

POLICY NOTE

Snake River dams are an essential clean and low-cost part of Washington's electrical grid

Sightline Institute study on the dams underestimates the value of the dams for our state and for grid stability

By Todd Myers, Director, Center for the Environment

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Key Findings

1. Removing the four Lower Snake River dams would increase the cost of electricity in Washington state.
2. The Snake River dams provide some of the lowest-cost electricity in the Columbia-Snake River system, even accounting for the costs to protect salmon.
3. The Northwest is facing a shortage of electricity in upcoming years and destroying the dams would worsen that shortage.
4. Although they don't store energy like other dams on the Columbia River, the Snake River dams can adjust the flow over several hours, providing reliable energy when wind and solar power are not available.

Introduction

As Washington state policymakers seek to transition to an electricity system of 100 percent CO₂-free energy, there is a problem for those who are pushing to destroy the four Lower Snake River (LSR) dams. The amount of reliable, low-CO₂ energy produced by the dams is greater than all the wind and solar energy produced in Washington state combined. As a result, those who want to destroy the dams are now claiming the electricity from these dams is not as useful for meeting the carbon-free goal as it appears.

For example Michael Peterson, who has produced an anti-Snake River dams movie, claimed, "If we took those dams out, we would not need to replace the electricity and we would all save money..."¹ Nobody who has researched the issue believes this, but the attitude is emblematic of the desperate attempts by some to minimize the clean-energy value of the dams.

One of those who disagrees with Peterson, but argues the electricity is overvalued, is Daniel Malarkey of the Sightline Institute. He recently published a piece on the dams claiming the "Snake River dams' hydropower is no longer particularly cheap."²

Daniel and I agree on a number of things, but his analysis of the dams leaves out a great deal of essential information and relies on speculation to make his math work.

The reliable, low cost of electricity from the Snake River dams

Daniel's basic argument is that the cost of electricity from the dams is now relatively expensive. He argues the cost of electricity over the next 30 years will average \$27 per megawatt hour (MWh), which is high for the regional market. He adds, "Given the uncertainty about the future, actual costs of power from the dams could range from \$22 to \$33 per megawatt-hour." The Bonneville Power Administration's (BPA) numbers, however, suggest this estimate is much too high.

1 "Film finds momentum for removing dams to save orcas," review of *Dammed to Extinction*, a film by Peter Hawley Productions, Public News Service, August 16, 2019, at <https://www.publicnewsservice.org/2019-08-16/endangered-species-and-wildlife/film-finds-momentum-for-removing-dams-to-save-orcas/a67462-1?fbclid=IwAR3TdjBQOQ3zx6gRl5oyVqbMnVfE76chXU17Rk7RJPjxdhTFYfshkRxMrII>.

2 "Snake River dams' hydropower is no longer particularly cheap," by Daniel Malarkey, The Sightline Institute, September 17, 2019, at <https://www.sightline.org/2019/09/17/snake-river-dams-hydropower-is-no-longer-particularly-cheap/>.

A BPA study from September 2019 notes that the cost of generation, excluding fish and wildlife charges, from the Snake River Ice Harbor and Lower Granite dams is about \$14 per MWh, while the cost for the other two dams, Little Goose and Lower Monumental, is even lower, at \$10 per MWh. The analysis also shows the cost of generation for the four dams is lower than most of the other projects in the Federal Columbia River Power System.

Using the most recent data for production from the dams and adding the \$90 million in costs that Daniel claims BPA is ignoring, the cost per MWh hour comes to \$23, at the lowest end of his estimated price range, and 15 percent lower than his average estimate.³

It is important to note that the numbers Daniel uses in the Sightline piece are speculative and are disputed. My purpose here is simply to show that even assuming the additional costs for fish and wildlife and overhead are correct, the cost estimate provided in the Sightline study is exaggerated.

