Written Testimony of

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On behalf of

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Before the

U.S. House of Representatives Energy and Commerce Committee
Energy and Power Subcommittee

Regarding

Legislative Hearing on Eight Energy Infrastructure Bills – Hydropower Extension of Commence Construction Deadlines

February 2, 2016

Executive Summary

1. The existing hydropower system provides roughly 7 percent of all U.S. electricity generation and close to half of all renewable electricity generation, making hydropower the single largest provider of renewable electric power in our country.
2. Hydropower also has significant growth potential, particularly at existing non-powered dams. These types of projects, exemplified by those before the Subcommittee today, are some of the lowest impact developments in the energy sector.
3. Projects can face a variety of obstacles that push back construction timelines. These include delays in necessary post-licensing construction approvals, additional environmental permits, refinements in final project design, continuing negotiations on power purchase agreements, securing financing, and others.
4. NHA supports the bipartisan efforts in both the House and Senate to address regulatory inefficiencies and to improve coordination in the overall hydropower project approval process, including the issues that lead to the need for commence construction deadline extensions.
5. New small hydropower projects, such as these on existing water infrastructure, have a critical role to play in meeting our nation's energy, climate, and economic development objectives and will add to our portfolio of renewable, carbon-free resources.

Introduction

Good morning Chairman Whitfield, Ranking Member Rush and members of the Subcommittee. I am Jeffrey Leahey, Deputy Executive Director of the National Hydropower Association (NHA). I am pleased to be here to discuss several pieces of hydropower legislation to reinstate and extend the deadlines for the commencement of construction for several licensed hydropower projects and how these projects are illustrative of the new growth potential we see in the U.S. hydropower industry. The bills include: H.R. 2080, 2081, 3447, as well as two bills yet filed for Federal Energy Regulatory Commission (FERC) projects 12642 and 12715.

As background, NHA is a nonprofit national association dedicated to promoting clean, affordable, renewable U.S. hydropower – from conventional hydropower to pumped storage to marine and hydrokinetics. NHA represents more than 220 companies, from Fortune 500 corporations to family-owned small businesses. Our members include both public and investor-owned utilities, independent power producers, developers, equipment manufacturers and other service providers, and academic professionals.

U.S. Hydropower and Growth Potential

Currently, the U.S. hydropower fleet is made up of almost **2200 individual plants** with a total capacity of approximately **80 GW**.[1] These plants provide roughly **7 percent** of all U.S. electricity generation and close to **half** of all renewable electricity generation – making

[1] 2014 Hydropower Market Report, Department of Energy, Office of Energy Efficiency and Renewable Energy, Wind and Water Power Technologies Office and Oak Ridge National Laboratory, Executive Summary P. V. http://energy.gov/eere/water/downloads/2014-hydropower-market-report

hydropower the single largest provider of renewable electric power in our country.[2] These figures do not include the additional **42 hydropower pumped storage plants** with approximately **22 GW** of capacity – projects that make-up almost all, **97 percent**, of utility-scale energy storage in the U.S. today.[3]

Hydropower generation avoids millions of metric tons of carbon emissions each year. In fact, regions that rely on hydropower as a primary energy source reap the benefits of significantly cleaner air with some of the lowest carbon intensity rates in the country. In addition to this clean and renewable energy, hydropower infrastructure provides other important benefits, including managing river flow for species and habitat protection, flood control and drought management, water supply as well as others.

The map on the following page was developed by the Department of Energy (DOE) through Oak Ridge National Laboratory (ORNL) and provides a visual representation of the size and location of projects for both the federal and non-federal hydropower systems. Existing hydropower assets are located in all but two states (Delaware and Mississippi), though every state receives the benefit of the clean renewable generation that these projects provide.

[2] 2014 Hydropower Market Report and Energy Information Administration data. http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_1_1_a
[3] 2014 Hydropower Market Report, Executive Summary P. VIII.

