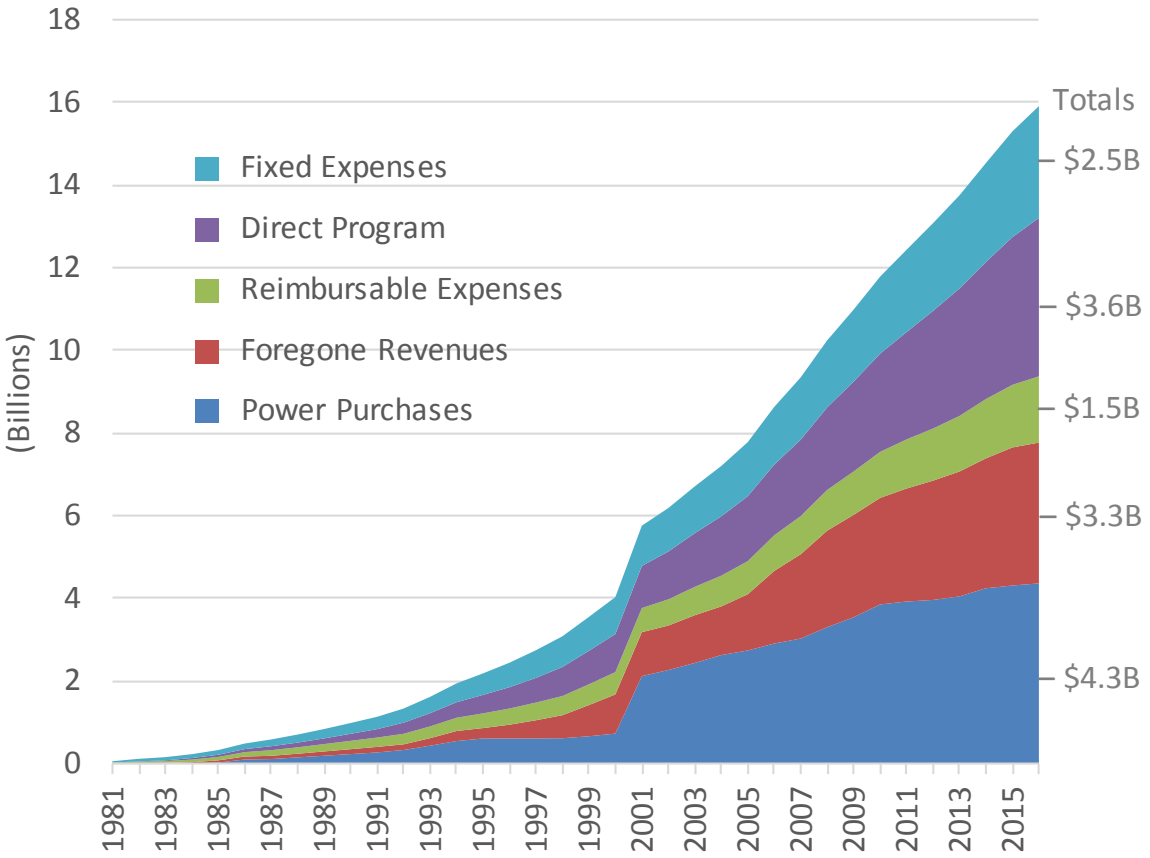


Fish and Wildlife Mitigation

Hydroelectric dams in the Columbia River Basin support the region's economic prosperity, but they also have substantial adverse effects on anadromous and resident fish and wildlife in the basin.

The *Northwest Power Act of 1980* authorized mitigation at the dams and away from the dams. For at least the last decade, habitat-related projects represented 26-40 percent of total program costs, which were $274 million in Fiscal Year 2016 ($258 million in direct expenditures with the addition of $16 million in obligations to capital projects). In all, the program comprises 363 projects at more than 15,000 work sites.

