



Columbia Basin Hydropower

Summer Falls, a 94-megawatt-capacity hydropower project.

By **Tim Culbertson**

In May 1980, the boards of directors of the South Columbia Basin Irrigation District, the East Columbia Basin Irrigation District, and the Quincy Columbia Basin Irrigation District entered into an agreement for the development, operation, and maintenance of hydroelectric generating facilities to be developed on the irrigation systems of the Columbia Basin Project (CBP). The agreement created the Grand Coulee Project Hydroelectric Authority (GCPHA) to develop, operate, and maintain hydroelectric projects within the CBP. The GCPHA has the rights and obligations to perform the power development responsibilities as the agent and the representative of the districts. This past March, the board of directors of the GCPHA changed the entity's name to Columbia Basin Hydropower (CB Hydropower) and established its business headquarters in Ephrata, Washington.

CB Hydropower operates and maintains five power developments—Main Canal Headworks, Summer Falls, Russell D. Smith, Eltopia Branch Canal 4.6, and Potholes East Canal 66.0 (PEC) Headworks—and serves as liaison to the Federal Energy Regulatory Commission for the Quincy Chute and PEC Headworks.

CB Hydropower does not have authority to act as a utility, so it sells wholesale. The five projects that we operate supply power to the Cities of Seattle and Tacoma. The energy output from the other two projects, Quincy Chute and PEC Headworks, goes to Grant County Public Utilities District.

Rebranding

Our new name signifies a move to rebrand and differentiate the organization from the Bureau of Reclamation. The old name created confusion because people consistently considered our organization as part of Grand Coulee Dam. The fact that we worked in a Reclamation building compounded that confusion. With the new name—Columbia Basin Hydropower—we signify our autonomy and highlight that we are a subdivision of the three irrigation districts that make up the CBP.

As the GCPHA, we did not have a website or much recognition in the power community. We were heavily involved in the water community. As CB Hydropower, we have become more active in the Northwest Hydroelectric Association and are raising our profile through existing trade and utility associations. We have also established a website to raise our visibility

and highlight our history, as well as emphasize the opportunities before us.

Projects in the Pipeline

There is an opportunity for CB Hydropower to develop incremental sites with the onset of recent small hydropower legislation and associated funding opportunities. We have identified four conduit-type sites and one large pumped storage project adjacent to Grand Coulee Dam and the existing Keys Pumping Plant. By the end of this year, we are likely to make a recommendation to the board to build out four proposed conduit projects in Franklin County. We have been in discussions with the Franklin County Public Utilities District and others regarding power purchase agreements for those projects.

We are also assessing available technologies to facilitate the development of those sites. Two of the sites likely would use conventional hydropower, and two would employ low-head hydropower technology. CB Hydropower is in talks with Natel Energy to work on those low-head sites. We have visited Natel's first installation site in Oregon and are currently exchanging data to determine the feasibility of hydropower on the proposed sites.

Additionally, we are waiting for Reclamation to release preliminary assessment data on a number of sites in the Columbia River basin. We think there will be 30 to 50 more sites worth investigating for conduit projects. That is why we are seeking out technology that we can replicate, and why we have reached out to Natel.

North Dam Project

There has been a lot of interest in pumped storage projects, which often require new reservoirs and bring accompanying environmental issues. The North Dam project would use Lake Roosevelt and Banks Lake, two huge reservoirs that have long, sustained peaking capabilities, to produce 500 megawatts of power. While most pump storage projects only cycle water for a number of hours a day, the North Dam project would have 35 to 38 hours of sustained peaking capability. The project provides power support, capacity, and frequency regulation. This project provides all of the attributes that utilities consider ancillary and flexibility resources.

When we originally filed for the North Dam site, Reclamation wrote a strong letter to the Federal Energy Regulatory Commission opposing development of the site due to concerns about operational disruptions. We believe we have alleviated those concerns, and at this point in time, Reclamation is working cooperatively with us on the project. We now meet with the Bonneville



Power Administration and the Bureau of Reclamation on a monthly basis to try to keep this project moving forward.

We have been back to Washington, DC, to discuss the project. The U.S. Department of Energy has a large sum of money available in its loan program that would significantly impact the financial viability of this project.

The Northwest's federal hydropower system flexibility is near full capacity. The variable speed pumps of the proposed North Dam are projected to run at 80 percent efficiency—15–20 percent more efficient than the pumping technology used currently at Keys Pumping Plant at Grand Coulee Dam. Pump storage projects are net energy users. Keys pumps water from Roosevelt into Banks Lake, priming the entire Columbia River basin system. It is old and needs significant investment in rehabilitation. U.S. Department of Energy funds might be better spent on new plant.

As the region looks to energy imbalance markets and California weighs increasing its renewable standards to 50 percent by 2030, this project can fill real needs in those markets. Most of the storage proposed in the Pacific Northwest is battery, which is 5 to 10 times more expensive and has a larger carbon footprint than hydropower storage. CB Hydropower's next steps on the North Dam project are to continue the dialogue with Reclamation and the Bonneville Power Administration and to market the project across the region, especially to those utilities that will have peaking needs in the early 2020s.

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