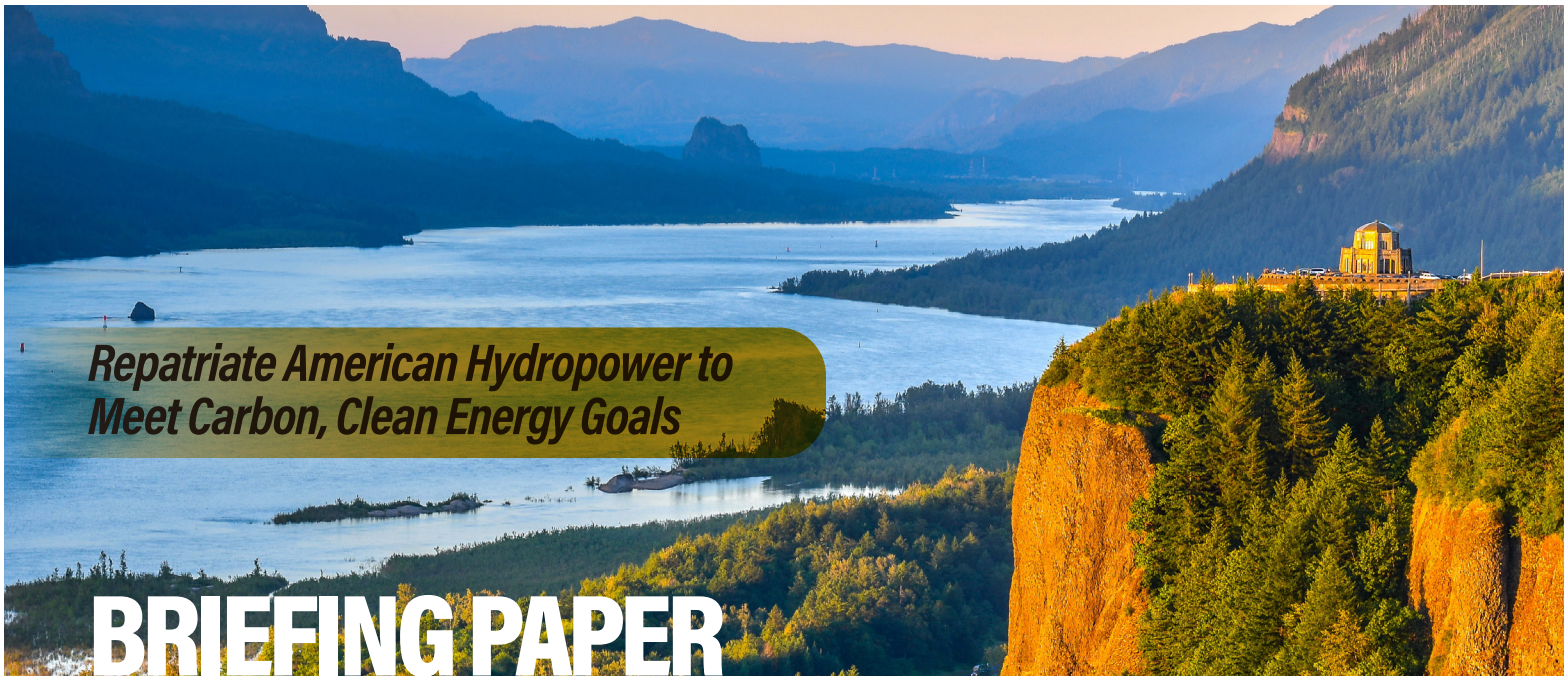


Repatriate American Hydropower to Meet Carbon, Clean Energy Goals

BRIEFING PAPER

A revamp of how we treat hydropower in the Northwest is critical to meeting our nation's clean energy goals while maintaining a reliable and affordable electric system. Hydropower capacity and flexibility can facilitate the clean energy transition by integrating wind and solar and electrifying other sectors of the economy, such as transportation and buildings. Returning hundreds of megawatts of hydropower energy and capacity to the United States instead of exporting it to Canada would be a powerful step in the right direction.