BPA Cumulative Fish and Wildlife Costs by Major Spending Area, 1981-2016



Developing the FCRPS: Historical Highlights

The development of the Federal Columbia River Power System began in the 1930s under a program of regional cooperation to expand rural electrification, increase power production, provide jobs during the Great Depression and, over time, achieve other river-related purposes, including land reclamation, flood control, irrigation, navigation, and recreation.

From the beginning, the federal government played a major role in the development of one of the largest multiple-use river systems in the world. The U.S. Army Corps of Engineers and the Bureau of Reclamation built 31 hydropower dams in the Pacific Northwest, 29 of them on the Columbia River and its tributaries.

Investor-owned and publicly owned utilities also built a major system of dams and generating facilities, beginning in the late 1800s.

Congress directed the Bonneville Power Administration, in the Bonneville Project Act of 1937, to build and operate transmission lines to deliver the power from dams, and to market electricity from federal generating projects on the river at rates set only high enough to repay the federal investment over a reasonable period of time.

The federal marketing program (Bonneville is one of four power marketing administrations) was a way to use excess power from water projects to repay their investment and supply low-cost power to rural areas that were not profitable for private utilities to serve.

Today, in addition to the 31 dams operated by the Corps and Bureau, the FCRPS also includes one non-federal nuclear power plant, the Columbia Generating Station, operated by Energy Northwest.

The push to privatize the very agency that has played such a pivotal role in developing the region would essentially undo that historical legacy. It would weaken the Northwest's ability to weather economic downturns and increase the cost of electricity for rural communities.

The Northwest and Southwest Interties

In the 1960s, Congress authorized construction of three major power lines linking Columbia River hydropower dams with power markets in California and the rest of the Pacific Southwest. The interties enable the region to sell surplus hydropower from the Columbia to the Southwest and purchase power from California during shortages and periods of heavy use here.

In the first instance, sales of surplus Northwest hydropower to California have saved some 200 million barrels of oil. In the second case, California utilities sold power to Pacific Northwest utilities in the drought years of 1973, 1977, 1979, 1992, 1993, 1994, and 2001.

Federal Columbia River Transmission System Act

Congress approved the Federal Columbia River Transmission System Act in 1974 to enable Bonneville's long-range planning and construction of its transmission system, which had been hampered by year-to-year financing through congressional appropriations. The Act gave Bonneville the authority to use its revenue from power sales to operate and maintain the transmission system, including line construction. It also provided authority for Bonneville to sell revenue bonds to the U.S. Treasury to assist in the expansion of the transmission system. Today, Bonneville's transmission system consists of more than 15,000 miles of high voltage transmission lines and towers, the largest system in the Northwest.

This self-financing and revenue bond authority, which freed Bonneville from the vagaries of the annual congressional appropriations process, gave Bonneville exceptional flexibility in both daily operations and financing its long-term capital building program. It is a level of flexibility and autonomy enjoyed by few other federal agencies.

Public Power Preference

The Bonneville Project Act of 1937 directed Bonneville to give the region's cooperatives and publicly owned utilities highest priority for the available federal power. They consequently came to be called "preference customers."

Construction of the Northwest/Southwest interties, though, raised concerns among Bonneville customers that public utilities in California could gain preferential access to the region's federal hydropower generation. In 1964, Congress authorized the Pacific Northwest Consumer Power Preference Act, which directed that only surplus energy from the Columbia River system could be sold outside the Northwest. Firm power from the system was reserved for the Northwest, except under conditions specified in the Act. Bonneville must offer any surplus power to utilities in the Northwest before selling it to California. Sales to California can be called back if the power is needed in the Northwest. Sales of firm energy can be recalled with 60 days' notice; sales of peaking capacity can be recalled in five years.

Until the 1970s, the legal preference of public customers was unchallenged, largely because there had been enough electricity for everyone. But growing electricity demand in the region had reached the point where

First Powerhouse, Bonneville Dam

the federal power system was unable to serve the preference customers' needs and also provide firm power to investor-owned utilities. In 1973, when Bonneville's firm-power contracts with investor-owned utilities expired, Bonneville could not offer new ones if preference customers were to continue to have first call on federal resources. So the firm power contracts with the investor-owned utilities were not renewed.

