



THE POWER OF WATER

**America's hydropower industry
gets a boost from U.S. legislation**

BY MICHAEL HARRIS

Hydropower is the nation's most available, reliable, affordable and sustainable energy source. Requiring only the power of moving water—rivers, streams, ocean waves and tides—hydropower is renewable and available domestically. As the most widely used form of renewable energy, hydropower accounts for about 16 percent of the world's electricity needs. So far, however, only about 30 percent of global hydropower resources have been developed, and expanding capacity could create millions of jobs.

In the United States, hydroelectric projects are being proposed that will produce significant amounts of environmentally clean, sustainable energy. However, as with most development projects, politics and regulation play a key role. Two significant bills are helping spur American hydroelectric development, while sector leaders are hoping additional legislation and industry action can help carry the momentum.

In 2013, when President Barack Obama enacted the Hydropower Regulatory Efficiency Act and the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act, their passage was seen as a coup for the hydroelectric power industry and a harbinger of development within the U.S. The legislation—billed by the National Hydropower Association as the first significant pieces of energy legislation to have been enacted since the American Recovery and Reinvestment Act in 2009—included a number of conditions designed to streamline the regulatory process for certain types of hydroelectric projects. Both bills received overwhelming bipartisan support and important components in Obama's all-of-the-above plan that seeks to develop every available source of American energy.

"Today, no area holds more promise than our investments in American energy," Obama said during one of his State of the

Union addresses. "After years of talking about it, we're finally poised to control our own energy future."

An Eye on Potential

Both acts seek to encourage private development in America's hydro sector, which, according to estimates released in April 2014 by the U.S. Department of Energy and Oak Ridge National Laboratory, could provide up to 65 gigawatt (GW) of new capacity across more than three million U.S. rivers and streams. Hydro currently makes up 7 percent of all domestic power generation and leads as America's largest source of renewable energy, according to National Hydropower Association data, though only 3 percent of the 80,000 dams and other potential generating sites in the country are currently developed to produce electricity.

According to U.S. Secretary of Energy Ernest Moniz, "Hydropower can double

its contributions by the year 2030. We have to pick the covers off of this hidden renewable that's right in front of our eyes and continues to have significant potential.”

Changing the System

Although both pieces of legislation were designed to promote the development of small hydropower by cutting red tape, each addresses separate areas of the federal regulatory process. Specifically, the Hydropower Regulatory Efficiency Act (HREA) has:

- Increased the Federal Energy Regulatory Commission (FERC) small hydro exemption from 5 megawatt (MW) to 10 MW;
- Removed conduit projects under 5 MW from FERC jurisdiction;
- Increased the conduit exemption to 40 MW for all projects;
- Provided FERC the ability to extend preliminary permits; and
- Required FERC to examine a two-year licensing process for non-powered dams and closed-loop pumped-storage.

Meanwhile, the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act streamlines the process for proposals on Reclamation-owned tunnels, canals, pipelines, aqueducts, flumes, ditches and similar manmade infrastructure up to 5 MW in capacity.

The act also applies Reclamation's "categorical exclusion" from the National

Environmental Policy Act of 1969 (NEPA) in order to eliminate redundancies in the approval process, while also including language pursuant specifically to projects that would have been subject to review under the Water Conservation and Utilization Act of 1939. The version of the bill enacted by President Obama also expands the act's scope to include any Reclamation-owned projects that might have been excluded from a previous version of the legislation that died in Congress the prior year.

In-Conduit Inroads

Although the full effectiveness of HREA remains to be seen until FERC finalizes its two-year licensing process in 2017, the Reclamation Act is already showing significant signs of spurring American small hydropower growth as intended. As of December 1, 2014, notices of intent to construct have been filed with FERC for 49 conduit projects. The projects—primarily located in California and the Pacific Northwest—would have a cumulative output capacity of more than 23.6 MW.

The 26 projects that have been approved by FERC have a cumulative capacity of 10.55 MW, while another 16 pending approval could add another 8.73 MW of capacity. The remaining applications were rejected. "Staff expects to see a significant number of these filings in the future based on industry inquiries and comments," a representative from FERC said, noting that the average processing time from the filing of the notice of intent to the final determination has already dropped to about 60 days.

Implementing HREA

FERC has recently been active in meeting stipulations required by HREA, finalizing its rules on preliminary permits and exemptions to conform to the bill in September 2014. However, the agency is still in the process of investigating the two-year licensing process for non-powered dams and closed-loop pumped-storage and sought pilot projects to test the new process in January 2014.

FERC selected a 4.9 MW proposal by Free Flow Power Project 92 LLC in August 2014 for a project to be developed at the Kentucky River Authority's existing Lock and Dam No. 11 on the Kentucky River in Estill and Madison counties of Kentucky. Free Flow Power was given until January 30th to complete studies and apply for water quality and coastal zone certifications, and until May 5th to file its license application. FERC will then issue its combined acceptance and ready for environmental analysis notice by July 4th, per a letter sent by FERC to Free Flow Power in August 2014.

