Fact Sheet

APRIL 2026

Detroit Dam, located on the North Santiam River, is one of 13 multi-purpose dams that make up the Willamette Valley System. Detroit is one of the eight WVS dams that can produce hydropower marketed by BPA.

Willamette Valley System Power Generation

The Federal Columbia River Power System is the Pacific Northwest's largest source of affordable, reliable energy. The 31 dams in the FCRPS have a generating capacity of more than 22,000 megawatts and produce an annual output around 8,000 average megawatts.

Most of this power is generated from hydropower projects located in the Columbia and Snake rivers. A collection of smaller power projects in the Willamette River basin, known as the Willamette Valley System, produces less than 2% of the system's output yet accounts for a disproportionate amount of the system's costs. Exposure to these rising costs raise concerns as to whether WVS hydropower remains consistent with U.S. Congress' expectation of reliable and economic power for the region.

Background

The WVS, built between 1950–1970, is made up of 13 multipurpose dams and reservoirs operated by the U.S. Army Corps of Engineers. The WVS is a water resource system located in the Willamette River's drainage basin, which extends from south of Cottage Grove, Oregon, to the Columbia River in the north.

The primary purpose of the WVS is flood control, but Congress also authorized the system to be operated for irrigation, navigation, recreation, water quality, municipal and industrial water supply, fish and wildlife, and power generation consistent with statutory authority. Unlike dams on the mainstem Columbia and lower Snake rivers, the WVS was built primarily for flood risk management and without effective fish passage.

Willamette Valley System hydropower

Congress authorized hydropower as a project purpose at eight of the 13 WVS dams — Cougar, Detroit, Big Cliff, Green Peter, Foster, Hills Creek, Lookout Point and Dexter. The nameplate capacity of the hydroelectric WVS dams is about 480 megawatts.

Congress charged the Bonneville Power Administration with marketing WVS hydropower as part of the Federal Columbia River Power System with the expectation that

these dams would provide the region with a source of economical and reliable power. BPA is the exclusive power marketer for the federal commercial hydropower at the Willamette dams. Commercial hydropower is the hydropower available for BPA to market once other power requirements, such as on-site station service, are fulfilled.

Commercial hydropower from the WVS is a renewable generation source that contributes to BPA's overall energy portfolio and ability to manage the FCRPS. When the dams were constructed, annual production was estimated to be about 170 average megawatts. In recent years, annual production has averaged only 102 megawatts. Hydropower production has decreased in recent decades, especially since 2021, when a federal court injunction required the Corps to implement operational changes that improve conditions for Endangered Species Act-listed salmon and other fish species.

BPA pays 100% of the costs for hydropower equipment operations, maintenance and upgrades, as well as a share of the joint, or multipurpose, costs at the hydroelectric WVS dams. Multipurpose costs include work that benefits all project purposes, such as dam spillway work and mitigation efforts that reduce the impacts of the dams' construction and operation on fish and wildlife. Because of its congressional mandates as a non-profit agency, BPA recovers all costs allocated to power at the hydroelectric WVS dams from its ratepayers.

BPA has fully repaid its share of the original construction costs at the WVS hydroelectric projects. BPA continues to pay for its share of ongoing operations and maintenance and capital costs, which include fish mitigation and a hatchery program. Annual costs for these eight projects have averaged $46 million per year over the past five years.

The limitations of WVS hydropower

The Corps manages the WVS reservoirs and conveys water through the dams. Flood risk management and life safety are the highest operational priorities for the Corps at these dams. Biological opinion compliance is also a priority that influences decisions related to water conveyance.

Hydropower is generated intermittently throughout the year primarily as an outcome of water releases that serve the highest priorities and the other project purposes. When possible and within constraints provided by the Corps, BPA schedules any available energy into periods with higher demand that occur throughout the day. The WVS dams do not provide dispatchable power — meaning the powerhouse cannot be easily turned on or off or adjusted to meet electricity demand — limiting their capacity value.

The Pacific Northwest was hit by an historic flood in February 1996. Willamette Valley System dams were put to the test and held back as much of the flood waters as possible, but too much rain fell in the valley below the dams. As a result, many communities in western Oregon felt the impacts of flood waters. Photo credit: U.S. Army Corps of Engineers