Bonneville continues to sell some peaking power to investor-owned utilities—power the utilities need during periods of heavy use in the winter. Bonneville also sells power to investor-owned utilities and utilities outside the region when surplus electricity is available. Revenue from surplus sales help to keep rates low for preference customers.

Looming Power Shortages, Rate Disparities, and Salmon

By the 1970s it was clear that the power produced by the federal hydrosystem could no longer keep up with the growing electricity demands of the region. In addition, there was growing enmity within the region about rate disparity, and concern about the impact of the system on fish and wildlife populations, especially salmon and steelhead.

With utilities and Bonneville warning of future power shortages, investor-owned utilities relying on their own hydro and thermal power resources to meet customers' demand, and federal hydropower prices remaining much lower than the cost of new thermal generation, a divisive struggle developed for access to the limited federal hydropower.

Investor-owned utilities served 60 percent of residential and small-farm customers in the region. These customers were paying, on average, twice as much for electricity as customers of publicly owned utilities receiving wholesale power from Bonneville. The City of Portland sued Bonneville, claiming a right to a share of the federal resources for its residents. The Oregon Legislature passed a law authorizing formation of a statewide public utility—the Domestic and Rural Power Authority—to seek service as a preference customer from Bonneville so that all residential customers of private utilities could receive the rate benefits of federal resources. Elected officials of other states talked of forming their own statewide public utilities. Congress enacted the Northwest Power Act in 1980 in part to address the issue of access to Bonneville's power.

Power Planning Failure Leads to Economic Meltdown

While Bonneville had the authority to market the power produced at the federally owned Corps and Bureau dams, it did not have the legal authority to build new generating resources or purchase electricity on the open market. This situation led the region's investor-owned and publicly owned utilities to begin construction of thermal generating plants, especially coal and nuclear plants. At the same time, energy planners determined that improving the efficiency of electricity use cost a lot less than building new power plants.

But it was too late to reverse the ill-fated decision to build five nuclear power plants in the state of Washington, three of them backed financially by Bonneville. This later turned out to be one of the biggest financial debacles in American history when the anticipated demand for power failed to materialize and cost overruns inflated the price of the plants under construction by double-digit amounts. Bonneville's support for three of the plants centered on a complicated financing scheme called "net billing," which the Internal Revenue Service eventually disallowed. Of the three plants backed by Bonneville, only one was completed—the plant known today as the Columbia Generating Station.

Growing Concern for Fish and Wildlife

Inexpensive hydropower from the federal dams, which had helped fuel our regional prosperity, had also extracted a heavy price from fish and wildlife in the

Columbia River Basin. Just a century earlier, millions of salmon and steelhead returned to the Columbia each year. But by the late 1970s, annual returns had dwindled to about 2.5 million fish, and most of those returned to hatcheries. Native Americans, environmental groups, and other advocates for fish and wildlife considered filing petitions to protect dwindling fish populations under the Endangered Species Act.

These and other pressures on the region's power supply, which once seemed inexhaustible, caused Northwest residents to question the institutions governing the development, sale, and distribution of generating resources. Should new preference agencies be formed to replace private companies in given areas? How would the needs of new preference customers be met? Should private utilities undertake new generating projects in a hostile atmosphere of rapidly rising rates and the threatened shift to public power? How would large industrial customers in the region be served? Who ultimately would be responsible for planning and acquiring new resources to avoid impending electricity shortages? How would our region protect the fish and wildlife that had been damaged over the years by the construction and operation of hydropower dams?

The Northwest Power Act of 1980

After four years of deliberation, Congress determined a policy approach that would protect the preference status of publicly owned utilities, and at the same time provide the benefits of federal hydropower to residential and small farm customers of private utilities. Energy efficiency would be the cornerstone to extending the hydropower resource.

In addition, by authorizing the formation of the Council and requiring it to develop a fish and wildlife program to mitigate the impacts of the hydrosystem on fish and wildlife, Congress gave fish and wildlife equal status to power production.

