

TESTIMONY OF KIERAN CONNOLLY
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BEFORE THE
SUBCOMMITTEE ON ENERGY
COMMITTEE ON ENERGY AND COMMERCE
U. S. HOUSE OF REPRESENTATIVES

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Good morning Mr. Chairman. My name is Kieran Connolly, and I am Vice President for Generation Asset Management of the Bonneville Power Administration (Bonneville).

Bonneville is a Federal power marketing administration headquartered in Portland, Oregon. I am pleased to be here to describe the significance of hydropower generation in the Pacific Northwest and the role played by Bonneville as a partner in the Federal Columbia River Power System (FCRPS) and a steward for the region's Federal hydroelectric assets. I will describe how Bonneville invests in the long-term maintenance and modernization of the hydropower assets in

an environmentally responsible and cost-effective manner. With that background, I will also discuss potential challenges to the long-term viability of the low-cost hydropower resource.

Bonneville is one of the largest providers of low-cost renewable energy in the Nation.

Bonneville markets power primarily generated at 31 Federal hydroelectric dams. These dams capture the power of the Columbia River and its tributaries and generate some of the most affordable electricity in the Nation. Owned and operated by the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation), the dams have a capacity of over 22,000 megawatts. Bonneville's power marketing portfolio also includes the Columbia Generating Station, a nonfederal nuclear plant, and a small amount of nonfederal wind projects. Bonneville's power portfolio produces a relatively low amount of carbon emissions.

Maintaining the hydroelectric resource as the low-cost resource of choice for Northwest preference utility customers contributes to Bonneville's long-term financial stability to ensure that Bonneville revenues continue to return repayments on Federal investment. Our ongoing investments in the hydropower equipment at these dams and in our transmission system will enable these facilities to continue to serve the region for many years.

Bonneville was created in 1937 to market the electricity from Federal dams that were first built in the New Deal after President Franklin Roosevelt saw the potential for harnessing river power as an engine for rural economies. In successive generations, the value of the river has been expressed in ways that met the challenges of the times – from bringing electricity to rural homes and farms; to powering the factories that built the ships and planes that won World War II;

integrating the electric resources of the Pacific Northwest; developing the interregional power exchange for the Pacific Northwest, California, and the Southwest through the Pacific Intertie; achieving the benefits coming from the Columbia River Treaty; and restoring the fish and wildlife so prized by the people of the Northwest. Today, hydropower remains the workhorse that powers the economy of the Pacific Northwest while also supporting the reliable integration of other renewable technologies such as wind and solar.

Bonneville maintains the hydroelectric projects of the Corps and Reclamation through direct funding of the power portion of operation and maintenance expenses. Bonneville also direct funds substantial investments in the rehabilitation of the Federal hydropower system. Bonneville finances the operations and investments for the hydroelectric assets and the associated Federal transmission system primarily through power and transmission revenues and borrowing from the U.S. Treasury that is recovered through rates to its power and transmission ratepayers. The interest on Bonneville's debt is at rates comparable to the rates prevailing in the market for similar bonds issued by government corporations. In FY 2016, Bonneville made its 33rd consecutive annual payment to the U.S. Treasury on time and in full. The total payment was \$1.9 billion for the fiscal year.

MAINTENANCE AND MODERNIZATION OF THE FEDERAL HYDROPOWER SYSTEM

Bonneville's partnership with the Corps and Reclamation provides for a sound program of maintenance and modernization of Federal hydro generation assets. In 1999, Bonneville, the Corps, and Reclamation produced a 20-year Asset Management Strategy for the FCRPS. The

overall goal of the strategy was to maximize the value of the FCRPS. Bonneville also stated two objectives for the strategy: establish the level of power and joint-use investments needed to restore the reliability of the FCRPS to industry standards or better; and assess the ability of the FCRPS to enhance revenues.

Today, a collaborative team with representation from Bonneville, the Corps, and Reclamation strives to achieve and expand upon the goals of the 1999 Asset Management Strategy through the use of industry leading portfolio optimization tools in order to better inform the selection and timing of investments. These tools are integral in the development of the long-term System Asset Plan, which was first developed in 2016 and is refreshed on an annual cycle.

The team identified five key indicators of FCRPS performance: cost of power; material condition; reliability; environmental stewardship; and safety. These indicators provide ways to establish how the FCRPS has performed relative to other hydropower systems and to track progress toward meeting the objectives of the strategy. Bonneville reviews priorities for investments in public processes involving its customers and other interested regional constituencies prior to filing its power rate proposals every two years.

These investments are financed through direct funding, authorized by Congress in 1992, which allows Bonneville to provide funds to the Corps and Reclamation for maintenance and modernization of the power assets at the dams, without their having to receive annual appropriations. Bonneville recovers the cost of direct funding through its power rate revenues.

For operation and maintenance, these cost are recovered annually; for capital expenses, Bonneville in effect borrows the funds from the Treasury and recovers these costs over time.