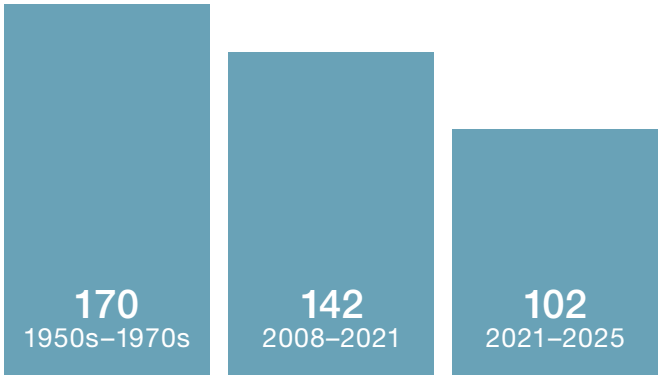
Historically, the Willamette dams' reservoirs had a designated power pool — the water within a specified elevation range that was reserved for power generation. In the 2021 Oregon District Court order, the court found that the power pool could be used for fish mitigation operations. Some of these fish operations include operations to lower reservoirs to elevations beneath the penstocks, which are large pipelines or channels that carry water from the reservoir to the turbines. With these operations now in place, power generation is completely unavailable, even in an emergency, at Cougar, Green Peter and Lookout Point dams for several weeks in the fall and winter, often a time of high electricity demand.

Increasing costs and decreasing generation

A combination of decreasing generation and increasing maintenance, operations and capital costs at the hydroelectric WVS dams is causing the cost of generating hydropower to exceed its value. This is contrary to Congress' intent when the projects were first authorized to provide an economical and reliable power supply to the region.

Operational limits placed on the Willamette dams largely result from ESA consultations with the National Marine Fisheries Service for spring Chinook salmon and winter steelhead affected by the WVS. These restrictions include reservoir drawdowns and other water management actions that have reduced annual hydropower generation by roughly 40%, further increasing the cost of generating each remaining megawatt produced.

DECREASING GENERATION (aMW)



The average annual hydropower production at the hydroelectric WVS dams has fallen to 102 average megawatts from an expectation of 170 average megawatts when the dams were first authorized.

The ESA consultations also concluded that safeguarding these species necessitates constructing expensive fish passage structures that have significant uncertainty around their biological effectiveness. In the 2025 WVS Environmental Impact Statement, the Corps estimates design and capital work for these fish mitigation measures could cost $2 billion or more. BPA would be obligated to pay the power share of these costs, ranging from 19.5% to 100%, based on the current cost allocations and depending on which measures are taken at each dam.

Costs may increase further as budget estimates for the planned fish passage structures are refined during the design process and given the risk that these approaches have not been previously implemented or proven in reservoirs like those in the WVS. Once the fish mitigation measures are in place, BPA expects future annualized costs to at least double and significantly exceed the market value of WVS hydropower generation.

Paying a large share of the costs for reduced generation adversely impacts BPA and its ratepayers. The WVS EIS preferred alternative continues operations similar to those instituted under the 2021 court injunction, at least until structural measures are completed, so it is expected that WVS hydropower production and flexibility will be limited for the foreseeable future. Given these circumstances, BPA is evaluating the viability of economic power generation from the WVS dams in a manner consistent with biologically effective and technologically feasible solutions for protecting, mitigating and enhancing fish and wildlife in the basin.

Outdated cost allocation shares

The WVS dams have undergone major operational changes in recent decades to address the survival and recovery of ESA-listed salmonids in the Willamette Valley. These changes have been implemented largely at the expense of the volume and timing of hydropower production, compared with impacts on other project purposes. Despite this, BPA's share of multipurpose costs has not been adjusted to reflect these changes.

BPA pays for between 19.5% and 100% of multipurpose costs at these dams, depending on each project's cost allocation. These cost allocations have been in place since the dams' original construction and are partly based on the expected hydropower benefits as compared to the other authorized purposes from many decades ago.

The historically expected comparable power benefit is not what is observed today. The Corps estimates WVS flood risk management value, measured in structural damages prevented, of hundreds of millions annually, while the annual market value of hydropower is typically in the tens of millions. As the value of flood risk management has increased over time, hydropower value has decreased, a trend that may continue if the Willamette Valley's population continues to increase. However, with cost allocations unchanged, BPA pays a disproportionate share of the costs in relation to the actual hydropower benefits. BPA has pursued equitable cost allocation share adjustments, but to date, no changes have occurred.

Exploring the potential of deauthorizing commercial hydropower in the WVS

Questions about fish passage and the hydropower economics at these dams have resulted in congressional interest in the future of the WVS. In 2019, members of the Northwest congressional delegation noted that cost allocation updates were overdue, which led to the congressional appropriations committee's direction to assess updates. In 2020, 2022 and 2024, provisions in the Water Resources Development Acts directed the Corps to study considerations related to potential hydropower deauthorization at the WVS dams.

Congressional action to deauthorize commercial power generation at one or more of the Willamette would guide future dam operations. If deauthorization were to occur, BPA would assess the loss of this energy broadly through resource adequacy studies as part of its Resource Program process. This process evaluates several

uncertainties, such as loads, contracts, policies and resources, and considers whether additional generating resources need to be acquired or whether BPA can continue to meet its needs with combinations of energy efficiency and market purchases. While the loss of WVS energy and capacity contributions would put some additional pressure on any potential resource deficits, the scope of the loss of these dams' production is relatively small, less than 2% of the FCRPS, and would be managed in the context of all the other resource adequacy factors.

