The Bonneville Power Administration 2018:
Threatened, Endangered, or on the Brink of Extinction?

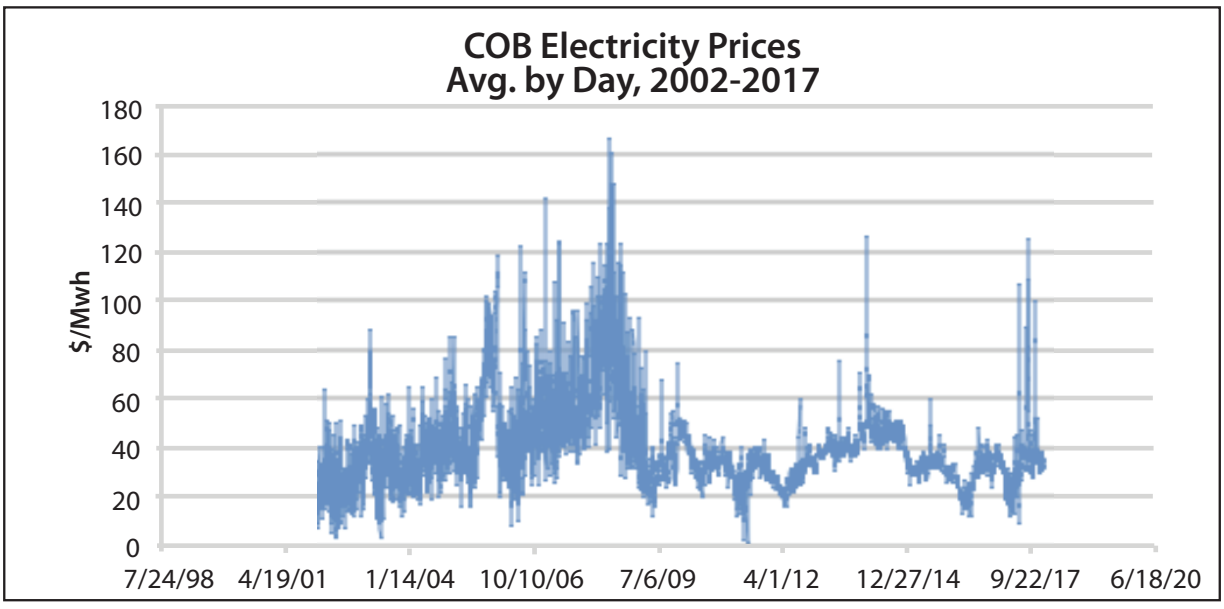
We've taken huge hits in the secondary revenues market just like every other hydro provider up here, with cheap gas, low load growth, and the oversupply conditions. It's been a bloodbath for folks in the wholesale market. I'm not in a panic mode, but I am in a very, very significant sense of urgency mode.

– Elliott Mainzer, Administrator, Bonneville Power Administration March 14, 2018

Bonneville Power Administration (BPA) markets power from thirty-one federal dams operated by the Army Corps of Engineers and the Bureau of Reclamation. BPA covers its costs primarily through electricity sales and related services to 135 Public Utility Districts (PUDs), referred to as "preference customers," under long-term contracts that end in 2028. BPA provides approximately fifty percent of the electricity in the Pacific Northwest (PNW) power grid.

Beginning in 2008, the western energy market has undergone dramatic and permanent change. Cheap and flexible natural gas thermal plants eliminated the need for most Northwest coal plants. Conservation and efficiency measures halted constant load growth, along with regular increases in BPA revenue.

