

RESPONSE TO BPA'S March 30, 2020

"CORRECTING THE RECORD" EMAIL TO NW REPORTERS

April 5, 2020

On March 30, the Bonneville Power Administration (BPA) emailed several Northwest reporters a set of "responses" to anticipated public comments on the Columbia River System Operations Draft Environmental Impact Statement (DEIS).

BPA purports to be "correcting the record" but is doing so prior to the completion of the record.

In this manner BPA is seemingly attempting, before the fact, to invalidate legitimate commentary that it anticipates will be critical of its operations. And, one might speculate that the purpose of the document is to also inappropriately stifle public commentary.

As will be demonstrated below, BPA's claims are not compelling, distract from legitimate critiques of BPA's Preferred Alternative, and mislead the public about the lower Snake River dams (LSRD) and BPA's financial viability.

Rocky Mountain Econometrics (RME) has significant concerns that BPA's email is less than candid about several aspects of BPA's operation and capability. In the sections below RME details its concerns with the BPA's Straw Men and responses.

I. BPA Straw man and BPA Response:**

"1) BPA sells power at a loss or BPA sells power for less than it costs to produce:

BPA sells power to consumer-owned electric utilities PUDs, municipal utilities and utility cooperatives at a set wholesale price. If we have surplus electricity, we sell it on the spot market. Unfortunately, this market has been depressed for the past several years, which has negatively impacted BPA's secondary revenues. We rarely, get less money than it costs to produce."

RME's Response:

According to Marcus Harris of BPA, surplus sales for the last five years amounted to about 25 percent of BPA production and averaged only \$19 per MWh.

BPA's firm power rate, the rate it charges its contract customers, is about \$36/MWh.

The less BPA receives on a \$/MWh basis for surplus sales the more it has to charge its contract customers in order to achieve its revenue requirement.

BPA's traditional business plan of selling surplus power for prices well in excess of contract prices collapsed in 2009 when solar power, particularly in California, reached critical mass, created the "duck curve", and drove peak hour energy prices into the basement. That was ten years ago and there is no evidence of low cost solar or low cost spot prices going away. If anything it will not only continue, it will accelerate.

At the current time, when BPA is setting the stage to sign PUDs to 20-year contracts for \$36/MWh and higher, independent power producers are competing with each other to deliver power in the low \$20s.

Two examples: Over the last year, while BPA was and is charging its contract customers \$36/MWh the city of Los Angeles contracted for enough solar power with battery backup for 200,000 customers for about \$22/MWh. Also last year, Idaho Power Company contracted with Jackpot Solar for a smaller plant, for a similar cost per MWh. Special note: The power provided to both Los Angeles and Idaho Power is debt free to the contracting utilities. The independent power producers provided their own funding.

BPA is trying to convince the PUDs that its system, in its entirety, a system that has not changed appreciably in 50 years, is still the go-to technology and would not benefit from any revisions and improvements. Given that the utility industry has changed more in the last five years than it did in the previous 50 years, BPA's position is naïve.

It is fair to say that the Federal Columbia River Power System (FCRPS) had a pretty good run, but those days are gone. BPA is unlikely to ever again see a benefit from surplus energy sales.

II. BPA Straw man and BPA Response:

"2) The Snake River Dams account for 4% of the region's power.

True – but misleading. Not all of the utilities in the Northwest purchase power from those dams. The electricity generated by the Snake River Dams is consumed predominately by the consumer-owned utilities listed above, many of which are in rural communities, and accounts for a little more than 10% of the electricity BPA sells to them. The cost of replacing the power from the dams would hit them in a disproportionate manner. Removing the Snake River Dams and replacing them with natural gas generation would increase the rates of PUDs, municipal electric utilities and electric cooperatives by 8.2 to 9.6%. If those dams were replaced by a combination of renewables, battery storage and other non-carbon measures, which may be more likely given current state renewable portfolio standards and other carbon legislative proposals, it is projected to increase those rates by 9.5 to 19.3%. See pages 25 and 26 of the CRSO draft EIS Executive Summary."