Preliminary minimum criteria established by FERC for the two-year process include stipulations that a project must:

- Cause little or no change to existing surface and groundwater flows and uses;
- Not adversely affect federally listed threatened and endangered species;
- Include a letter from the dam owner saying the plan is feasible, if the proposal is to be located at or to use a federal dam;
- Include a letter from the managing entity giving its approval to use the site if the proposal is to use any public park, recreation area or wildlife refuge; and
- Not be continuously connected to a naturally flowing water feature if a closed-loop pumped-storage project.

The commission has previously said it intends to hold a final workshop on the effectiveness of the HREA pilot project by February 2017, with a report on its findings to be submitted for congressional review by April of that year.



Approved by FERC in 2012, the Gibson Dam Hydroelectric Project is being constructed on an existing non-powered U.S. Bureau of Reclamation Dam located in north central Montana.

FERC's preliminary rulemaking stated, "Congress recognized that it could encourage hydropower development by reducing costs and regulatory burden during the project study and licensing stages. To that end, the Hydropower Regulatory Efficiency Act amends statutory provisions pertaining to preliminary permits and projects that are exempt from licensing."

American Hydro Moving Forward

The potential for hydroelectric growth is not only reflected in the enactment of the 2013 legislation, but also an initiative launched by the U.S. Department of Energy (DOE) in 2014 called "Hydropower Vision." The plan is intended to increase hydropower's visibility by quantifying and monetizing the advantages that make it an attractive consideration for policymakers, developers and consumers. While the plan is still being developed with the input of industry members from across the sector, the hope is that it will provide a spark for hydro much like a similar DOE initiative did for America's wind energy producers beginning in the mid-2000s.

"We have been working quite a bit trying to move toward a roadmap for this industry," DOE Wind and Water Power Program Manager Jose Zayas said while unveiling Hydropower Vision in April 2014. "What is the role of the government? What is the role of the industry? What is the role of other stakeholders and what do we need to do to make these things happen in order to try to maximize the possibility? The key section of this report is taking that picture, taking that understanding, taking all that information and then distilling it to the activities that all of us must do. The desire is to involve as many industry members and advocates as possible, making the plan truly representative of the hydro sector at-large."

DOE has previously said that it plans to provide an update on the Hydropower Vision plan during the National Hydropower Association's (NHA) Annual Conference in April, with a draft report to be issued in the third quarter of this year. Meanwhile, NHA and other industry leaders are also working to ensure that hydroelectric power is included in the Environmental Protection Agency's (EPA) proposed Clean Power Plan. The plan, announced in June 2014, is a performance standard for reducing carbon dioxide emissions from existing power plants under

the Clean Air Act, Section 111(d), and would require each state to reduce its emissions to meet state-specific standards starting in 2020, with a final rate for 2030 and beyond.

A letter submitted by NHA to the EPA in November 2014 says, however, that 111(d) "does not fully value hydropower's contributions in reducing past and future levels of carbon emissions from electric systems," with both existing and future hydropower being "significantly" undervalued. NHA's comments also say EPA's proposal "does not accurately characterize hydropower's future growth potential" and seeks to ensure hydropower is included as a carbon-reducing consideration as states begin shaping their policies.

The proposal relies on an assumption that hydropower generation will remain flat through 2030, NHA said, although the organization notes more than 930 MW of new capacity were commissioned in the U.S. between 2009 and 2013. The group also said FERC issued authorizations for an additional 610 MW of cumulative capacity in the same timeframe—much stimulated by federal tax incentives and existing state renewable portfolio standards. According to NHA, more than 310 projects representing more than 43,000 MW of new conventional, pumped-storage, conduit, and marine and hydrokinetic energy are under consideration for approval by FERC.

What it All Means

With a clear interest in developing America's hydroelectric resources at the national level, developers must begin taking advantage of policies and programs being offered. Speaking in July 2013, NHA Executive Director Linda Church Ciocci said, "Far from being tapped out, hydropower has the potential to play an even larger role in our diverse electricity portfolio as we strive for a cleaner energy future and a stronger economy."

The sentiment is one that has been echoed by many on Capitol Hill, as reflected by the strong bipartisan support both the Hydropower Regulatory Efficiency and Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs acts received.

"So often, because we can't get collaboration in the energy space, instead of a win-win, we get a lose-lose," Sen. Ron Wyden (D.-Ore.), said. "It

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seems to me that what hydro has done in the last few years is becoming the gold standard in terms of collaboration and showing how you can bring people together."

Collaboration throughout the industry remains important as the sector continues pushing state and federal agencies to further emphasize hydropower's role in America's energy mix—particularly as they begin establishing carbon reduction goals for the decades to come. Industry members are also encouraged to continue their participation in helping DOE shape the Hydropower Vision plan, given that it is intended to provide a long-term outlook and guide for the entire sector.

"This is an exciting time," Zayas said. "But we believe the time is now, and we need all of your help."

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