

**U.S. House of Representatives
Committee on Natural Resources
Subcommittee on Water and Power**

Oversight Hearing on:

Hydropower: Providing 75% of America's Current Renewable Energy. Exploring Its Role as a Continued Source of Clean, Renewable Energy for the Future

Testimony of:

**Tim Culbertson, General Manager
Public Utility District No. 2 of Grant County (Grant PUD)**

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INTRODUCTION

Good Afternoon –

Madam Chairwoman, Ranking Member Cathy McMorris Rodgers and members of the Subcommittee, my name is Tim Culbertson, General Manager of Public Utility District No. 2 of Grant County (Grant PUD). I sincerely appreciate the opportunity to testify about this very important subject, and would like to especially recognize Ranking Member McMorris Rodgers for inviting me to participate today.

Grant PUD is a consumer-owned utility that serves a rural, predominantly agricultural population in central Washington State. Hydropower, irrigation-canal hydropower and wind power comprise our total electric generation capacity of over 2,000 megawatts, which provides clean, emissions-free and renewable electricity for our state's families and businesses, including 43,000 customers in Grant County, as well as millions of consumers throughout the Pacific Northwest.

My message today is simple – **there is tremendous untapped, emissions-free hydro electric generation potential in the U.S.**

Too often, hydropower is overlooked or taken for granted. This is an unfortunate oversight because hydropower – which does not generate **any** greenhouse gas emissions – is a domestic resource that deserves more attention as part of the nations renewable energy supply.

HYDROPOWER IS PART OF THE SOLUTION

In 1901, Congress passed the first Water Power Act, enabling hydropower to make extraordinary contributions to our nation's economy and security. With congressional assistance, hydropower capacity in the United States tripled between 1920 and 1940.

Today, hydropower is the largest renewable resource in the United States – and there is more hydropower that can be readily obtained. Existing hydropower generation in the U.S. totals 289

million megawatt hours¹, which represents approximately seven percent of the net energy generation in the U.S. Domestic hydropower equates to over 190 million tons of avoided greenhouse gas emissions in the U.S. per year.²

According to a March 2007 report released by the Electric Power Research Institute (EPRI), there are 90,000 megawatts of untapped water power generation potential in the U.S. This could produce enough energy to serve the needs of 22 cities the size of Washington, DC and equates to over 250 million tons of potential reductions in greenhouse gas emissions per year that is unrealized in the U.S.³

By the year 2025, EPRI reports that the U.S. has the potential to develop 10,000 megawatts (or 11 percent of the total above) from new small hydro, capacity gains at existing hydro sites and new generating facilities at existing dams. Let me repeat: 10,000 megawatts of clean, renewable hydropower without building a single large new dam. This is enough renewable energy to serve Washington, DC, Baltimore, MD and Richmond, VA, and represents over 29 million tons of potential avoided greenhouse gas emissions per year.⁴

HYDROPOWER'S "FIRMING" BENEFITS

Building a sustainable U.S. energy future will require the use of all climate-friendly technologies currently available, as well as new and advanced hydropower technologies. Adding hydropower capacity has the dual benefit of providing significant and much needed "firming" support for other clean, renewable resources.

For example, as the U.S. increases the amount of renewable resources in its overall portfolio, hydropower is one of the few base-load, climate-friendly generating resources well suited to "firming" intermittent or non-dispatchable resources such as wind. Firm power is energy that is guaranteed to be there when you need it. As the development of wind, solar and other intermittent resources grows, hydropower is the perfect partner to "firm" and "shape" those resources because it can respond immediately to fluctuating electricity demand. In addition, today's hydro turbines convert over 90 percent of available energy into electricity, making it one of the most efficient forms of power generation. Without reliable, efficient and climate-friendly base-load "firming" resources such as hydropower, the value of intermittent or non-dispatchable resources is greatly reduced.

ADDITIONAL BENEFITS

Another important attribute of hydropower is that it provides significant peaking capacity and ancillary services to bolster the reliability, stability and resilience of the Nation's transmission system. These ancillary benefits include frequency control, load following, spinning reserve, supplemental reserve and black-start capability. The August 2003 blackout in the East Coast was a testament to these benefits, where hydropower projects in New York and elsewhere remained online and were valuable in restoring power to the region.

