

Written Testimony

Republican Policy Committee Millennial Task Force

Hearing on

The Hydropower Workforce

September 25, 2017

Good morning Madame Chairwoman, and thank you for the opportunity to speak to the Task Force about hydropower.

My name is Charles Hernick and I am the Director of Policy and Advocacy at Citizens for Responsible Energy Solutions Forum. CRES Forum is a non-partisan, non-profit organization committed to educating the public and influencing the national conversation about commonsense clean energy. My remarks are informed by years of experience studying workforce issues for public utilities in the water sector as a consultant to U.S. EPA, over a decade working in the energy and environmental sector across the U.S. and abroad, and as a Millennial myself.

CRES Forum believes it is time for actionable, market-friendly, fiscally responsible clean energy solutions. America is a world leader in innovation and the clean energy economy—and hydropower specifically is the next frontier.

When it comes to Millennials and hydropower, I'd like you to keep three things in mind:

- First, hydropower has a long and proven track record in the United States. We are building off a legacy of stable, renewable power. Recent technological innovation makes it one of the most dynamic sources of power today.
- Second, over the next decade, a generation of workers will retire and require the hydropower sector to fill openings for well-paying managerial, supervisory, and

highly skilled craft worker positions. Millennials will be among the strongest candidates to take these jobs.

- And finally, it is in our national interest to take advantage of such an abundant domestic natural resource and pair it with a new generation of human capital to build resilient local economies across the U.S.—especially in rural America. Thoughtful and effective public policy will help.

*Hydropower is historic and key to a clean energy future*

Hydropower is a uniquely American clean energy source. The first hydropower plant opened 135 years ago in the small town of Appleton, Wisconsin. In the century since, hydropower has become critical to our energy infrastructure; in fact, it provides four states with more than half of their power needs and another four states with at least one-quarter of their power.<sup>1</sup> At the same time, it fulfills essential needs like water management, flow and flood regulation, and land protection for areas that provide important ecosystem services such as recreation and critical habitat.

Hydropower covers a wide variety of technologies. We are familiar with the iconic conventional hydropower technologies: dams, which store water (potential energy) behind a generating facility and harnesses power as it runs through turbines. This type of conventional hydropower project represents the clear majority of U.S. hydropower generation, but the frontier of hydropower looks totally different and leaves behind many of the environmental and social challenges building dams creates.

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<sup>1</sup> Washington, Idaho, Oregon, and Vermont are over 50 percent hydropower. South Dakota, Montana, Alaska, and Maine are over 25 percent hydropower. Source: [https://www.washingtonpost.com/graphics/national/power-plants/?utm\\_term=.b61ffbd74da2](https://www.washingtonpost.com/graphics/national/power-plants/?utm_term=.b61ffbd74da2)

The future of hydropower includes ocean wave, tidal, and hydrokinetic power. It also includes run-of-river approaches that maximize power generation and minimizing disruptions to the river that affect local economies—and fishery-dependent economies often miles away.

One of the biggest opportunities comes from the hydropower industry's increased focus on projects that maximize the benefits of our existing infrastructure: dams, canals, water systems, and abandoned coal mines. We can add new, more efficient generating equipment to existing facilities and add generating capacity to infrastructure that has none today. Other areas of growth include closed-loop pumped storage systems, which can help solve intermittency and pricing problems as additional solar and wind generation are added to the grid. We can do a better job capturing energy in the water all around us – these new technologies are the answer we have been looking for.

*The hydropower sector needs the Millennial workforce*

A key step is assuring that what we have in natural resources (natural capital) is matched with human capital, ingenuity, and the enthusiasm of a new generation of workers.

The hydropower sector is about to turn over. Workers currently in the hydropower sector are older than the U.S. average: concentrated between the ages of 46 and 55, with large numbers planning to retire by 2030.

Fortunately, hydropower jobs are good jobs. The sector will need the Millennial workforce to take well-paying managerial, supervisory, and highly skilled craft worker and technical positions. The right people for these jobs won't be ready overnight. It will take the right education and training to position Millennials to research new technologies. It will take a new generation of engineers (of all types), geologists, hydrologists, biologists, ecologists, to design systems that maximize power and minimize negative impacts. It will take construction workers,

managers, and skilled operators. This is an exciting field because it requires expertise from so many professions.

These jobs are well distributed across the country. Much of our existing dams are in rural America. And with emerging technologies--canals, drinking water systems, waste water systems, and waterfronts--urban infrastructure in need of repair and reinvestment can be retrofit. Across America the right minds must be put to the test of drawing out more power from the sleeping assets we have already.

*Assuring Millennial engagement in the hydro sector is critical to energy dominance, strengthening rural economies, and clean air and water*

I'm confident that Millennials are up to the challenge, but it is also up to the men and women in the industry and our leaders—including you as our elected representatives—to help articulate and build awareness of the opportunity at hand.

Energy policy that supports a truly “all of the above” approach and ensures a level playing field is critical. As a part of that policy Congress should provide funding for critical programs that will make the future of hydropower cleaner. It's worth investing in and making the newest environmentally- and fish-friendly technologies operational.

We also need infrastructure policy that looks at revitalizing old assets as an opportunity for public-private-partnerships and multiple-uses including energy generation.

We also need to encourage innovation, options, and competition in the education system to ensure that students can get a job after high school, pursue a trade or technical degree that will align with highly skilled craft worker positions in hydropower, or pursue higher education for engineering and managerial positions. We need to start now by working with colleges and

universities and technical institutions so that the workforce is skilled in time for the turnover of the "old guard."

Capitalizing on these opportunities will assure that we capture the economic and societal benefits of both existing and potential new hydropower. Entire communities supported by hydropower energy generation and economic development are not a thing of the past—done right it can help preserve the character of our communities, especially those in rural America. Hydropower can support long-lasting careers that keep families together, boost local small businesses, stimulate overall economic growth, generate tax revenue for key services such as first responders, libraries, and parks, yield less air and water pollution compared to other sources of energy production, and avoid greenhouse gas emissions. It is my hope that Congress makes opportunities for Millennials in the hydropower sector a top priority over the next several years.

Hydropower is an American comparative advantage. Let's keep it that way.

Thank you for your time and consideration. I am happy answer any questions you have.