Written Testimony of Andrew Munro

On behalf of

The National Hydropower Association

Before the

U.S. Senate Committee on Energy & Natural Resources

Regarding

S. 629, to improve hydropower, and S. 630, to promote marine and hydrokinetic renewable energy research and development

March 31, 2011

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Written testimony of the National Hydropower Association before the Senate Energy and Natural Resources Committee regarding S.629, the Hydropower Improvement Act of 2011 and S.630, the Marine and Hydrokinetic Renewable Energy Promotion Act of 2011. Presented by Andrew Munro, President, National Hydropower Association, March 31, 2011.

Introduction

Good morning Chairman Bingaman, Ranking Member Murkowski and members of the Committee. I am Andrew Munro, President of the National Hydropower Association (NHA). I am also the Director of External Affairs for the Grant County Public Utility District located in the central part of the state of Washington. Grant County PUD is a consumer-owned utility that serves a rural, predominantly agricultural population. Hydropower, irrigation-canal hydro and wind power comprise our total combined generating capacity of approximately 2,000 MW. I would also like to acknowledge Senator Maria Cantwell, who is my Senator from the "other Washington".

The National Hydropower Association greatly appreciates this opportunity to discuss with you two important pieces of legislation -- S.629, the Hydropower Improvement Act of 2011, and S.630, the Marine and Hydrokinetic Renewable Energy Promotion Act of 2011, both of which we strongly support.

My message today is simple – There is a real opportunity to increase U.S. hydropower generation that will strengthen our economy, environment and renewable energy supplies.

I will go into further details on each bill later in my testimony, but to summarize, NHA believes S.629 and S.630 represent significant steps forward to promote increased deployment of clean and renewable hydropower, pumped storage and marine and hydrokinetic (MHK) projects. We urge the Committee to proceed swiftly to mark-up on these bills, and we support full Senate passage as soon as possible.

Background

NHA is a national association dedicated exclusively to advancing the U.S. hydropower industry, including conventional hydropower, pumped storage, conduit power and marine and hydrokinetic technologies. We seek to secure hydropower's place as an available, reliable, affordable and sustainable energy resource that serves our national environmental, energy, and economic policy objectives.

NHA represents more than 180 companies in the hydropower industry, from Fortune 500 corporations to family-owned small businesses. Our members include both public and investor-owned utilities, independent power producers, project developers, manufacturers, law firms and environmental and engineering consultants.

Today, hydropower projects generate power in every region of the country and are America's leading source of domestic renewable electricity. Hydropower accounts for approximately 7 percent of the nation's total electricity generation and two-thirds of our renewable electricity generation. Hydropower capacity in the United States is currently about 100,000 MW.

Hydropower generation avoids millions of metric tons of carbon emissions each year. In fact, regions that rely on hydropower as a primary energy source, such as Grant County and Washington State, reap the benefits of significantly cleaner air. Satellite imagery has shown that the Pacific Northwest, home to the most hydropower in the United States, is an island of low carbon emissions.

In addition to this clean energy, hydropower infrastructure also provides a myriad of other important benefits, including managing river flow for species and habitat protection, water supply, recreation opportunities, irrigation, flood control and navigation.

And importantly, hydropower and pumped storage assets provide essential grid reliability and stability services such as the ability to quickly meet changing demand in load, firming for intermittent variable energy resources, and blackstart capability in times of outage (such as the August 2003 East Coast blackout, where hydropower projects in New York and Canada operated continuously and also served as the base for restoring power to millions of Americans).

Hydropower is a proven renewable energy resource – one that has been in use in our country for well over 100 years. However, hydropower is also an energy resource for our future, with tremendous growth potential. One of the many myths about hydropower is that there are no new opportunities for growth in our industry. In fact, the opposite is the case.

Right now, there are proposed projects totaling over 88,000 MW with pending license applications and preliminary permits filed with the Federal Energy Regulatory Commission (FERC). These projects span every sector of the waterpower industry. And while not every single one of these projects may be built, the list demonstrates the universe of untapped hydropower potential that exists.