¹ U.S. Energy Information Administration

² Based on the U.S. average emissions of 1,366 lbs/MWh

³ Based on 50 percent electric generating facility capacity factor

⁴ Based on 50 percent electric generating facility capacity factor

COMMITMENT TO ENVIRONMENTAL PROTECTION

Keeping our Nation's hydropower resources operating while also meeting today's important environmental standards represents a significant investment by utilities and consumers. For example, according to the "Sixth Annual Report to the Northwest Governors on Expenditures of the Bonneville Power Administration (BPA)" by the Northwest Power and Conservation Council, consumers in the Pacific Northwest have invested approximately \$9 billion through 2006 on fish and wildlife recovery efforts since the passage of the Northwest Power Act in 1980.

For our part, Grant PUD – in collaboration with tribes, federal and state fish agencies and environmental interests – has met or exceeded the 93 percent fish passage survival standard for spring Chinook salmon at our two-dam Priest Rapids Project on the mid-Columbia river. In April 2008, the Federal Energy Regulatory Commission (FERC) unanimously approved a new 44-year license to Grant PUD to operate the Priest Rapids Project. Grant PUD's new license for the Priest Rapids Project is living proof of the potential gains available at existing dams across the country. Our capacity is increasing from 1,755 megawatts under the old license to 1,893 megawatts with turbine replacements at Wanapum Dam – an increase of 138 megawatts. These capacity and efficiency improvements ensure that more than 1,000 average megawatts of clean, renewable hydropower – along with substantial new natural resource protection measures – continues for many years into the future.

OPTIMIZING HYDROPOWER

As described in the EPRI report, 10,000 megawatts of untapped small hydro, capacity gains from existing facilities and new generation facilities at existing dams can be achieved by the year 2025. However, that will require aggressive congressional support and expansion of economic incentives, such as the Production Tax Credit and Clean Renewable Energy Bonds program, to include all hydropower resources and new, advanced technologies.

In addition, federal funding is almost non-existent for the Department of Energy's (DOE) Hydropower & Waterpower R&D Program. This program received a mere \$10 million in 2008. At a minimum, \$54 million is needed in FY 2009. This amount corresponds to the research, development and deployment needs and opportunities identified in the EPRI report.

For our part, Grant PUD has already begun to optimize existing water resources with more efficient hydro generating equipment. At Wanapum Dam, we are installing new advanced hydropower turbines – which show a three percent efficiency increase and improved fish protection. All ten turbines at Wanapum Dam will be replaced with new, advanced hydro turbines by the year 2014, and at a cost of \$150 million. DOE's hydropower R&D program contributed to the development of this new technology. Continued and additional federal support, in partnership with industry, is critical to expand the development of untapped, renewable hydropower resources and technologies.

By the way, new technologies also include new environmental technologies, which can translate into more energy output from the same amount of water flow. For example, Grant PUD just completed installation of a \$35 million fish bypass system at Wanapum Dam to improve survival

for downstream migrating salmon. Better fish passage technologies allow dam operators to potentially reduce non-generating “spill” through a project. As a result, more renewable energy can be generated using the same amount of water. We can increase both fish protection and renewable hydropower generation.

HYDROPOWER WORKS

The bottom line –reducing emissions will require federal partnership and support for the rapid deployment of this substantial untapped, renewable, emissions-free resource. Hydropower can be part of the domestic energy solution and is one of the few base-load, renewable energy sources in the U.S. that is both emissions-free and can “firm” intermittent or non-dispatchable energy, such as wind. Working together, we can realize hydropower’s potential, increase our Nation’s domestic clean energy portfolio and reduce our electric sector emissions by nearly 10 percent.⁵

Madam Chairwoman, Ranking Member McMorris Rodgers, and members of the Subcommittee, I thank you for your leadership in holding this important hearing on hydropower’s significant role as a source of clean, renewable energy for the future.

Thank you.

⁵ Based on 250 million tons of potential emission reductions per year that is unrealized in the U.S.