

LOWER SNAKE RIVER DAMS FACT SHEET

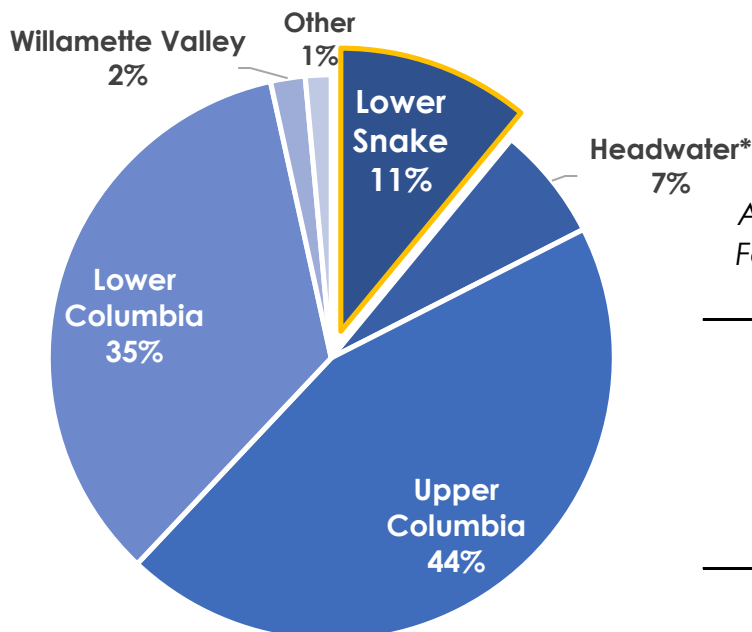
Quick Overview

- The Lower Snake River Dams provide enough carbon-free energy to power a city about the size of Seattle
- They help integrate other renewable resources like wind and solar to make sure electricity is delivered reliably at low cost
- Fish survival at all four projects is very high, along with a robust ongoing mitigation program
- In addition to power, the projects provide valuable socioeconomic benefits in terms of recreation, irrigation, and transportation

Lower Snake River Dams Provide Low Cost Energy and Capacity

The four Lower Snake River Dams (Lower Granite, Little Goose, Lower Monumental and Ice Harbor) have a **combined nameplate capacity of 3,033 MW**.

On average, the four projects generate **940 aMW**, which is about **11% of the Federal Columbia River Power System**.¹ The Lower Snake River Dams have a **levelized cost of generation of less than \$14/MWh**,² far below the Tier 1 rate of \$36/MWh or the price of market purchases and new renewable resources.



Average Annual Generation from the Federal Columbia River Power System

| Project Basin | aMW |
|-------------------|--------------|
| Lower Snake | 940 |
| Headwater * | 559 |
| Upper Columbia | 3,814 |
| Lower Columbia | 2,958 |
| Willamette Valley | 169 |
| Other | 126 |
| TOTAL | 8,567 |

¹ The Lower Snake Projects have a critical output of 561 aMW or 8% of BPA's RHWM Tier 1 System Critical Output. [BPA BP-20 Power Loads and Resources Study Documentation](#), July 2019, page 103-111.

* The Headwater projects are Hungry Horse, Libby, Dworshak and Albeni Falls.

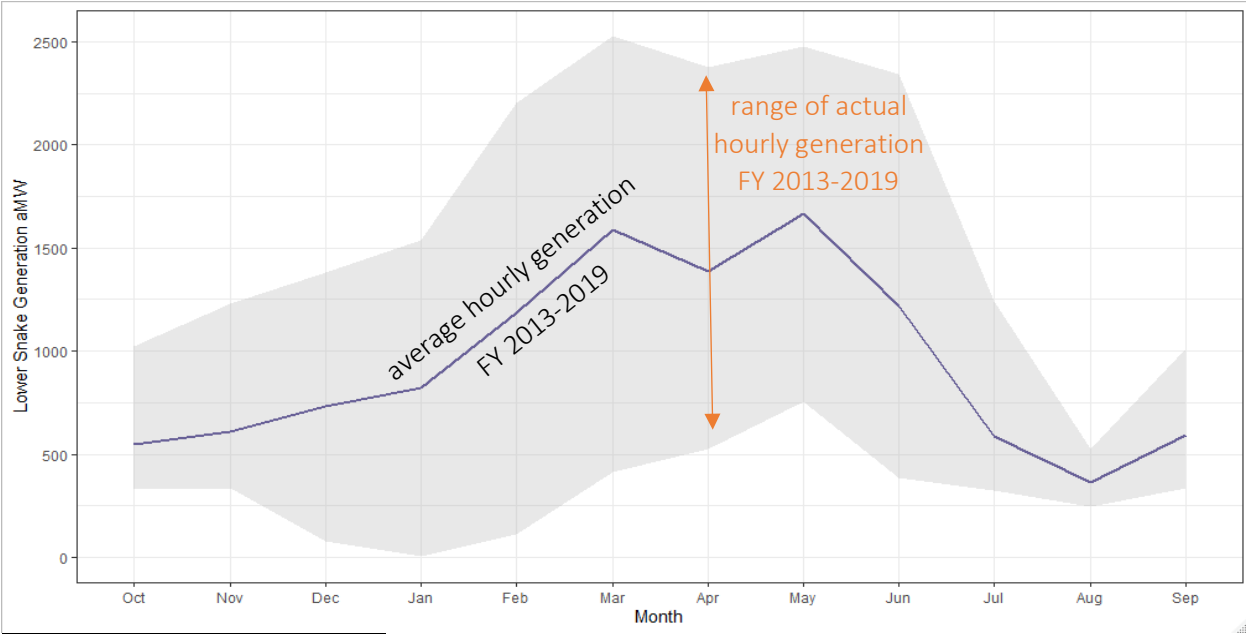
² [BPA Integrated Program Review](#), June 2018, page 25.