RME's Response:

The claim that 4% of the power produced in the region's comes from the LSRD is true, as is the claim that the LSRD produce about 10% of BPA power.

It is also true that BPA produces at least 25% more power than it needs. Part of the reason for the surplus is that BPA needs a lot of extra capacity because its near total reliance on hydropower is a poor fit its load curve. Many of its hydroelectric dams, like the LSRD, produce most of their power during spring runoff when it is not needed and don't produce much power during late summer and winter when BPA loads are peaking.

It is also true that prior to 2009, before wholesale market prices collapsed, it was to BPA's advantage to have a lot of excess. Back then BPA sold the surplus energy for prices as much as double or triple BPA's cost and used the premium to buy down the rates it charged to its contract customers. But, that was eleven years ago and BPA is still counting on the surplus market to come roaring back.

However, the biggest flaw in this section is the scare tactic in BPA's alleged cost of procuring replacement power. As PG&E and others keep demonstrating, replacing ancient obsolete hydro projects with solar and other alternatives has now become, in many cases, the money saving alternative of choice.

III. BPA Straw man and BPA Response:

"3) The Snake River Dams cannot produce 2,000 MW of Peaking Capacity:

The lower Snake River projects provide more than 2,000 MW of sustained peaking capabilities during the winter, and a quarter of the federal power system's current reserves holding capability. The dams play an important role in maintaining reliability, and their flexibility and dispatchability are valuable components of the CRS see page 25 of the CRSO draft EIS Executive Summary. This is important because the Northwest is still a winter peaking region, meaning its highest consumption of electricity is during the winter – not the summer. Between October 2009 and March 2018, there were 8,600 operational hours that the Lower Snake River Dams provided more than 2,000 MW of electricity."

RME's Response:

1. This section discusses BPA's "sustained peaking capabilities during the winter" and presents 8,600 hours of 2,000 MW peaking over a ten-year period as an exemplary achievement. To begin, it isn't that great of an achievement. More on that in a moment. It is worth noting the manner in which BPA tries to inflate the results by using an expanded definition of winter. By using October through March as their definition of winter, a six month period that steals over two months from fall and a week from spring, BPA doubles the amount of time available for the LSRD to achieve the stipulated, arbitrary, 2,000 MW sustained peak.

2.a. Let us review BPA's summary sentence.

"Between October 2009 and March 2018, there were 8,600 operational hours that the Lower Snake River Dams provided more than 2,000 MW of electricity."

8,600 hours sounds like a big number. However, over that ten-year period of 6-month winters there was a total of about 87,760 "winter" hours. I say about, because I may have under counted leap-days. 8,600 operational hours of 2,000 MW of energy is less than 10% of the available hours.

In other words, the LSRD are unable to produce BPA's touted one-hour sustained peak of 2,000 MW of energy 90% of the time!

Clearly, if someone came to a utility offering to sell a peaking plant that costs around \$50 million per year in M&O, and requires F&W mitigation on the order of \$300 million per year, and would fail to deliver the stipulated amount of power 90% of the time, the utility would send the vender packing.

3.a. The preceding subsection shatters the most generous reading of BPA's claim. The LSRD's look even less beneficial when we look at the need for sustained peaking ability for periods longer than an hour. Hitting 2,000 MW for an hour is, at best, a very weak version of "sustained peaking". That might be better termed, occasional peaking, or periodic peaking.

For a more realistic look at "sustained peaking" we have to look at average power production for longer

periods of time, such as for an entire day. For the same period, 2000 through 2020 (a much longer time line than BPA used), the LSRD only averaged 2,000 MW per hour for an entire day on 107 of 3,691 possible days, less than 3 percent of the time. Winter, again, using the BPA definition of October through March

3.b. What if we relax the constraint a bit? Instead of looking at the average for an entire day, let us look at the average for the traditional peak hours, seven in the morning until ten at night. This is probably the most realistic version of what most people think of as “sustained peaking”, the ability to produce at peak power for the main load hours during a winter cold snap. As expected, the number increases, but only a small amount. From 1/1/2000 through 2/29/2020, the LSRD only averaged 2,000 MW for the peak-hour portion of the day on 148 of a possible 3,691 days, 4.01%.