The contributions of the existing hydropower fleet to the electric grid are many (baseload power, peaking generation, load-following, energy storage, reliability and more). And it is because of the need for more of these benefits and services that NHA has seen the hydropower industry grow and expand in recent years. In fact, the United States experienced a net capacity increase of **1.4 GW**[4] from 2005 to 2013, enough to power over half a million homes[5], with even more

[4] 2014 Hydropower Market Report, Executive Summary P. VI.
[5] An Assessment of Energy Potential at Non-Powered Dams in the United States, Department of Energy, Office of Energy Efficiency and Renewable Energy, Wind and Water Power Technologies Office and Oak Ridge National Laboratory, April 2012, Executive Summary P.VII, Footnote 1.
http://nhaap.ornl.gov/sites/default/files/NHAAP_NPD_FY11_Final_Report.pdf

projects in licensing or in the construction phase today. And this despite an approval process that takes years longer than that of other renewable resources.

One of the prime areas of this growth in the hydropower industry is on existing infrastructure, such as non-powered dams or conduits. The projects highlighted in the hearing today showcase these opportunities: two are proposals to add generation to Bureau of Reclamation dams; two are proposals to add generation to Corps of Engineers dams; and another is a proposal to add generation at a dam owned by a locality, in this case New York City. It is interesting to note that while most view hydropower as a west coast renewable resource, these projects are located across the country outside of the hydropower-rich states of Washington, Oregon and California. One is proposed in the Northeast (New York). One is proposed on the Maryland-West Virginia border. One in the Southeast (North Carolina). And two in Montana.

Taking a moment to discuss the details of the projects further, they are all small hydropower projects ranging in capacity from the 4.0 MWs to 15 MWs:

- W. Kerr Scott project (North Carolina) – 4.0 MW;
- Clark Canyon hydroelectric project (Montana) – 4.7 MW;
- Cannonsville Dam project (New York) – 14 MW;
- Jennings Randolph Dam project (Maryland) – 14 MW; and
- Gibson Dam hydroelectric project (Montana) – 15 MW.

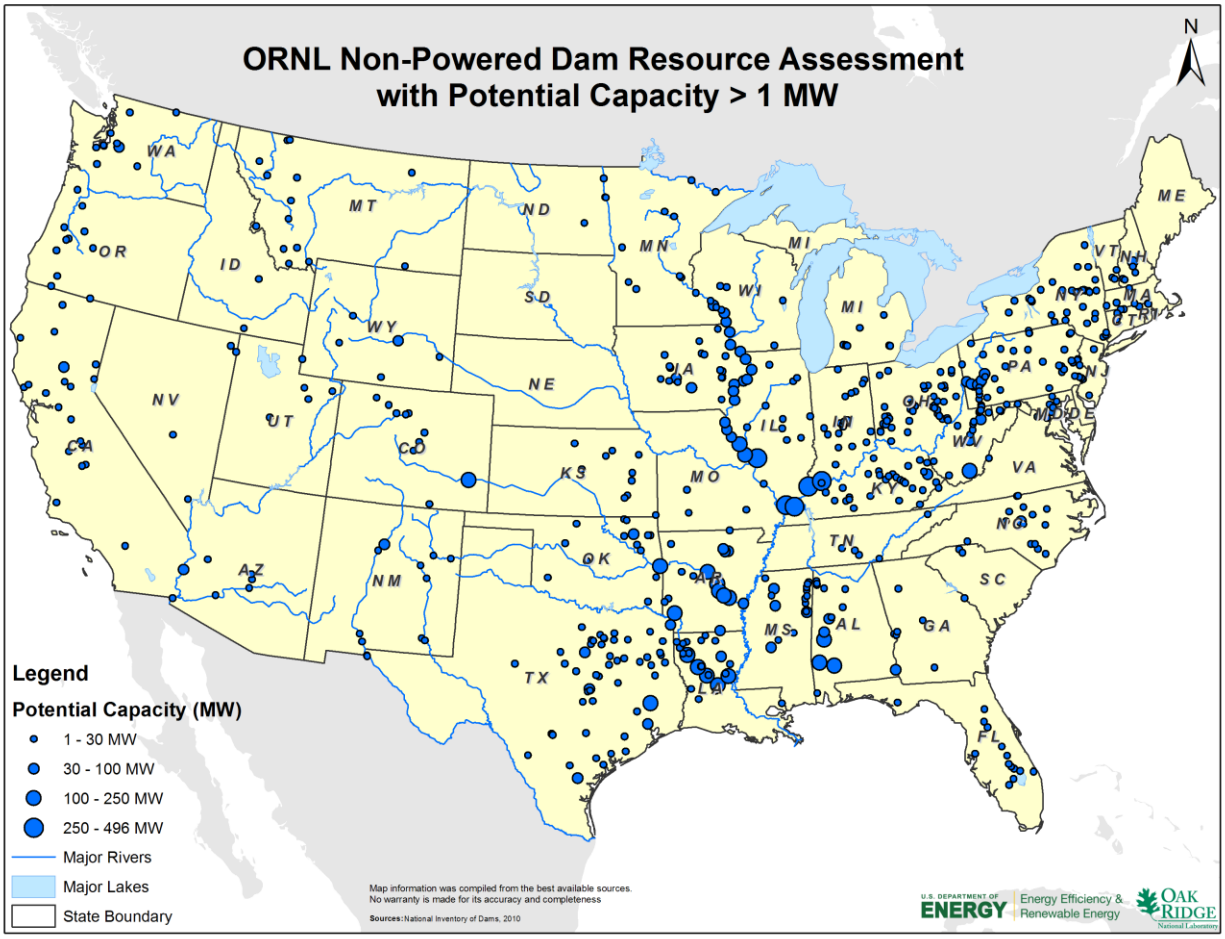
Added together, these small projects, once built, will add **51.7 MW** of capacity to the system, enough to power close to another **21,000 homes**.[6]