An analysis by the Northwest Energy Coalition, which wants to destroy the dams, confirms the dams provide low-cost energy. Their analysis, cited in the Sightline piece, notes that replacing the electricity from the four Lower Snake River (LSR) dams would cost consumers an additional \$464 million every year.⁴

Even this estimate is low because their projection only covers 86 percent of the electricity. If the cost for the additional 14 percent is the same, that would push the annual cost to nearly \$540 million a year. Replacing the electricity produced by the dams would be very expensive.

Replacement energy is more expensive

Daniel, however, is hopeful that future costs will come down for wind and solar power. He claims, “the capital costs for utility-scale wind and solar have dropped by one third to one half” since the NW Energy Coalition’s study was published. He provides no support for this claim.

Claims about hoped-for dramatic reductions in solar costs are often “capacity weighted,” which means they are based not on projected averages across states but are based on costs where solar is currently being built, which is primarily in the southwestern United States. If we were replacing the Snake River dams with solar power produced in Phoenix, Arizona these estimates might be useful. Since we are not, they are not.

As evidence that costs for solar are coming down, the Sightline piece does mention the fact that earlier this year, “Idaho Power signed a long-term power purchase agreement from a solar project at \$22 per megawatt-hour.” This statement is extremely misleading.

3 “Emission and Generation Resource Integrated Database (eGRID),” Energy and Environment, U.S. Environmental Protection Agency, accessed October 2019, at <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>.

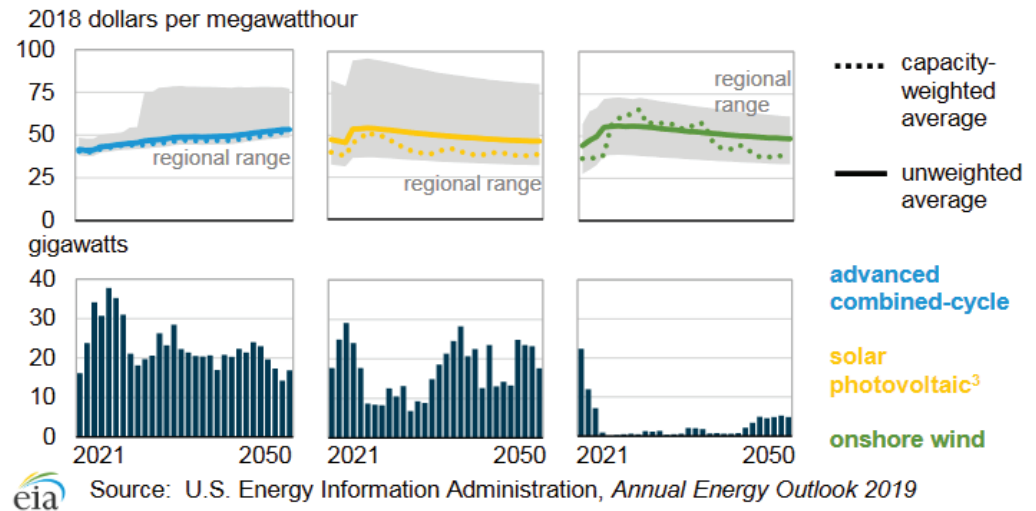
4 “Reliable and affordable clean energy options that help restore salmon and protect the environment,” The Lower Snake River Dams Power Replacement Study, Northwest Energy Coalition, April 27, 2018, at <https://nwenergy.org/featured/lsrcstudy/>.

First, that price includes federal subsidies. The agreement, which is currently being considered by the Idaho Public Utilities Commission, notes:

“The pricing in the PPA [power purchase agreement] relies upon the Seller’s ability to safe harbor the current 30 percent federal investment tax credit benefits prior to the end of December 2019, after which time those benefits begin to step down.”⁵

The price, with the lower Investment Tax Credit (ITC) that will be in place after 2022, would be closer to \$27.50 per MWh, 25 percent higher than Sightline claims.