Actual Power Benefits Are A Fraction of Treaty Expectations

The world looks very different today than in 1964, when the United States and Canada agreed to the Columbia River Treaty for the mutual development of the Columbia River power and flood control systems. Under the Treaty, the U.S. provides payments to Canada, called the Canadian Entitlement (or CE), in the form of returned power generation. The CE amount is calculated using a formula from 1961, which was based on the expected improvement to U.S. hydropower generation capability due to Canadian storage.

Cover photo: Returning energy to the US would save more than $1 billion and enhance reliability efforts.

Today, these calculations exceed the actual benefits of coordinated operations by an estimated 70-90 percent. The Treaty was based on predictions about the future electric grid that did not come true. Fifty years ago, there was an expectation the United States would build thermal generation to meet increasing electricity needs. Instead, we have relied more heavily than anticipated on energy efficiency and wind power.

The Canadian Entitlement calculations exceed the actual benefits to the U.S. by an estimated 70-90 percent.

The U.S. also modified river operations to meet high survival standards for fish and other environmental needs that were not anticipated when the Treaty was negotiated. Importantly, the U.S. added several hydropower storage projects since the treaty was ratified, further reducing the significance of Canadian storage.

All these factors combine to reduce the value of coordinated operations with Canada. **Today, the U.S. is not getting what we pay for from Canada's storage projects.** Rectifying this problem is worth more than a billion dollars to U.S. consumers and can reduce the risk of reliability challenges in the US.

Domestic hydropower capacity is more valuable than ever

The burden of the CE return costs more than $150 million a year in lost hydropower value in today's markets that do not have enough carbon free electricity. That missing hydropower also limits the region's ability to protect against reliability events, especially as the grid transitions to a goal of 100 percent carbon-free resources.

Substantial changes are occurring in the Northwest electricity markets as legislation and regulations are enacted to limit carbon emissions in the electric sector. The Northwest currently finds itself facing significant deficits of capacity as coal-fired generation retires and the region uses less natural gas. Wind and solar can replace lost energy, but not the ability to produce electricity on demand. The region needs this capacity to reliably operate across a wide range of operating and weather conditions. **Hydropower is becoming increasingly valuable in this environment.**

By 2025, the Bonneville Power Administration forecasts that 450 average megawatts of energy and 1,300 megawatts of capacity will be delivered to Canada. The Canadians can take the hydropower for their own use or choose to sell it back to the U.S. (meaning U.S. customers end up paying once to generate the power and again to buy it for their customers). The Northwest needs to maintain and expand reliable, clean capacity assets now more than ever. Retaining hydropower for domestic use can reduce an unnecessary economic burden on Americans who need it to reliability serve load and meet clean energy goals.

Compounding the issue, the Treaty gives Canada tremendous flexibility to decide when the U.S. must send power benefits north. The Canadians use this flexibility to their economic advantage, taking returns when power prices are high, when the CE is most valuable, and when the US system has the greatest reliability risk. The costs associated with the Treaty's flexible return provisions are increasing as the electric system becomes more constrained due to carbon emission restrictions. The region needs ways to fill in the holes when the wind does not blow and the sun does not shine. This loss of flexibility has not been evaluated in defining the full cost of the CE return.

Clearly, Northwest electric ratepayers are not receiving value commensurate with cost. Reducing the CE is the single most important issue that could help reduce concerns about BPA's competitive position in the market.

A change is overdue

The U.S. needs a modified Treaty to protect U.S. electric ratepayers and position the U.S. for a smooth and reliable transition to a clean energy grid. Treaty negotiators from both Canada and the U.S. expected the power provisions of the Treaty would be terminated and renegotiated after 50 years. Dam construction is complete, and flood provisions automatically change in 2024, the 60th year since the Treaty was signed.

The United States and its electric power customers do not have to tolerate the status quo of inequitable power benefits. The U.S. State Department began negotiations with the Canadians in 2017 four years after a regional recommendation was concluded. Without providing notice of termination, the United States is likely stuck with continuing overpayments into the foreseeable future — even though we could have ended them by 2024 with a notice offered in 2014. The lack of progress in negotiations is consistent with the perspective of power users that the Canadians have little incentive to meaningfully negotiate while they are enjoying a sweet deal. Inaction has likely already cost ratepayers in the Northwest upwards of $1 billion.