The Act directs Bonneville to continue its traditional role of transmitting and marketing power, and to carry out additional responsibilities. Under the Act, Bonneville must acquire all necessary energy resources to serve public utilities that choose to apply to Bonneville for wholesale power supplies. The Act contains checks and balances to ensure that all customers of Bonneville are treated equitably.

Bonneville remains accountable for its actions to meet the needs of Northwest residents and industry. But by authorizing the creation of the Northwest Power and Conservation Council to develop a regional power plan and fish and wildlife program, Congress provided a transparent decision-making process that emphasizes state and local oversight of resource development, power planning, and fish and wildlife mitigation and recovery.

Since the Council was authorized in 1980, its members and staff have produced seven Northwest power plans and 18 fish and wildlife program amendments that anticipate the region's power needs and implement measures to mitigate fish and wildlife losses associated with the hydropower system.

A Short History of Budget and Legislative Proposals Affecting BPA and the other Power Marketing Administrations

1986

The 1984 Grace Commission Report recommended selling the PMAs to help ease the federal deficit, and President Reagan actively pursued that goal. Reagan's OMB director, David Stockman, proposed that BPA be placed on a fixed debt repayment schedule to accelerate its payments to the Treasury. Senator Dan Evans (D-WA) argued that it was a misguided effort to wring as much money as possible out of the Northwest ratepayers. He also argued that any increase in money flowing to the Treasury would be offset by the loss of tax revenue from a damaged Northwest economy. As a result, Stockman's proposal was not enacted.

The Reagan Administration's FY 1987 budget proposed selling the PMAs. But Congress enacted a provision in the Urgent Supplemental Appropriations Act of 1986 (P.L. 99-349) authored by Senator Hatfield (R-OR) that prohibits the executive branch from "soliciting proposals, preparing or reviewing studies or drafting proposals designed to transfer out of Federal ownership, management or control in whole or in part the facilities and function of the Federal power marketing administrations and TVA, until such activities have been specifically authorized and in accordance with terms and conditions established by an Act of Congress hereafter enacted."

1988

The FY 1989 Energy and Water Development Appropriations Act (P.L. 100-371), included section 506 which prohibited the expenditure of federal funds for the purposes of conducting any studies relating or leading to the possibility of changing Federal power marketing administration electricity rates from cost-based to market-based. Although the provision was written as permanent law, it was repeated several times in subsequent Energy and Water Appropriations Acts. The provision was enacted in reaction to efforts by regions of the country not served by a power marketing administration (the Northeast and Midwest regions, in particular).

1995

President Clinton's FY 1996 budget proposed selling all the PMAs except BPA. Vice President Al Gore's 1993 National Performance Review recommended the sale of the Alaska Power Administration, and "increased revenues from hydroelectric power operations." Congress did agree to sell Alaska, but efforts to sell SEPA, SWPA, and WAPA failed. During the Senate debate over the sale of Alaska, Senator Daschle offered an amendment making it clear that its sale was a special case and had no relevance with respect to authorizing the sale of the other PMAs. The Administration sent legislative language to Congress to authorize the sale of the four PMAs, and bills were introduced in the House (H.R. 310 and H.R. 1801) to sell all the PMAs. Neither bill passed.

1996

During his last year in the Senate, Senator Hatfield introduced legislation to refinance BPA's federal Treasury debt. The underlying purpose of the proposal was to eliminate the perception that BPA was subsidized by U.S. Taxpayers. The legislation, which was passed as part of the Omnibus Consolidated Rescissions and Appropriations Act of 1996 (P.L. 104-134) called for refinancing BPA's appropriated debt at current market interest rates. BPA also paid the Treasury a $100 million fee to handle the refinancing. BPA refinanced its old debt at 1997 market rates averaging 7.3 percent and any new debt is issued at prevailing market rates.