[6] 2012 Non-powered Dams Report, Executive Summary, P.VII, Footnote 1.

These projects exemplify the broader opportunities that exist to build on the nation's existing infrastructure. Of the approximately 80,000 dams in the U.S. today only **3 percent** have electric generating facilities. Put another way, **97 percent** of our dams do not produce power and were built for other purposes such as water supply, irrigation, navigation and recreation. NHA recognizes that not every existing dam may be a suitable candidate to add power generating equipment, as many factors come into play in development decisions: project economics; generation potential; natural resource considerations; transmission needs; dam safety; etc. However, what this statistic shows is the large untapped universe of potential opportunities that exist.

Those dams that are candidates for hydropower development are infrastructure that will continue to exist, operate and release flows to meet water supply, irrigation, flood control, and other purposes for which they were originally constructed – regardless of whether hydropower facilities are installed. It is good public policy to take advantage of these existing releases to capture the energy currently untapped at these sites to add to our portfolio of renewable, carbon-free resources.

The Department of Energy recognized this opportunity and in 2012, through the Oak Ridge National Laboratory, released an assessment of potential capacity at non-powered dams for projects greater than 1MW. The map below on the following page depicts the size and location of the top projects of that survey with capacity greater than 1 MW.



The results of the study show that over **12 GW** of potential exist across the existing system with **8 GW** of potential available at the top 100 sites.[7] Also of interest, **81 of the top 100** sites were located on federal facilities, in particular, Army Corps of Engineers dams.[8]