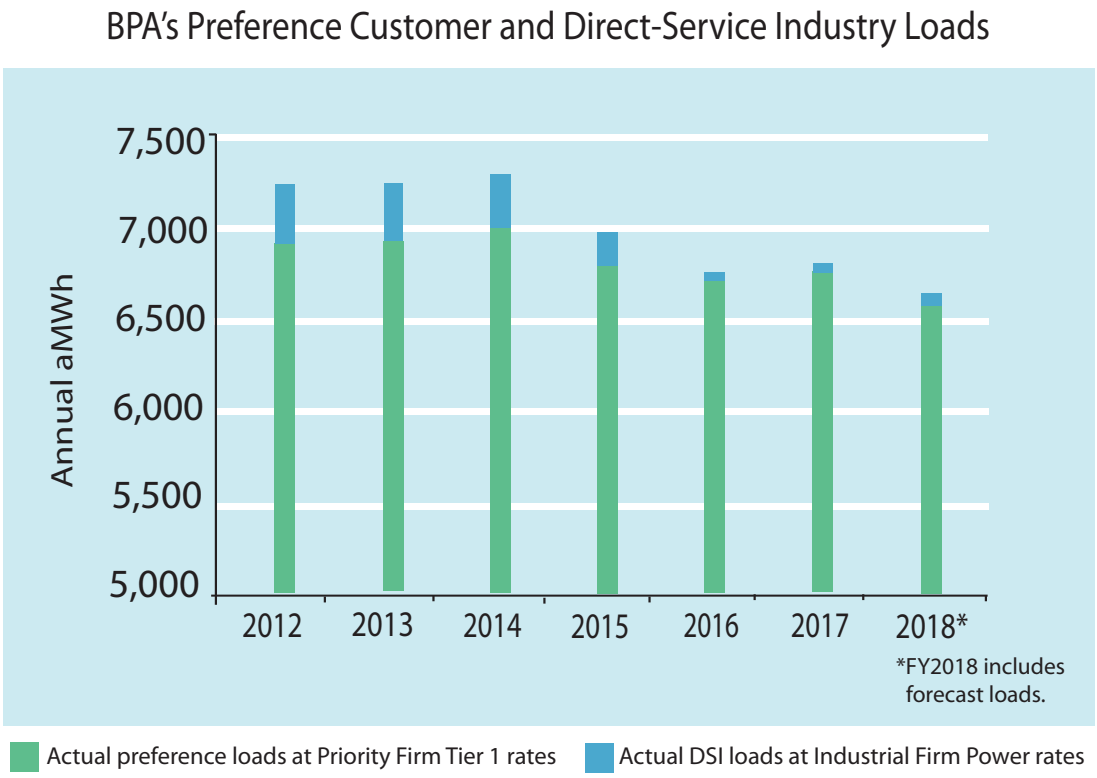
Soon wind and solar energy began gaining traction, and market prices tumbled. Between 2008 and 2009, the open market price of power dropped from $90 to $25. Not only has this price not rebounded, but continued installation of wind and solar farms, along with further advances in conservation and efficiency, lead most planners to believe market prices will continue at this level, or lower, for decades to come.



Data source, http://oasis.caiso.com/mrioasis/logon.do. Data aggregation by Rocky Mountain Econometrics (www.rmecon.com).[1]

BPA has historically maintained relatively low power prices for its preference customers by selling surplus power on the open market, much of it to California. For the past decade, however, energy suppliers in that state have added large amounts of solar power to their portfolios. In this post-2008 market structure, BPA's revenues are declining as a result of selling less surplus power, and the power it does sell commands lower prices.

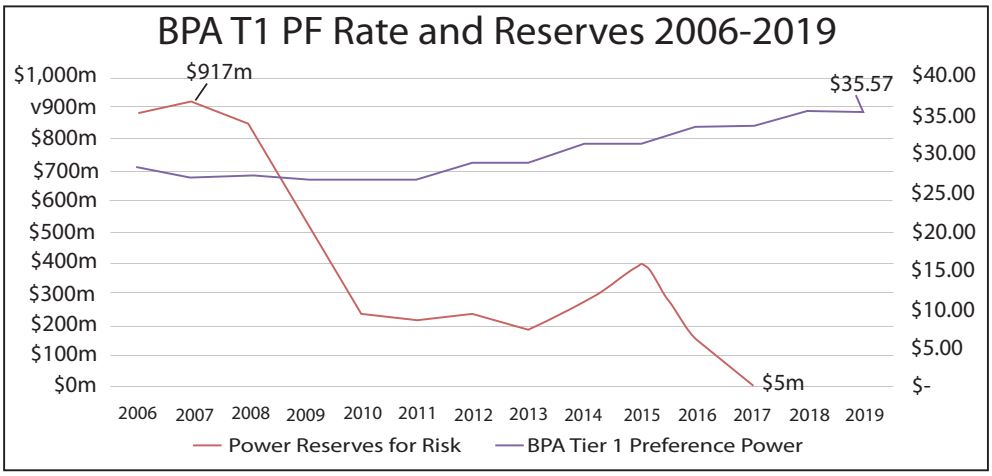
BPA sales to its preference customers have also declined due to conservation, increased efficiency, and BPA customers' own investments in wind and solar. For example, in 2016 energy efficiency alone added 275 MW to the power supply, and BPA projects this source will provide another 4000 MW by 2035, or an average around 235 MW per year.



Data source: BPA 2018-2023 Strategic Plan p. 37 https://www.bpa.gov/StrategicPlan/StrategicPlan/2018-Strategic-Plan.pdf

BPA responded to these changes in two ways. In 2008 the agency began spending down its financial reserves. An initial $917 million reserve account has today been reduced to around $5 Million, a decline of nearly a Billion dollars. BPA also raised the rates it charges its preference customers, with increases over the past five years totaling 30%.

