



November 14, 2022

Dr. Sunita Satyapal  
Director, Hydrogen Fuel Cell Technologies Office  
Office of Energy Efficiency and Renewable Energy  
U.S. Department of Energy  
Forrestal Building  
1000 Independence Avenue, SW  
Washington, DC 20585

Re: Comments of the National Hydropower Association on the Clean Hydrogen Production Standard Draft Guidance

Dear Dr. Satyapal:

The National Hydropower Association (“NHA”) is a non-profit national association dedicated to securing hydropower as a clean, carbon-free, renewable, and reliable energy source that provides power to an estimated 30 million Americans. Its membership consists of more than 300 organizations, including public and investor-owned utilities, independent power producers, equipment manufacturers, and professional organizations that provide legal, environmental, and engineering services to the hydropower industry.

NHA promotes innovation and investment in all waterpower technologies, including conventional hydropower, marine and hydrokinetic power systems, and pumped storage hydropower to integrate other clean power sources, such as wind, solar, and clean hydrogen. NHA appreciates the opportunity to submit the following comments in response to the U.S. Department of Energy’s Clean Hydrogen Standard (“CHPS”) Draft Guidance (“Draft Guidance”).<sup>1</sup>

### **Background on Hydropower**

NHA’s members own and roughly 85% of the U.S. hydropower generating capacity, which includes over 100 Gigawatts (“GW”) of hydropower and pumped storage capacity.

Hydropower is a clean, flexible, and reliable energy source that supports an estimated 72,000 well-paying jobs in the United States.<sup>2</sup> The sector also generates more than 6 percent of the country’s utility-scale electricity and nearly one third of all utility-scale renewable power. In

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<sup>1</sup> U.S. Department of Energy, Clean Hydrogen Production Standard (CHPS) Draft Guidance (September 22, 2022). <https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard.pdf>

<sup>2</sup> U.S. Department of Energy, U.S. Hydropower Workforce: Challenges and Opportunities (October 2022). <https://www.energy.gov/eere/water/articles/new-report-highlights-hydropower-industrys-demand-new-diverse-talent>



addition, pumped storage, which is a long duration energy storage asset, provides over 90 percent of energy storage on the grid.

Approximately one-third (281) of U.S. Federal Energy Regulatory Commission (“FERC”) hydropower operating licenses are scheduled to expire by 2030 and almost half by 2035 (459).<sup>3</sup> These 459 licenses include over 9,000 megawatts of hydropower capacity, which translates into 22 million metric tons of carbon dioxide emissions avoided per year, electricity for 4.8 million homes and avoiding the emissions from nearly 5 million cars annually.<sup>4</sup> The licenses also include nearly 8,400 megawatts of pumped storage capacity, which accounts for 38 percent of the nation’s total energy storage capacity, which is 400 percent more energy storage capacity than that of all battery installations constructed from 2010 to 2020.<sup>5</sup>

NHA also wants to emphasize that there is significant growth opportunity that remains in the hydropower industry. It is a myth that hydropower is an industry that is “tapped out.” For example, for pumped storage alone, there are over 50,000 MW of proposed projects at FERC. Other development opportunities include capacity additions and efficiency improvements at existing facilities, adding generation to non-powered dams, new greenfield small hydropower projects, as well as marine energy projects.

## **1. Clean hydrogen can be produced by existing and new generation**

Both the Infrastructure Investment and Jobs Act (“IIJA”) and Inflation Reduction Act (“IRA”) provide significant funds and incentives for the domestic development of clean hydrogen. Qualified clean hydrogen is defined under §45V as “...hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of not greater than 4 kilograms of CO<sub>2</sub>e per kilogram of hydrogen.”<sup>6</sup>

Numerous existing technologies, including hydropower, have a life cycle emissions rate less than that required under §45V. Hydropower, as one of the non-emitting sources of energy, can be a practical and powerful source of clean hydrogen as defined under §45V. When implementing the IIJA and IRA the Department of Energy, and by extension the Internal Revenue Service and Department of Treasury, should not discriminate between new and existing resources. As stated above, there are existing facilities at risk where the value proposition of clean hydrogen could be a way to support the continued operation of those facilities. Developers could also pair electrolyzers with repurposed non-powered dams, expansions of existing conventional hydropower and pumped storage generation, or marine energy projects to produce clean hydrogen. When implementing the IIJA and IRA, the Federal government should not preclude these avenues for clean hydrogen development when Congress explicitly granted them.

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<sup>3</sup> National Hydropower Association, *17 GWs of Hydropower at Risk* Fact Sheet.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> 26 USC § 45V(c)(2)



### 1.1 *Implementation question c)*

DOE asks in the Draft Guidance:<sup>7</sup>

Should renewable energy credits, power purchase agreements, or other market structures be allowable in characterizing the intensity of electricity emissions for hydrogen production? Should any requirements be placed on these instruments if they are allowed to be accounted for as a source of clean electricity (e.g. restrictions on time of generation, time of use, or regional considerations)? What are the pros and cons of allowing different schemes? How should these instruments be structured (e.g. time of generation, time of use, or regional considerations) if they are allowed for use?

NHA recommends that the DOE utilize existing renewable energy generation constructs wherever possible. Developers and offtakers have different business models depending on the value proposition of their projects and their business strategies. Some entities utilize Power Purchase Agreements for the volume required to serve the load while also locking in price. The evidence required is simply the contract itself. Renewable Energy Credits are tracked, and those tracking mechanisms can be utilized.<sup>8</sup> Other entities may decide to build the hydrogen production infrastructure behind the meter or point of interconnection of the generator. The DOE should support as broad of a net as possible as we seek to develop clean hydrogen.

Thank you very much for considering these comments. NHA would welcome the opportunity to discuss these issues further with DOE.

Sincerely,

/s/ Michael Purdie

Michael Purdie  
Director of Regulatory Affairs and Markets

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<sup>7</sup> Draft Guidance at 8.

<sup>8</sup> U.S. Environmental Protection Agency, Renewable Energy Tracking Systems (last updated February 25, 2022). <https://www.epa.gov/green-power-markets/renewable-energy-tracking-systems#contract>