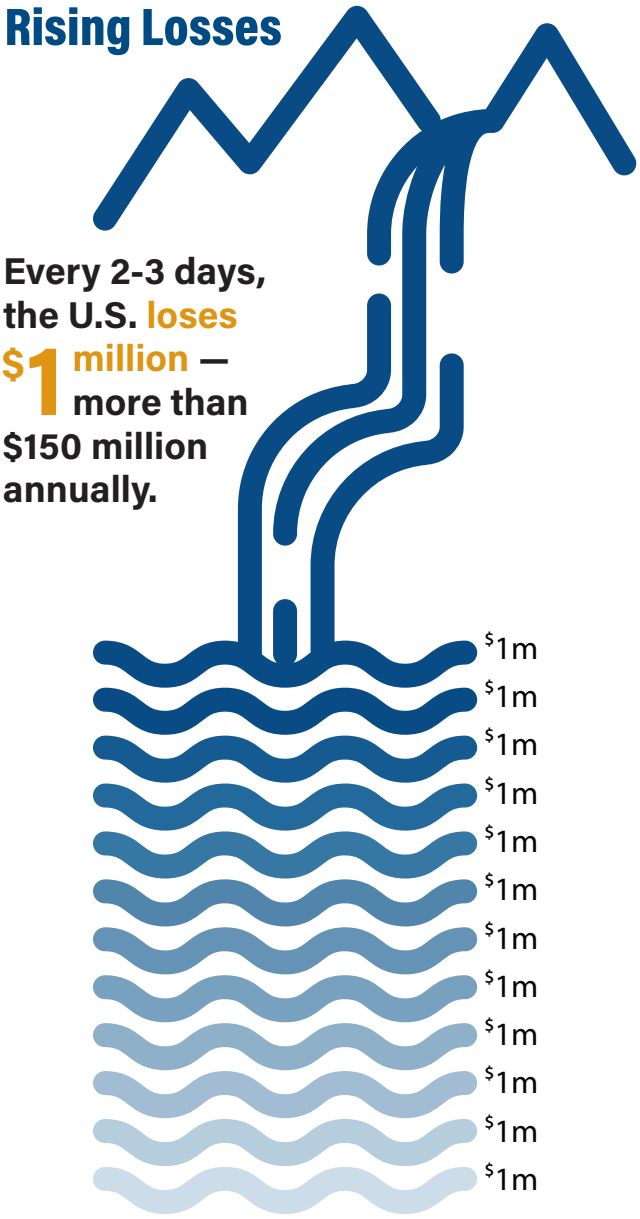
It is in the best interests of Pacific Northwest electric ratepayers to issue a notice to terminate the power provisions of the treaty. While there may be other considerations prompting the State Department to defer issuing notice, those considerations are related to other U.S. constituent or taxpayer interests — not ratepayer specific concerns. Therefore, ratepayers are subsidizing

national interests and should at a minimum be compensated, through a financial credit, for continuing to bear the burden.

The United States needs to take action to protect electric consumers from paying twice for the clean, renewable capacity generated from U.S. dams. If done immediately, we would save electric ratepayers tens of millions annually and keep more reliable, flexible, and affordable hydropower at home.

It's a step that's long overdue.

Rising Losses



Actions

- The U.S. State Department should issue the 10-year notice of termination of the power provisions of the Columbia River Treaty to initiate productive discussions with Canada.
- The U.S. State Department should allow the U.S. Entity to take a greater role in leading negotiations.
- BPA customers and non-federal downstream hydropower operators should have a role in negotiations, including analysis of technical data and assumptions.
- Until the Canadian Entitlement provisions of the Columbia River Treaty are renegotiated, the U.S. should take action to protect electric consumers. Congress should direct the Bonneville Power Administration (BPA) to reduce its annual repayment to the U.S. Treasury by an amount equivalent to the value of the Canadian Entitlement Return, minus the actual electric power value to the U.S. of coordinated river operations.