In 2009, NHA commissioned a study examining the hydropower industry's job-creation and growth potential. That assessment confirmed what Energy Secretary Steven Chu has described as an "incredible opportunity" to develop America's "lowest-cost energy option."

The study found that the industry could add up to 60,000 MW of capacity by 2025, which could support the creation of approximately 1.4 million cumulative direct, indirect and induced jobs across the country.

In the study, Navigant Consulting estimated that 9000 MW alone could come from upgrades and additions of capacity at existing hydro facilities, with another 10,000 MW by converting non-powered dams into generating assets.

The result of the study, confirmed by the project development pipeline before FERC, led NHA to adopt an ambitious, but achievable, goal of doubling the U.S. hydropower industry's contribution to the electric system. And in January, NHA, in response to President Obama's

State of the Union address, committed to meet 20 percent of the 80 percent clean energy goal by 2035.

NHA believes America should take maximum advantage of our nation's infrastructure. Adding capacity and increasing efficiencies at existing hydropower facilities and installing generation equipment to existing non-powered dams are two near-term steps to reach this goal, as we also look to the long-term effort to expand hydropower resources. For example, only about 3 percent of the nation's approximately 80,000 dams currently generate hydropower; just 3 percent.

My utility, Grant County PUD, illustrates how our nation can better maximize our existing infrastructure and sustainably increase renewable energy generation – through modernizing existing hydro facilities with more efficient electric generating equipment and environmental enhancement technologies. The PUD is in the process of a major upgrade at one of our hydropower projects. At our Wanapum Dam, we are installing new, advanced-designed hydro turbines and new generators, which will result in a 12 percent generating capacity boost and support our fish survival rate of 95 percent. We also built a $35 million, 290-foot fish "slide" for which studies show a fish survival rate of 99 percent for steelhead salmon using the slide.

These are examples of modern technologies that allow hydropower operators to improve safe fish passage, while also expanding renewable energy generation. We can have both fish and renewable generation at hydropower facilities.

While Grant PUD's work spotlights the opportunities for growth in the hydropower industry, additional policy support from the federal government is needed to promote these opportunities nationwide. Simply put, conducting business as usual will not provide the incentive to fully realize the untapped potential available throughout the country. Crucial near-term policy changes include:

- A more efficient licensing and permitting process with greater intergovernmental cooperation;
- Tax policies that encourage more investment in hydropower technologies and deployment;
- Re-investment in the federal hydropower system; and
- Renewed commitment to R&D initiatives.

In NHA's opinion, the Hydropower Improvement Act of 2011 and the Marine and Hydrokinetic Renewable Energy Promotion Act of 2011 take a substantial policy step forward to expand our hydro resources in a pro-active and balanced approach.

The Hydropower Improvement Act of 2011

As stated earlier in my testimony, NHA fully and strongly supports this bipartisan bill and commends the leadership shown by the original cosponsors of the legislation.

The Hydropower Improvement Act of 2011 sets a dynamic hydropower agenda for the nation. The bill will advance project deployment (from conduit power and small hydro to non-powered dams to pumped storage) by requiring better interagency coordination; through funding of competitive grants for increased production; and with continued support for research and development activities. All of this while ensuring continued environmental reviews and public participation are part of the process.

NHA believes the Hydropower Improvement Act of 2011 represents a common-sense result, achieved through outreach to the agencies, industry, the environmental community and other stakeholders. It not only seeks to stimulate deployment and increase clean energy generation, but takes a moderate approach that respects and values the environmental principles and the public participation standards that have been an important part of the hydropower development process. I will now highlight some of the provisions of particular interest to NHA and the hydropower industry.

Section 7 of the bill would promote development at existing non-powered dams and closed-loop pumped storage by requiring FERC to investigate a 2-year pilot licensing process for these projects.