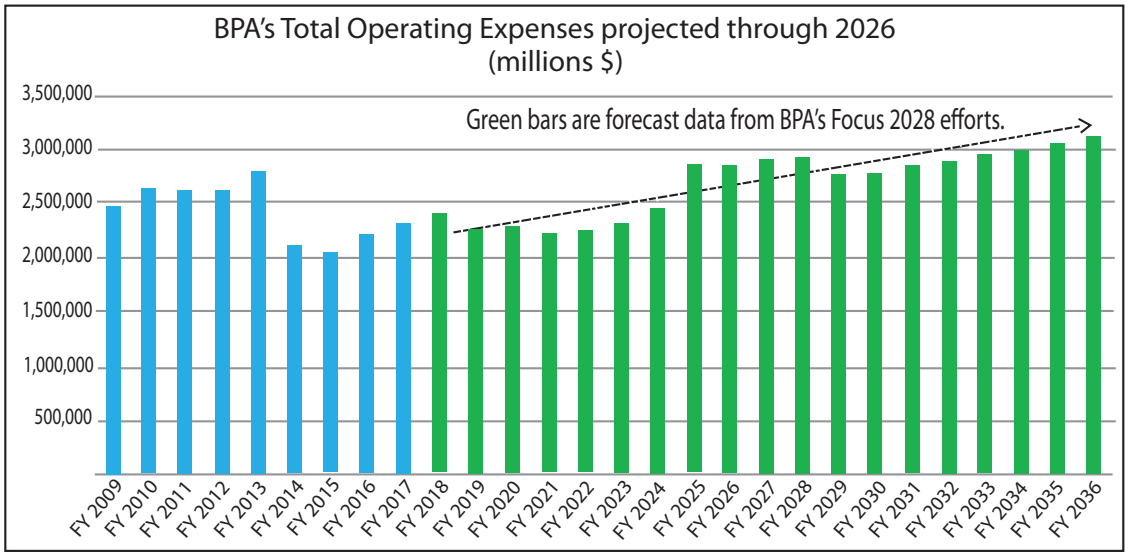
BPA Rates Have Climbed Substantially
Power Business Line Cash Reserves are Depleted



Data source: Feb. 6, 2018 communication from Cowlitz Public Utility District to Northwest Power and Conservation Council p. 3
https://www.nwcouncil.org/media/7491529/5.pdf

Finally recognizing its financial plight, in March 2018 BPA adopted a 2018-2023 Strategic Plan that calls for containing costs, selling more power, and controlling debt.

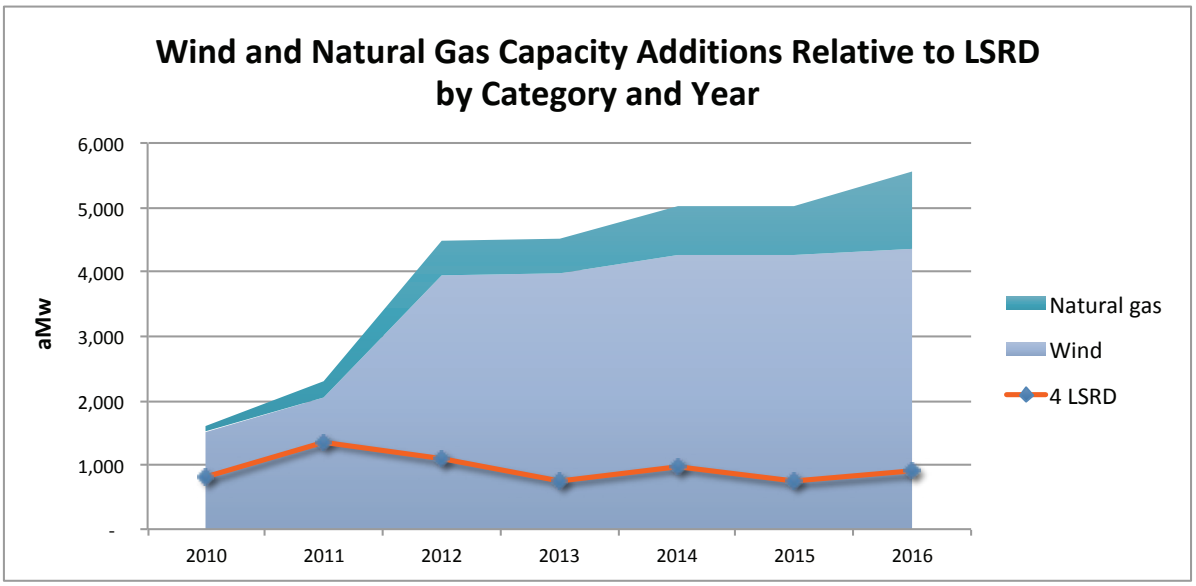
Containing Costs: BPA faces numerous costs over which it has limited control. For example, the agency attributes 8% of its direct expenses ($328M in 2017) to legally required Fish and Wildlife mitigation for damages to wildlife attributable to hydroelectric dams. BPA cites total F & W mitigation costs, including items such as reimbursable costs to the Corps of Engineers, at over $600 Million annually. BPA also carries interest charges on a debt load exceeding $15 Billion and projects its Interest/Pension outlays to grow from $309M in 2018 to $442M in 2022, a 43% increase over just four years. The agency projects overall future cost increases of 2% per year, which is optimistic.