3.c. What if we narrow the constraint even further, to just the hours from five in the afternoon until ten at night? Again, as expected, the number increases, but only a small amount. From 1/1/2000 through 2/29/2020, the LSRD only averaged 2,000 MW for the peak-hour portion of the day on 197 of a possible 3,691 days, 5.3%.

4. Please remember that the LSRD are not truly “dispatchable” at the 2,000 MW level of production. For that to be the case the dams have to be able to produce the designated amount of power whenever the dispatcher calls for it and for as long as the dispatcher calls for it. The LSRD cannot perform in that capacity at times of the year or times of the day when water flows are low. That is eight months of the year and all but one week of the period BPA calls winter. Finally, if they are not dispatchable on demand, they are not dispatchable in the conventional or literal sense and BPA needs to stop pretending such is the case.

5. **To summarize, if there is a winter cold snap, and BPA needs 2,000 MW of energy from the LSRD for all the peak hours of a day, or even just the evening peak, the LSRD will fail 95 or 96 times out of 100. Worse, if, during a cold snap, BPA needs 2,000 MW of energy for as little as one hour, (BPA’s best case scenario) the LSRD will fail 90 times out of 100.**

For comparison, the cost of 4 hours of battery backup is about \$380 per kW*, or \$760 million for 2,000 MW. At 5% interest BPA could have 4 hours of battery backup, four times the amount of “sustained peaking” BPA touts for the LSRD, for about \$38 million per year. That is roughly \$10 million cheaper than the M&O cost of the LSRD for backup that would be available close to 100% of the time rather than the less than 10% of the time BPA touts for the LSRD. It would also allow BPA to avoid some portion of the \$300 million per year in wildlife mitigation.*

IV. BPA Straw man and BPA Response:

"4) BPA is becoming financially insolvent: By trimming \$66 million of costs planned for the current two-year rate period, BPA held rates flat for the first time in more than a decade.

Considering that between 2008 and 2018 BPA wholesale Power rates increased on average about 3.6% per year, this clearly demonstrates the financial discipline to bend the cost curve and provide low-cost, carbon-free hydropower to our public power utility customers across the Northwest.

In addition, all three US credit ratings agencies consider BPA to have high, investment-grade credit. A major contributing factor to these ratings is our long-term contracts with our preference customers, the Public and Peoples' Utility Districts, municipal electric utilities and electric cooperatives in the Pacific Northwest."

RME's Response:

1. While trimming \$66 million from costs is a move in the right direction, it is far from clear that it is sufficient to meet BPA's needs. Major portions of BPA's costs, like interest payments and fish and wildlife mitigation are outside BPA's control. And BPA's claim of holding rates flat is disingenuous. At the conclusion of the last year's rate case, in the same breath that the agency boasted that it was holding rates flat, it also pointed to the likelihood of pending emergency surcharges. The first surcharge, of what are likely to be many, came in December of last year in the amount of \$0.81/MWh. Suddenly, \$36/MWh power was, and remains, \$37/MWh power.

Unfortunately, for both BPA and its contract customers, neither the cost cutting nor the emergency surcharge has been sufficient to stop BPA's bleeding.

In the first 79 days of 2020 BPA load declined by about 2 million MWh from the same period in 2019. Even though BPA instituted a 0.81/MWh rate surcharge in Dec. 2019, the rate increase was not sufficient to make up for the reduction in sales. Revenue for 2020 relative to the same period in early 2019 was down by about \$65 million.