2005

The Bush Administration's FY 2006 budget made two proposals affecting BPA: 1) require BPA to sell electricity at market rates, and 2) require BPA to count any new private, third party debt under its federal Treasury borrowing cap. The Council analyzed each proposal and prepared papers for the Northwest congressional delegation.

With regard to the market rates analysis, the Council determined that electricity rates would have increased by 39 percent for customers of publicly owned utilities and 13 percent for IOU customers. In total, the proposal would have resulted in an increase in BPA revenues of $1.4 billion. Fortunately, the proposal was not enacted.

The proposal to place BPA's third party debt under its federal Treasury borrowing cap was very curious. It appears that its purpose was to require BPA to increase its electricity rates in order to raise revenues in an amount sufficient to accelerate its Treasury debt repayment. At that time, BPA's borrowing cap was $4.45 billion, and it was carrying $2.9 billion of Treasury debt, leaving only $1.55 billion remaining under the cap. Had the proposal been enacted, it would have seriously hampered BPA's capital investment needs which were focused primarily in improvements and upgrades to hydroelectric and transmission systems.

2006

The Bush Administration's FY 2007 budget included two provisions affecting BPA: 1) requiring a portion of secondary sales revenue to be applied to debt reduction, and 2) repeating the previous year's proposal of requiring third-party debt to be counted under its federal Treasury borrowing cap.

The proposal to use BPA's secondary revenues for accelerated debt reduction would apply in years where

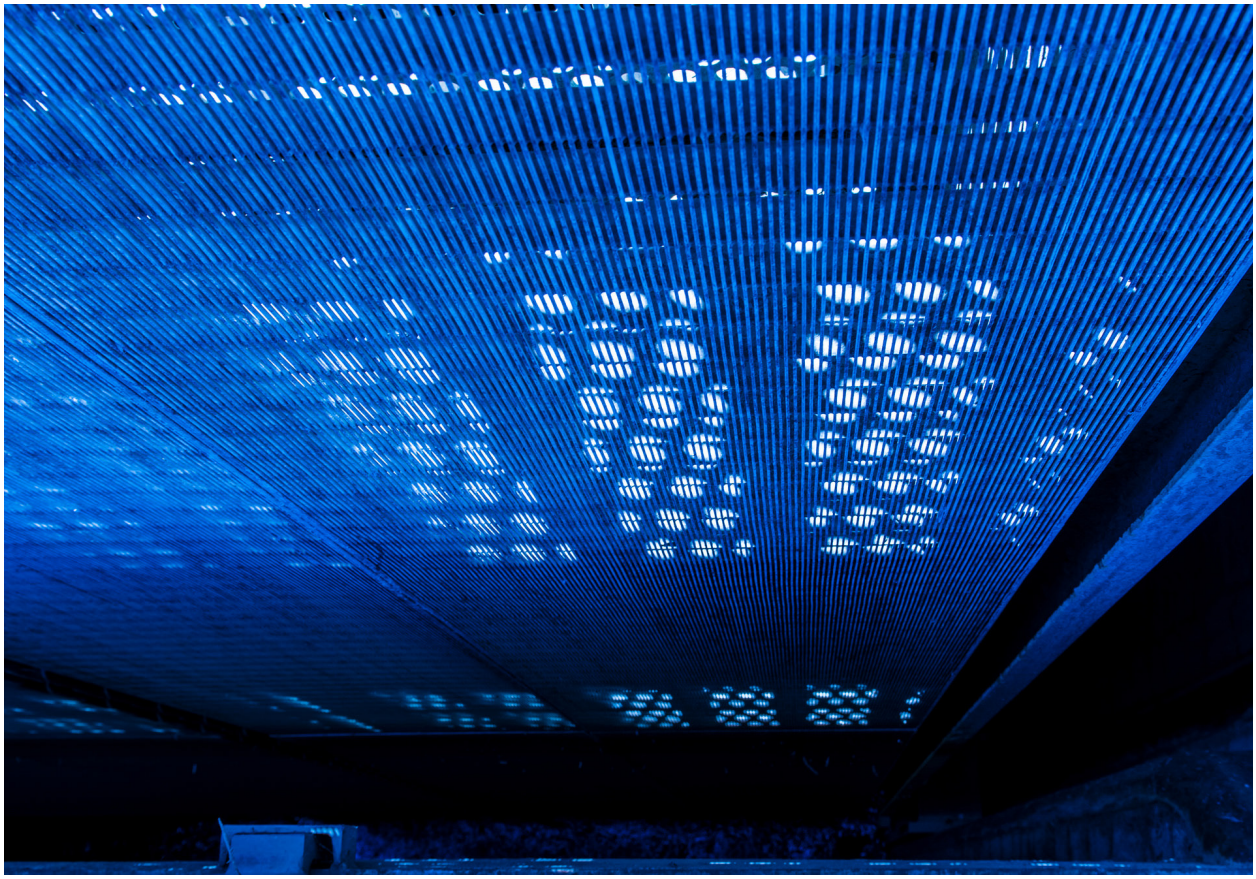
secondary revenues exceed $500 million. In effect, all secondary revenues beyond $500 million would be swept into the federal Treasury in the form of advance amortization payments on BPA's bonded federal debt. The Council's analysis of the proposal for the period FY 2007-09 indicated that the proposal would result in a $145 million average increase in the annual cost of power, which would translate into a rate increase of 6.6 percent (about $2.18 increase in the monthly bill of a public utility customer).

