

Hydropower: The Northwest's Most Abundant Clean-Energy Resource

By Joseph Hathaway

The Northwest's hydroelectric dams deliver carbon-free, low-cost power to people across the region. First constructed as part of President Franklin D. Roosevelt's New Deal, the dams brought fair access to electricity to the rural Northwest and paved the way for cooperatives and other not-for-profit utilities. Since then, the dams have improved the lives of Northwesterners in ways even FDR couldn't have imagined.

Today, carbon-free energy and climate-friendly policies have become a priority in the Northwest. Hydroelectric dams are essential to meeting these goals. Hydroelectric dams are already responsible for roughly half the annual generation in our region—enough to meet Seattle's annual energy needs 16 times over. They are capable of producing even more.

Hydropower provides great support to solar and wind generation, which have fluctuating electric output. Hydroelectric operators can hold water behind a dam when there is a surplus of solar and wind power. Operators release that water into turbines when more power is necessary. This control helps provide critical balance to the grid.

In this way, hydropower functions like a giant, clean battery for wind and solar power by storing surplus power—as water—and generating electricity with it when needed.

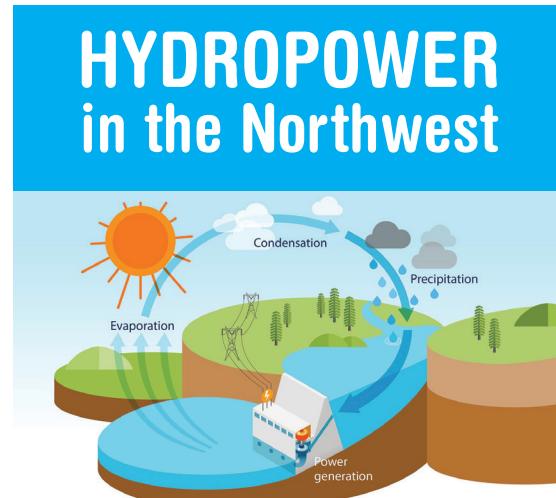
However, hydro offers many benefits beyond just producing carbon-free energy and balancing the grid. The lower costs of hydropower are crucial for families and individuals who depend on affordable energy. They are able to keep their homes comfortable and cover their basic needs by not having to worry about overwhelming electricity bills. Those same low costs allow utilities such as Klickitat PUD to provide incentives and programs to help those in need.

Hydropower is good for business, too. The low cost of hydropower combined with its carbon-free attributes have attracted industries such as wineries, agriculture, wind farms, lumber and natural gas opportunities. Their presence adds jobs and tourism to the region and grows our local economies.

On a local level, the dams are critical to communities near the Columbia and Snake rivers and their tributaries. They help save homes and lives by protecting against dangerous floods.

In Eastern Klickitat County, where the climate is dry and summers are hot, dams help local farmers irrigate their land and help communities access drinking water. In fact, by using just 6% of the annual runoff from the Columbia River, an additional 7.8 million acres of land have been made farmable across the region. Crops and other goods produced by these farms can be shipped via barge, which is a low-carbon alternative to rail cars or semitrucks. The river system supports more than \$24 billion in annual exports and imports, and countless jobs and opportunities that extend beyond the Columbia River Basin.

Altogether, the benefits of our hydropower system are innumerable and irreplaceable. Even as time passes and our needs evolve, the dams continue to offer solutions to our most pressing problems. With issues of climate change and water access looming, hydro will become even more critical. ■



- Renewable.** Each year, rain and snow replenish the supply. It is the nation's most abundant source of renewable energy.
- Efficient.** Hydropower plants at dams convert about 90 percent of the energy in falling water into electrical energy. By comparison, fossil-fueled plants lose more than half of the energy content of their fuel as waste heat and gases.
- Clean.** Hydropower produces no emissions. There are no gases or waste products that contribute to air pollution.
- Secure.** Water from our rivers is largely a domestic resource that is not subject to disruptions from foreign suppliers, cost fluctuations in power markets, international political crises or transportation outages.
- Flexible.** By adjusting the amount of water flowing through the dams, hydropower can be increased or decreased very quickly to meet changes in demand for power. This meets a fundamental requirement of all electric grids, which is that demand must exactly match supply at all times to keep the system stable.
- Accommodating.** Hydropower is a great "backup" for wind and solar power — for example it can be ramped up to meet demand when the wind is not blowing, and dialed down at times of high winds.
- Affordable.** This is because the "fuel" — water — is free, which keeps operating costs low and protects against fluctuations in fuel prices. Over the years, the dams have consistently provided some of the nation's most affordable electricity.



WWW.BPA.GOV/HYDROFLOWSHERE

Find more information on the benefits of hydropower at otec.coop/oregons-hydropower.