Figure 3. Capacity-weighted¹ and unweighted levelized cost of electricity² projections and three-year moving capacity additions for selected generating technologies, 2021–50



The federal government is phasing out the Investment Tax Credit, so the cost to replace the LSR dams with solar power would be higher in the future. The Energy Information Administration projects a significant increase in levelized cost of electricity (LCOE) for solar and wind power after 2019, noting, “For both solar PV and onshore wind, LCOE increases in the near term with the phase-out and expiration of ITC and PTC, respectively.”⁶

Rather than costs going down, projections are that the cost of installing solar and wind will increase.

One of the arguments made by dam opponents is that the operation of the dams is subsidized by the federal government in a variety of ways. It is fair to argue that we need to be honest about the subsidies in the system. It is not fair, however, to complain about subsidies for the dams while ignoring the massive, and expiring, subsidies for energy like solar and wind power.

⁵ “Power purchase agreement with Jackpot Holdings, LLC – Idaho Power Company’s application and testimony, by Donovan E. Walker, Lead Counsel, Idaho Power, Section 3, April 4, 2019, at <https://puc.idaho.gov/filerroom/cases/elec/IPC/IPCE1914/20190404APPLICATION.PDF>.

⁶ “Levelized cost and levelized avoided cost of new generation resources in the *Annual Energy Outlook 2019*, U.S. Energy Information Administration, page 13, February 2019, at https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf.

People need the clean electricity the dams produce

There is another comment made in the Sightline piece that is odd. The piece notes, “More than half of the region’s electricity generation is exported to utilities other than Bonneville’s public power customers.” This point has been used by some to argue that the power is surplus and is not needed by people living in the region.

I do not know if Sightline editors are intentionally lending credibility to this false argument, but the claim demonstrates ignorance about how an electrical grid works. Power is a regional commodity. We sell electricity out of Washington when we have a surplus and then buy it from other regions when we have a deficit.

Additionally, even if the energy were truly surplus, it would serve to drive down prices across the grid, including in Washington state. If the implication is that we could get rid of a clean energy source and it would not see price increases – as was claimed above – that is simply false. In fact, the NW Energy Coalition’s study on replacing the energy from the LSR dams says the energy would come from Idaho and Montana, so we would become energy importers. That is the way the regional grid works.

The notion that we have surplus power, however, is wrong in the first place. The Northwest Power and Conservation Council (NWPCC) testified last year in Olympia that by 2021, the Northwest’s electricity supply will be inadequate. It will get worse in 2023. That testimony assumed the Snake River dams would still be in place.

If the dams were removed, the predicted energy shortage would get worse. An NWPCC analyst confirmed to me that “without these dams, LOLP [Loss of Load Probability] increases significantly.” He noted that even with the dams in place, “There remains, of course, a certain amount of uncertainty, for example we could have unexpected economic/load growth.”

Without the dams, wind and solar power would cost more

Finally, this discussion is not complete without recognizing the essential role clean, reliable dam-generated power plays in making intermittent sources of energy like wind and solar possible. The LSR dams are “run of river,” which means they do not have massive reservoirs like the Grand Coulee. They can, however, store water for several hours, which is enough to fill in for the power fluctuations that occur when wind and solar generation fall during a standard day. Remove the flexibility that dams provide and the cost to manage wind and solar increases.

Conclusion

Ultimately, the power from the Lower Snake River dams is clean, reliable and affordable, and will continue to be for years into the future. Dam opponents admit their own numbers show that replacing the dams would add half-a-billion dollars a year to overall energy costs.

Their only response to that fact is a vague hope that costs for alternative energy will somehow come down in the near future – a hope that is contradicted by



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estimates from the Energy Information Administration, and by the fact that federal subsidies are set to expire, factors that will actually increase the costs of alternatives.

The claim that replacing the clean electricity produced by the dams would be easy or low-cost does not match the data and puts an important source of low-CO2 energy at risk, increasing electricity costs and the region's CO2 emissions. Given the paucity of evidence that replacements would be affordable and available, destroying the dams is a remarkably risky policy that would likely backfire economically and environmentally, causing harm to communities and families across the state.