The Council also stated that the two proposals, taken together, appeared to be inconsistent with one another. On the one hand, the secondary revenue proposal would have the effect of lowering BPA's total amount of federal debt. On the other hand, placing third party debt under the borrowing cap could restrict BPA's access to raise money for its capital program.

Neither proposal was approved by Congress.

2017

The Trump Administration's FY 2018 budget proposed to sell BPA's transmission system. The proposal met bipartisan resistance from 21 Republican and Democratic senators who sent a letter to the Department of Energy noting that it would raise rates and impair grid reliability, and the Senate report to the FY 2018 Energy and Water Development Appropriations Bill included a provision rejecting the proposal. The Council estimated that if enacted, the proposal would increase electricity rates in the Northwest by 20 to 40 percent.



Fish screen at McNary Dam, photo by Tony Grover

Appendix

Calculating the Electricity Rate Impacts of the Trump FY 2019 Budget Proposals

The following illustrates how we calculated the increase in BPA's electricity rates resulting from the Trump Administration's FY 2019 budget proposals using, as an example, only the residential segment of one type of utility. However, the methods described that apply to this segment can be expanded to all public utilities and all the segments they serve.

In 2015, the Energy Information Agency (EIA) of the Department of Energy reported rural electric cooperative sales as 4,296,808 megawatt hours, which resulted in about $395,578,000 in revenues. Thus the revenue collected per megawatt hour was $395,578,000/4,296,808 = $92.06 per megawatt hour. There were 307,812 customers served by rural cooperatives in 2015. Thus the average annual bill was $395,578,000/307,812 = $1285 per year or $107 per month.

Part of that revenue stream would cover the wholesale cost of energy purchased on the spot market, which does not include transmission, distribution, and other shaping costs that are included in BPA's Priority Firm Tier 1 rate. Looking at data from the various market products traded at the mid-Columbia trading hub (Mid-C), we projected that the price would have been around $24 per megawatt hour. So for rural electric cooperatives, we assumed the rest of the revenue collected would have been allocated for the costs associated with transmission, distribution, ancillary services, etc. That is, $92.06 - $24 = $68.06 per megawatt hour for the cost of the services other than the marginal cost of electricity, and which are the local charges that would be collected from ratepayers buying power from a utility other than Bonneville.