BPA plans for and maintains a resilient grid regardless of the power generated from the WVS dams. Reducing or eliminating commercial power at any individual WVS dam does not impair electricity service to the Willamette Valley nor the greater region. Because BPA manages the FCRPS as a system, BPA customers do not usually depend on any single dam or group of dams as the source of their electric power. Moreover, BPA is already mitigating for the loss of hydropower at the WVS dams given the current fish operations, accounting for the several weeks in the fall and early winter when power is unavailable at Cougar, Green Peter and Lookout Point dams.

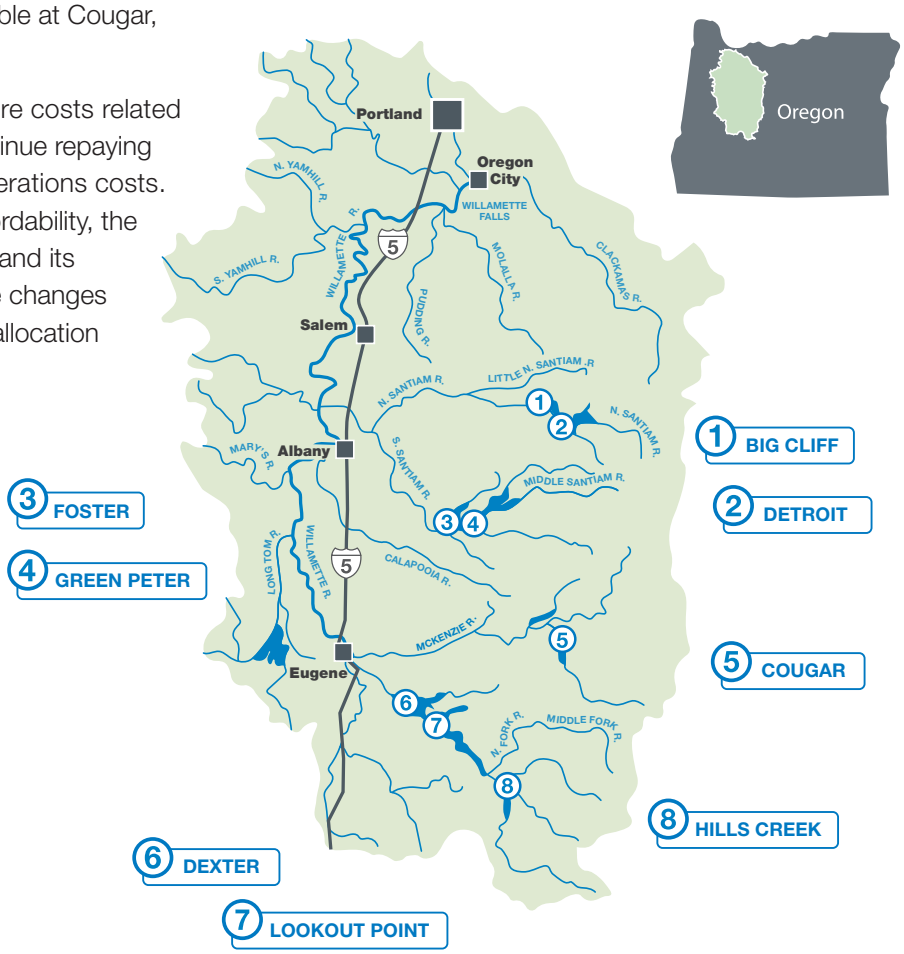
Regardless of BPA's obligations for future costs related to the WVS, the agency expects to continue repaying all current and prior investment and operations costs. When considering long-term energy affordability, the WVS dams are not economical for BPA and its ratepayers without significant cost share changes that are based on an equitable and fair allocation of costs.

FCRPS POWER CONTRIBUTIONS AND GENERATION COSTS

STRATEGIC CLASS	PERCENT OF FCRPS AVERAGE ANNUAL GENERATION*	FIVE-YEAR AVERAGE COST OF GENERATION (MWH)**
MAIN STEM COLUMBIA	81.3%	$8.84
HEADWATER/ LOWER SNAKE	14.8%	$20.21
WILLAMETTE VALLEY	1.4%	$51.50
OTHERS	2.6%	$26.88
FCRPS	100%	$13.31

**Sourced from BPA's 2025 White Book.*
***Year range covers 2020–2024.*

As shown in the table above, hydropower generation from the Willamette Valley System is among the most expensive resources in the Federal Columbia River Power System.



Map of the Willamette River Basin showing the eight Willamette dams from which BPA markets power.