Data source: Feb. 6, 2018 communication from Cowlitz Public Utility District to Northwest Power and Conservation Council p. 4
https://www.nwcouncil.org/media/7491529/5.pdf

Selling More Power: The Pacific Northwest is, and will continue to be, awash in energy. Since 2000, natural gas and wind power have added 15,382 annual Megawatts (MW) of *capacity* to the PNW grid. For comparison purposes, this amount is more than five times the combined capacity of all four Lower Snake River (LSR) dams. *Actual production* from natural gas and wind in 2016 totaled 6,127 MW, or six times the average annual LSR dam production over the past dozen years. California plans to produce another 4,000 MW of solar energy by 2020, and add between 10,000 to 20,000 MW of solar by 2030. Finally, as of March 2018, BPA's "Interconnection Queue" of energy already scheduled to come on line in BPA's transmission grid included 2,905 additional MW of wind energy and 2,341 MW of solar energy. For reference purposes, the average annual production of all four Lower Snake River Dams (LSRD) over the past 14 years is 943 MW.

Planning to sell more surplus electricity in a saturated market with flat or declining demand and falling prices fails to meet the test of a sound business model.



Data source: Northwest Power and Conservation Council Power Supply https://www.nwcouncil.org/energy/powersupply/home/ and http://137.161.41.139/dd/common/dataquery/www/
Graph compiled by Rocky Mountain Econometrics

The most visible change, aside from sustained low natural gas prices, is the rapid ascendency of renewable energy resources, especially in California where conventional and rooftop solar systems are being built at a breakneck pace... This threatens to disrupt power markets by flooding the Northwest with electricity when California's supply exceeds its demand for power.

–Steve Crow, NWPCC Executive Director, *The State of the Columbia River Basin NWPCC Annual Report to Congress*, Fiscal Year 2017 May 23, 2018

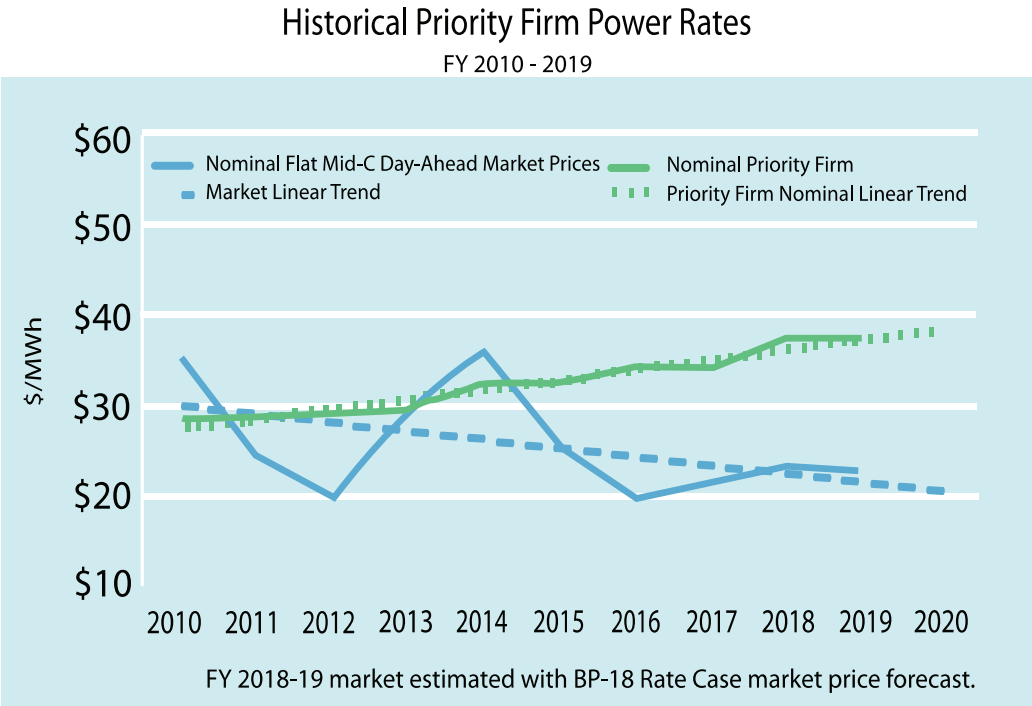
Controlling Debt: BPA has two separate business lines: power production and power transmission. On the power production side BPA currently has a debt/asset ratio of 99%; the average in the power industry is 54%. Today BPA manages an aging system, with many of its assets reaching or exceeding life expectancies. For example, nine of the twenty-four turbines in the Lower Snake River dams fit this description, and twenty-two of them will have exceeded their life expectancies by 2025. BPA and PUD cost estimates for turbine rehabilitations are currently in the range of $36-$45 million each. The cost of rehabilitating just the Lower Snake River dams' turbines would exceed $1 Billion. In March 2018 BPA Administrator Elliot Mainzer told the Northwest Power and Conservation Council (NPCC) "We are going to have to look for additional sources of capital financing…. We are going to have to increase our debt capacity."