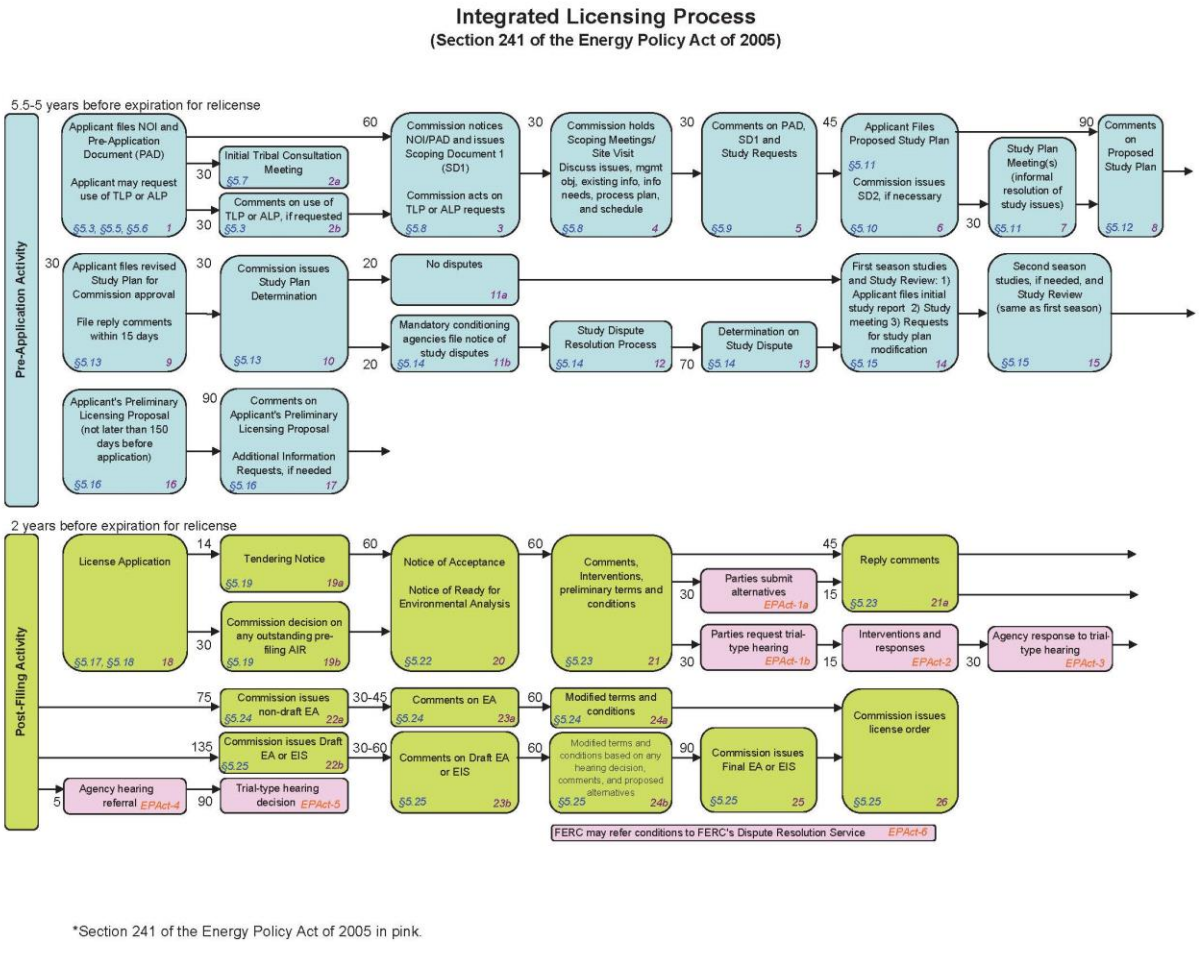
These types of projects, including the five proposals here today, are some of the lowest impact developments in the energy sector. No new dams need to be built and the projects aim to utilize existing flows through the projects. This water is already moving through the system, what better way to maximize the benefits of this infrastructure by also generating clean, renewable power with them.

[7] 2012 Non-Powered Dams Report, Executive Summary P.VII and VIII.
[8] 2012 Non-Powered Dams Report, Executive Summary P.VIII.

Addressing the Need for Hydropower Project Extensions

The projects subject to this hearing, as well as others, can face a variety of obstacles that push back construction timelines, thus necessitating the action the Subcommittee is taking today. Speaking generally, these can include delays in necessary post-licensing construction approvals, additional environmental permits, refinements in final project design, continuing negotiations on power purchase agreements, and others.

To begin, hydropower has the longest, most complex development timeline of any of the renewable energy technologies, with projects taking **10 years or longer** from the start of the licensing process through construction to being placed-in-service. This process requires a considerable up-front financial commitment from the developer to undertake the engineering and environmental studies required for various federal and state approvals. The chart below on the following page outlines the integrated licensing process or ILP, the default process for authorizing hydropower projects.