NHA and the industry appreciate the work of Congress, FERC, and other agencies and stakeholders on past improvements to the regulatory environment for hydropower development (for example, the consensus provisions contained in EPAct of 2005 and the 2003

integrated licensing process (ILP)). However, the hydropower regulatory process, in comparison to those for other energy resources such as wind or natural gas, remains considerably longer. The ILP is structured to be completed in 5 to 5.5 years followed by the time needed for construction, while the development timeline for wind and natural gas projects, for example, can be as short as 18-24 months.

At a time when project developers are competing for a limited pool of funding from investors, or when utilities are seeking the quickest return on investment for their customers and shareholders, hydropower project development is put at a competitive disadvantage. Section 7 attempts to address this disparity. It does not mandate a 2-year process, but requires FERC to examine the possibility and move forward with a pilot process or report back to Congress if such a process is deemed not practicable. However, NHA believes a 2-year process is possible and improvements can be made while maintaining environmental standards and resource protection.

Section 5 of the bill creates a competitive grants program for increased hydropower production. While the section focuses on existing infrastructure and conduits, it also includes applications to develop and perform environmental studies and carry out environmental mitigation measures. These costs can be significant and affect the economics of projects, particularly small projects. Providing a mechanism to support these activities is a win-win, ensuring that environmental data is collected and mitigation, if needed, conducted while gaining the benefits of additional renewable electricity generation.

Section 8 allows for conduit projects on federal lands and directs FERC and other federal agencies to enter into a Memorandum of Understanding (MOU) to better coordinate reviews of these projects. It also requires regional workshops to seek public input to reduce barriers and investigate improvements to the regulatory process for small hydro and conduit projects. NHA believes there is significant growth potential in the small hydro/conduit power sectors of the industry.

NHA has seen numerous towns and counties across the country re-examine the feasibility of retrofitting their local dam infrastructure to add power generation equipment as well as to invest in irrigation power projects and others. Increasing the efficiencies in the process to support these projects makes sense – as we have seen recently with the MOU between FERC and Colorado to simplify the procedures for developing small-scale hydro in the state.

NHA also supports the provisions in the bill to increase deployment of federal hydropower resources. Section 13 requires a report to Congress updating the status of the federal hydropower MOU signed by the Departments of Energy (DOE) and Interior and the Army Corps of Engineers (Corps). Section 10 requires FERC and the Bureau of Reclamation (Bureau) to complete a new MOU to improve the coordination and timeliness of non-federal hydropower development at Bureau projects.

The federal system makes up approximately 50 percent of U.S. hydropower generation. As such, the Bureau and the Corps will play a major role in meeting the growth potential goals of the industry. NHA and the industry want to work as partners with these agencies. Recently, we were pleased to see the Bureau re-examine potential opportunities for new hydro facilities on their projects as well as the outreach they have conducted on conduit opportunities. NHA also understands that the Corps and FERC are close to updating their MOU on non-federal hydropower development at Corps facilities.

Section 6 of the bill requires the Department of Energy continue to fund R&D activities and provides for a new technical assistance program to assist applicants applying for a new license or for re-licensing. NHA believes the DOE waterpower program is critical to support advancements in technology research and project deployment, with tremendous benefits for hydropower projects both federal and non-federal. We appreciate the work of the Department and the recent funding levels that have supported it (though the FY 2012 budget proposes a funding cut). We believe Congress must continue to invest, not retreat, from the waterpower program – the smallest of the renewable energy programs at the Department. NHA understands that the Department will be releasing new details on the status of the U.S. hydro system as well as potential development on non-powered dams. It is work such as this that highlights the importance of the waterpower program.

Lastly, the bill directs a series of studies to be conducted including: a DOE study of pumped storage project opportunities on federal and non-federal lands near existing or potential sites of

intermittent renewable resource development; another DOE study of potential from existing conduits; and a Bureau of Reclamation study on barriers to non-federal development at Bureau projects. These studies and reports will provide the baseline resource data on the growth potential for these sectors – data that is currently incomplete or has never been compiled.