Captive Customers

BPA's contracts with its 135 PUD customers end in 2028, and the agency intends to hold its preference customers to the terms of those contracts even though power is now available on the open market for far less. Meanwhile, BPA projects further increases in its power rates while open market prices continue to decline.

"We've got to get ourselves off this unsustainable rate trajectory," Mainzer recently advised the NWPCC, acknowledging that "if that spread opens up more I think we're going to look at some significant problems" in keeping customers.

> *"BPA is going to be so far out of the money…it will put huge financial pressure on their rates. A financial cliff is coming…. Who's going to sign up for BPA power at those prices?"*
>
> –Steve Kern, general manager of the Cowlitz PUD Feb. 15, 2018
> https://www.nwcouncil.org/news/blog/kern/



Data source: BPA 2018-2023 Strategic Plan p. 35 https://www.bpa.gov/StrategicPlan/StrategicPlan/2018-Strategic-Plan.pdf

Negotiations for new contracts with preference customers begin in 2023. If BPA is unable to offer competitive market prices for energy at that time, some of those customers will find other sources of power. BPA would then need to raise its power rates even higher to cover fixed costs, which would lead to yet more customer loss. In economic terms, at that point BPA would be facing a death spiral.

An Engine of Economic Prosperity?

In its 2018-2023 Strategic Plan, BPA highlights its long-standing claim of being "an engine of the Pacific Northwest's economic prosperity… committed to delivering on our vast public responsibilities through a commercially successful business." A commercially successful business controls its costs, offers competitive pricing, protects its reserves, and successfully manages its debt. BPA currently does none of these. Were it not for having 135 captive PUD customers and a dwindling line of credit with the U.S. Treasury, BPA might soon be a candidate for bankruptcy.

Holding increased costs to two percent annually, if even possible under the circumstances, will result in further rate hikes and a hemorrhaging of customers who purchase electricity from those captive PUDs. Selling more surplus energy into a flooded market at lower and lower prices, especially when those prices are below the cost of production, is a dubious path to increasing revenues. A plan that further reduces BPA's federal line of credit by $1.2B and calls for searching out new sources of borrowing will not lead to an improvement in BPA's debt/asset ratio.

In March 2018, BPA Administrator Mainzer told members of the NWPCC "I feel that even though we've got 10 years left on our power sales contracts, the time for action, and I think real action, is now."

What has become obvious, as per BPA's own numbers and projections, is that the very survival of BPA rests with the agency taking powerful and immediate steps towards its own salvation. BPA's Strategic Plan provides a Band-Aid when surgery is required.

The perpetual debate in the Pacific Northwest about whether salmon and dams can coexist becomes less and less relevant. The real issue is no longer whether threatened and endangered fish can avoid extinction, but whether BPA can survive and thus meet those "vast public responsibilities"—including wild fish recovery— to which it proudly refers. BPA itself is now on the endangered species list, and like Columbia/Snake threatened and endangered salmon and steelhead and the resident orcas of the Salish Sea, only major changes will ensure BPA's survival.

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[1.] COB refers to the California Oregon Border export/import price for electricity, which is a close mirror for Mid-Columbia (MID-C) pricing. MID-C is not available to the public.
All data in this report sources from Bonneville Power Administration, Northwest Power and Conservation Council, the U. S. Corps of Engineers and the California Independent System Operator. (caiso.com)