Year	Low Mid-C	Medium Mid-C	High Mid-C
2015	$ 24	$ 24	$ 24
2016	$ 29	$ 26	$ 20
2017	$ 31	$ 28	$ 21
2018	$ 36	$ 30	$ 20
2019	$ 40	$ 32	$ 20
2020	$ 43	$ 35	$ 20
2021	$ 45	$ 36	$ 21
2022	$ 48	$ 37	$ 23
2023	$ 52	$ 39	$ 22
2024	$ 55	$ 40	$ 22
2025	$ 58	$ 42	$ 23
2026	$ 62	$ 44	$ 24
2027	$ 64	$ 46	$ 25
2028	$ 67	$ 48	$ 26
2029	$ 71	$ 50	$ 28
2030	$ 76	$ 52	$ 29

Bonneville's Priority Firm Tier 1 rate when we did the calculation was $33.75 per megawatt hour. This price incorporates more than just energy costs; it also includes transmission and ancillary services. The following table contains Bonneville's projections for future Priority Firm Tier 1 costs.

Year	PF Tier 1	Year	PF Tier 1
2016	$ 33.75	2024	$ 40.03
2017	$ 33.75	2025	$ 40.03
2018	$ 35.22	2026	$ 41.96
2019	$ 35.22	2027	$ 41.96
2020	$ 37.80	2028	$ 41.96
2021	$ 37.80	2029	$ 43.48
2022	$ 38.73	2030	$ 43.48
2023	$ 38.73		

To estimate the local charges collected when buying power from Bonneville, we subtract the PF Tier 1 rate. That is, the local charges are $92.06-$33.75=$58.31 per MWh in 2015. To project these local expenses forward in time we use a 1.7% long-term inflation rate and add this to the forecast for Mid-C prices and the projected Bonneville Tier 1 rate.

By 2030, an additional $91 million must be collected in revenue to cover buying power at market-based rates under the medium market price forecast. That would be an additional $297 a year per person or an additional $25 per month or around a 23% increase in the residential bills of customers of rural electric cooperatives.

	Medium Mid-C Forecast	Local Charges without BPA	Sales (MWh)	Market-Based Revenue Requirement	BPA Tier 1 Forecast	Local Charges w\ BPA	BPA Revenue
2015	$24	$68	4,296,808	$393,863,826	$34	$58	$393,863,826
2016	$26	$69	4,275,739	$408,516,065	$34	$59	$397,383,162
2017	$28	$70	4,254,774	$421,801,554	$34	$60	$400,977,901
2018	$30	$72	4,233,912	$435,445,185	$35	$61	$410,873,100
2019	$32	$73	4,213,152	$449,290,172	$35	$62	$414,591,766
2020	$35	$74	4,192,494	$463,456,196	$38	$63	$429,206,300
2021	$36	$75	4,171,937	$473,537,797	$38	$64	$433,031,662
2022	$37	$77	4,151,481	$483,851,345	$39	$65	$440,799,953
2023	$39	$78	4,131,126	$494,350,478	$39	$66	$444,771,797
2024	$40	$79	4,110,870	$504,992,352	$40	$67	$454,172,562
2025	$42	$81	4,090,713	$517,589,546	$40	$69	$458,289,139
2026	$44	$82	4,070,655	$530,578,579	$42	$70	$470,349,735
2027	$46	$83	4,050,696	$543,833,363	$42	$71	$474,604,504
2028	$48	$85	4,030,834	$557,360,248	$42	$72	$478,949,947
2029	$50	$86	4,011,070	$571,241,665	$43	$73	$489,484,343
2030	$52	$88	3,991,403	$585,426,899	$43	$75	$493,985,622

Northwest **Power** and
Conservation Council

851 S.W. SIXTH AVENUE, SUITE 1100 | PORTLAND, OREGON 97204-1348
WWW.NWCOUNCIL.ORG | 503-222-5161 | 800-452-5161
STEVE CROW, EXECUTIVE DIRECTOR

COVER IMAGE: ICE HARBOR DAM, COURTESY U.S. ARMY
CORPS OF ENGINEERS WALLA WALLA DISTRICT

OTHER IMAGES COURTESY OF TONY GROVER AND WIKIPEDIA

MARCH 2018 | DOCUMENT 2018-2