With all of these provisions, the Hydropower Improvement Act is a comprehensive piece of legislation that recognizes the vital role of hydropower as an affordable, reliable, available and sustainable domestic energy source and sets a course to significantly increase its contribution to our nation's electricity supply.

The Marine and Hydrokinetic Renewable Energy Promotion Act of 2011

NHA also strongly supports the Marine and Hydrokinetic Renewable Energy Promotion Act of 2011, S.630. Marine and hydrokinetic technologies represent a huge opportunity to create reliable, clean energy. While these technologies are currently in various stages of research, development and deployment, thousands of megawatts of potential are available from ocean energy projects from New England to the West Coast and Alaska, and in-river hydrokinetic projects proposed along the Mississippi River and others.

Focusing on these new technologies, the National Hydropower Association established an Ocean, Tidal and New Technologies Council. The council examines potential growth opportunities of emerging technologies, shares information among industry members, and

provides a forum in which to discuss the various challenges ocean, tidal, hydrokinetic and emerging water technologies face.

The Marine and Hydrokinetic Renewable Energy Promotion Act particularly addresses the needs of the MHK industry by creating programs to develop these technologies, test devices, gain environmental and other data, and deploy. Section 3 is a critical piece of the bill, as it provides for the establishment of MHK test facilities to demonstrate technologies in actual operating environments here in the United States.

The international MHK industry has seen the benefit of such facilities, particularly in Europe. The United Kingdom established the European Marine Energy Center in Scotland almost a decade ago.

The center has directly assisted the advancement of the European MHK industry by providing independent assessment of devices' energy conversion capabilities, structural performance and survivability; research and engineering support; testing validation; and other services. In addition to the test centers, Section 5 of the bill would establish a similar device verification program and Section 6 would also create an MHK grants program.

Finally, the bill also seeks to better coordinate and reduce duplication of activities across the federal agencies supporting MHK development. As in the conventional hydropower industry,

NHA believes that regulatory improvements are possible for MHK project development, while still maintaining environmental standards and resource protection.

The United States must lead in the development and deployment of MHK technologies, not lag behind. Not only will this increase the amount of our clean energy generation, but it will create new markets, both domestically and internationally, for U.S. companies and American products and technologies -- markets that will stimulate domestic job growth and new economic opportunities.

Conclusion

In closing, I would like to acknowledge collaboration demonstrated by the organizations appearing before you today. Over the past several years, American Rivers and the National Hydropower Association have mutually and purposely called upon our respective organizations to demonstrate leadership together in an effort to move our country forward on sustainable energy policy.

We have jointly supported hydropower technologies in renewable energy and tax policies over the past several years. Speaking for NHA, I encourage Congress and the Administration to join us in working together on a balanced and sustainable energy future – that grows our economy, expands renewable energy and enhances our environment. The Hydropower Improvement Act of 2011 has built on that partnership and we look forward to further collaboration on the bill to move it forward.

NHA also appreciates the cooperative relationship with the Ocean Renewable Energy Coalition. Both of our organizations believe that marine and hydrokinetic technologies will play a critical role in meeting our country's clean energy goals and we both support policies that promote their commercial development.

Every state in the Union is already home to hydropower projects, hydro equipment manufacturing plants, companies that benefit from the hydropower supply chain and consumers who enjoy hydro's lower electricity costs. This job-sustaining sector of our economy has the potential for substantial growth, and we believe the bills you are considering today provide key support to fully realizing this growth.

There is much at stake and hydropower, America's leading affordable, reliable, and renewable domestic energy resource, stands ready to help meet our common clean energy goals. We look forward to working further with the Committee and other groups on these bills, as we also continue to advance additional policies to stimulate development of the country's untapped hydropower resources.

I thank the Committee for providing me this opportunity to testify on hydropower's current and future role in meeting our nation's environmental, energy and economic objectives and look forward to answering your questions.