A promising initiative I would like to raise for the Subcommittee's awareness is recent discussions between the Corps and the Federal Power Marketing Administrations (PMAs) for improved collaboration between the agencies. One area of focus in these discussions is streamlining the acquisition and delivery process for major hydropower equipment. The acquisition of major hydropower equipment such as turbines, generators, transformers, circuit breakers, etc., is a complicated process that typically requires the development of multi-million dollar contracts with very technical specifications. Where the acquisition process (planning through installation) is delayed, it can sometimes result in a unit being out of service for a period. This would reduce generation and lead to a loss of revenue (due to increased replacement power expenses for the PMAs); in turn, these circumstances would contribute to rate increases for power customers. To address this concern, the Corps and the PMAs have a work plan established for a collaborative review of acquisition and delivery processes with the objective of identifying where there are opportunities to increase efficiencies and improve collaboration in order to reduce lead time and costs. I appreciate the Corps' commitment on this effort.

HYDROPOWER IN A CHANGING ENERGY MARKET ENVIRONMENT

Western electricity market design is evolving to respond to attributes of a changing electricity resource mix. Responding to state mandates, Federal incentives, and the declining cost of technology, much of the West is meeting electricity demand increasingly through other

renewable resources, particularly wind and solar. In this evolution, hydro offers adaptable operational capability to integrate these resources, particularly intermittent resources, reliably and at low cost. Though hydro has been historically operated in the Pacific Northwest to meet base loads, it now can offer value from operating to meet the just-in-time needs of intermittent renewable generation. The value of hydropower for these types of services needs to be recognized.

Our first obligation is to provide reliable supply power to our wholesale preference utility customers in the Northwest. But with surplus power available in most years and the ability to provide multiple services from these resources, we're eager to find enhanced value from the flexibility of hydro generation that provides services that could defer the need to construct new baseload or flexible generation.

Connecting the Columbia River hydro generation with the rest of the West is the Pacific Northwest-Pacific Southwest Intertie electric transmission system. This system links our region and British Columbia with electricity generation and loads in California and the Southwest. This combination of high-voltage transmission totals more than 7,000 megawatts of electric transfer capacity between the two regions.

This transfer capacity allows the flexibility of Pacific Northwest hydro generation to respond to the hour-to-hour shape of electric generation from variable wind and solar resources in California and elsewhere. Market design to incent the optimal use of hydro should increase the value of Northwest hydropower assets.

One additional challenge in the evolving electricity market is the impact of low natural gas prices, and to a lesser extent renewable resource incentives, on the wholesale market price for electricity. Historically, the price of natural gas has set the benchmark for the wholesale electricity price. In this era of historically low gas prices, Bonneville's surplus power sales have not generated the levels of secondary sales revenue that Bonneville experienced before the shale boom. Consequently, the appropriate valuation of hydropower in the evolving electricity market is important to the bottom line of Bonneville's ratepayers.

FISH AND WILDLIFE RESTORATION

The FCRPS is also unique in the extensive modifications and operational changes made for the recovery of fish and wildlife. Since the 1980 Northwest Electric Power Planning and Conservation Act, hydro revenues have financed billions of dollars towards improved design and operation of the dams as well as offsite restoration efforts for watershed health sponsored by tribes, states, and rural communities. The trend of salmon and steelhead return of hatchery and wild fish is up.¹

¹ *ACOE et al. 2017. U.S. Army Corps of Engineers Northwestern Division, Bureau of Reclamation Pacific Northwest Region, and Bonneville Power Administration. 2017. Endangered Species Act. Federal Columbia River Power System, 2016 Comprehensive Evaluation, Page 5 <https://www.salmonrecovery.gov/doc/default-source/default-document-library/fcrps2016comprehensiveevaluationsection1.pdf?sfvrsn=0>*

It is a challenge to balance investments in fish restoration while maintaining the hydropower generation for the region. The Northwest as a whole has engaged in examining the science and committing to long-term strategies with demonstrated promise. Notwithstanding this science-based approach, some parties in the region continue to call for more spill, as a presumptive operation, to be provided when fish are migrating as a presumptive path, which would reduce power generation. Bonneville believes the Federal hydrosystem is operating with carefully calibrated conditions for fish survival as demonstrated by continuous scientific monitoring and that adjustments to operations should be made through the applicable statutory processes and in coordination with the responsible Federal agencies and regional States, Tribes, and other stakeholders. This issue is in litigation in U.S. District Court in Oregon and was the subject of a hearing in that Court on March 9.

We are very concerned by proposals to suspend specific scheduled investments in projects at the dams. Additionally, Bonneville is often the first resort for regional utilities facing their own generation challenges. Even though the region is in a period of relatively robust energy supply, forced outages can interrupt customer loads. As recently as December 2016 a large regional utility was forced to seek emergency assistance from Bonneville due to the unexpected loss of a generating resource during cold weather conditions. Poorly maintained equipment and the resulting risks of loss of generating units is not a trivial matter to the reliability, safety and environmental performance of the Federal hydropower system.

A MODEL OF FEDERAL AGENCY COLLABORATION

Finally, I would like to add that the collaboration of Bonneville, the Corps and Reclamation for operation and maintenance of the FCRPS is but one example of the collaboration among Federal agencies in the Pacific Northwest in support of the hydrosystem's mission. For many years, the Federal agencies with responsibilities for fish and wildlife have participated in the Federal Caucus for developing collaborative strategies for their roles in recovering salmon and steelhead listed for protection under the Endangered Species Act. Just recently, Bonneville completed a Memorandum of Understanding with the U.S. Forest Service for consultations on management and maintenance of transmission lines on public lands managed by the Forest Service. These represent the culture of cooperation among the Federal agencies in our region in pursuit of our respective missions.

That concludes my prepared remarks, Mr. Chairman, and I would be happy to respond to questions from the Subcommittee.