Lower Snake River Dams Provide Flexibility and Peaking Capability

The sustained peaking capability of the four projects is 2,650 MW, 10 hours per day for five consecutive days.³ Sustained peaking capability is important during multi-day cold snaps, like the ones we had in February and March of 2019.

Real-life example. On March 4, 2019, after a multi-day cold snap, power supply was tight in the Pacific NW and wholesale market prices reached the WECC price cap of \$1,000 per MWh. This signaled that all resources with sufficient fuel should generate and the PNW should import as much power as possible from neighboring regions. Between midnight and 8 am on March 4th, demand increased by 4,000 MWs (that’s 4x the City of Seattle!) and the **Lower Snake River dams met 27% of that increased demand.**

The four projects also provide flexibility to maintain transmission system reliability and to integrate renewables like solar and wind.⁴ The chart below shows the actual flexibility in generation of the Lower Snake River dams from FY 2013-2019.⁵ Average generation is shown as the solid line, and the range of generation is shown in the gray shaded area. When more or less generation is needed, the Lower Snake River dams can increase or decrease to keep the system in balance.



³ BPA Lower Snake Dam Fact Sheet, March 2016, page 3.

⁴ 2017 Declaration of Kieran Connolly

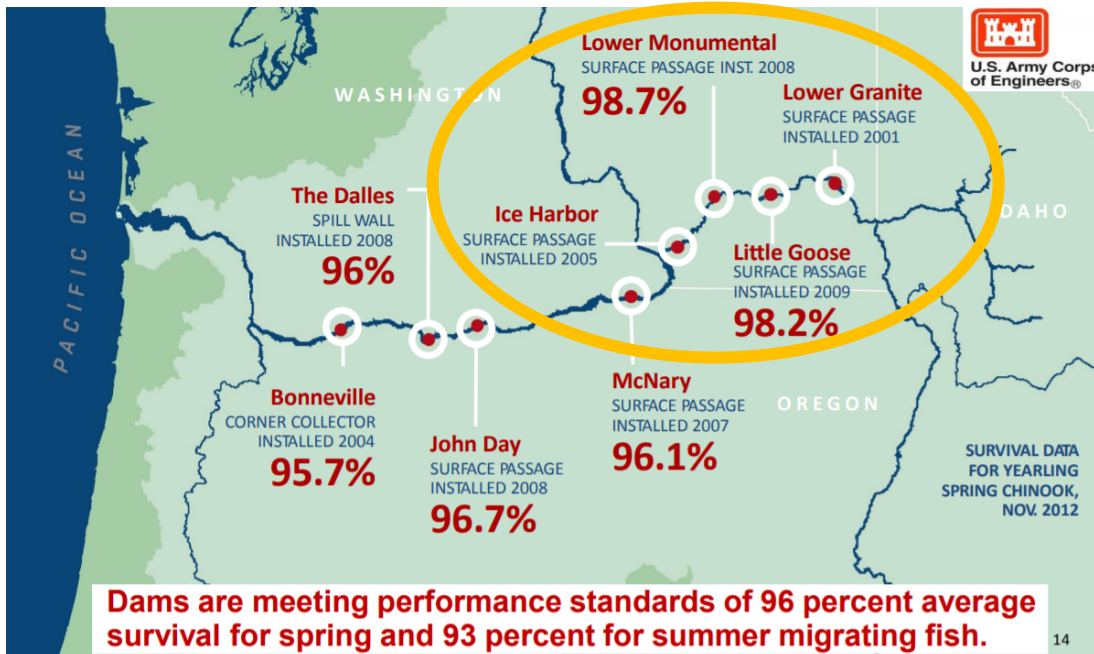
⁵ Source: USACE Water Control Data

⁶ BPA Integrated Program Review, June 2018, page 25.

⁷ BPA Integrated Program Review, June 2018, page 25.

Salmon Survival Is Strong Through the Lower Snake River Dams

Thanks to sizeable investments by BPA's customers in technology to support fish migration, **spring juvenile salmon survival is 96% and summer migrating fish survival is 93%.**⁸



⁸ BPA Integrated Program Review, [Fish and Wildlife](#), July 2018, page 14.