*Section 241 of the Energy Policy Act of 2005 in pink.

A multitude of federal and state agencies, as well as the public and other stakeholders, play a major and important role in the process. And in the chart above, additional authorizations such as those required by the federal dam owners are not included, coming at the end of the timeline after the FERC issuance of the license.

Water is a public resource and NHA and the industry recognize the necessity and need for thorough review of new project applications. However, this overall process can also be a reason for delays in projects moving to start of construction. For example, for projects adding generating facilities to non-powered federal dams, FERC may issue a license, yet that project

cannot commence construction until it has received additional approvals from the federal owner of the dam. If there are unanticipated delays for those additional needed approvals, no work can commence.

NHA notes that the House of Representatives has passed legislation (the North American Energy Security and Infrastructure Act, H.R. 8) and the Senate is currently debating a bill (the Energy Policy Modernization Act, S. 2012) that contain bipartisan provisions to address regulatory inefficiencies and to improve coordination in the overall hydropower approval process. In addition, the Water Resources Reform and Development Act of 2014 also provided direction to the Corps of Engineers to make the development of non-Federal hydroelectric power at Corps civil works projects a priority and requiring Corps permitting be completed in a timely and consistent manner. Finally, S.2012 specifically aims to address the issue at hand for these hydropower projects before the Subcommittee today, containing a provision that provides for an applicant to receive an extension of the commence construction deadline for up to an additional 8 years. This would alleviate the need for individual project developers to get these congressionally-approved extensions. NHA strongly supports all these efforts.

Secondly, design refinements and changes for projects at federal facilities are an issue that can, on occasion, result from the interaction and discussion with the federal owners as developers proceed to construction. In working cooperatively with the federal owners, developers must show that the final construction plans will not interfere with the original purposes of the federal dam and also not harm the integrity of the dam, which is completely appropriate.

There have been instances, where through these discussions, design changes were proposed post-licensing and pre-construction, which materially differed from the design of the project as originally licensed by FERC. As a result, additional consultation between the developer, FERC and the federal owner has been needed to approve these changes.

Lastly, securing power purchase agreements is another area where industry members report difficulties. In fact, in testimony before this Subcommittee last year, Cube Hydro, a project developer, testified:

> "Regulatory uncertainty and the ever-present risk of project delays make it difficult to acquire power purchase agreements (PPA) for the sale of power from the plant, as potential off-takers are reluctant to sign up for long term agreements for uncertain projects. The failure to obtain a PPA, in turn, inhibits a developer's ability to obtain project financing creating a vicious cycle that has caught many proposed hydropower projects."[9]

As Cube Hydro also testified, and other NHA members have reported, the uncertainty and delays impact the ability to secure financing, including post-licensing financing to cover construction costs, which then also impede the developer's ability to meet the start construction deadline. Hydropower projects have many merits (long life spans, low fuel costs, low O&M costs and more), however, the near-term risks and uncertainties can affect both the decisions by investors on where and when to commit their capital and the ability to secure PPAs.

[9] Energy and Power Subcommittee Hearing, Discussion Drafts Addressing Hydropower Regulatory Modernization and FERC Process Coordination under the Natural Gas Act, Testimony of John Collins, Cube Hydro, P. 7. http://energycommerce.house.gov/hearing/discussion-drafts-addressing-hydropower-regulatory-modernization-and-ferc-process

Conclusion

New hydropower projects have a critical role to play in meeting our nation's energy, climate, and economic development objectives. The five projects the Subcommittee considers today are prime examples of the tremendous growth potential that exists by utilizing existing water infrastructure across the country. These projects involve partnerships between private developers, the Bureau of Reclamation, and the Corps of Engineers. And in one case, the developer itself is the city of New York.

Until Congress comprehensively addresses hydropower licensing, cases such as these, requiring special legislation from Congress to extend construction deadlines, will continue. It is NHA's hope that the additional time granted by these extensions will allow the projects to complete the process and protect the significant investment of time and financial resources by both the developers and the federal government.

I thank the Subcommittee for providing me this opportunity to testify and I look forward to answering your questions.