In the same 79 days of 2020, BPA surplus sales increased, in part, due to reduced demand from BPA firm rate customers. The increase in power sold on the open market was roughly 1.8 million MWh. Other things being equal, this would have meant an increase in BPA revenue from off system sales. But, all things were not equal. The increased amount of power dumped on the open market, and potentially other factors, combined to drive spot markets lower than the previous year. In 2019, NP15 prices averaged about \$53 / MWh for this period. In 2020, NP15 prices for the same period were about 40 percent lower at \$29/ MWh. As a result of the lower 2020 NP15 prices, BPA revenue from surplus sales declined by as much as \$49 million from the previous year.

Combined, for the first 79 days of 2020, BPA revenue relative to the same period in 2019 is lower by as much as \$114 million.

The safe bet is that BPA ratepayers will be faced with another emergency rate increase in short order.

2. On the subject of BPA's credit rating, the fact that the agency has high ratings is not surprising. BPA is a government agency, a division of the Department of Energy, that counts about half the NW as captive customers, and has a direct line to the US Treasury when it needs investment funding,

BPA's bragging about a high credit rating is a lot like bragging that you and your brother can beat up someone else and their brother when your brother is Tyson Fury. BPA's rating has everything to do with being an integral part of the US government and much less to do with the merits of the operation.

The bigger point, that BPA conveniently omitted, is that in recent months the rating agencies have downgraded BPA's rating on the grounds, in part, that its debt ratio is too high, thus limiting its ability to respond to ongoing changes to the electric utility industry.

A sampling from Moody's current BPA rating:

"The change in BPA 's rating outlook to negative from stable reflects the steady erosion of BPA's internal and external liquidity since 2015, which we expect will continue through the new FY2020-2021 rate period, and BPA's intent to further extend the Energy Northwest nuclear debt beyond the scope of the current "Regional Cooperation" program. "¹

V. BPA Straw man and BPA Response:

"5) *The Snake River Dams are expensive and near the end of their life:*

Major powertrain replacements for the Snake River Dam hydroelectric assets are not currently forecasted to occur within our 20-year system asset plan. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment health, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates. In fact, most of the optimal replacement dates are spread between the 2040s and 2060s for the Lower Snake dams for turbine and generator replacements. The most recent work done at Ice Harbor includes an already installed improved fish passage turbine with another currently being installed and another on the way, which will further modernize and improve those hydroelectric components."

RME's Response:

True, replacement dates for the LSRD turbines cannot be found in any of the current planning or budgeting documents.

Also true, by 2040, all of the 18 turbines in the three dams above Ice Harbor will be well past their 'use

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<https://www.bpa.gov/news/Investor/InvestorDocuments/Moodys%20May%202019%20Credit%20Opinion-final.pdf>

by” date. Like any piece of equipment, turbine reliability declines with age. As we saw with the Bonneville lock last year, breakdowns and unscheduled stoppages for maintenance become more frequent as assets age. They interfere with scheduled operations, and present an obstacle for people and business dependent on the dam’s operation.

Unscheduled turbine breakdowns result in reduced energy production, reduced overhead absorption, higher operating costs and higher rates. How much, is hard to predict, but must be expected.

Cynics will say that the main reason BPA has not listed turbine replacement in the planning documents is because the approximately \$1 billion cost will point to the need for increased lending from Treasury and the requisite \$50 million-plus increase in annual interest payments. and thus corresponding rate increases. The potential for ever-increasing rates will hamper BPA’s efforts to convince member PUDs to commit to pending contract extensions.

Either way, the future for the LSRD is not pretty. Replacing the turbines has the benefit of better reliability at the cost of higher interest payments and higher rates. Failure to replace the turbines has the benefit of continuing the existing interest payments for decades to come at the cost of reduced reliability, lower production, lower overhead absorption, and higher rates.

Excuse the pun, but in the case of the LSRD and the need to rehab the turbines, BPA and the Corps are damned if they do, and damned if they don’t.

*<https://pv-magazine-usa.com/2019/01/02/utility-scale-solar-power-plus-lithium-ion-storage-cost-breakdown/>

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