



November 11, 2022

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

Re: U.S. Department of Energy Clean Hydrogen Production Standard (CHPS) Draft Guidance

Dear Ms. Satyapal

StormFisher Hydrogen Ltd. (StormFisher) is pleased to provide comments on the draft guidance for a clean hydrogen production standard (CHPS) released on September 22, 2022, by the U.S. Department of Energy (DOE). We have comments regarding the allocation methodology for co-products and by-products and market structures for characterizing electricity emissions.

StormFisher Hydrogen Background

StormFisher Hydrogen Ltd. is a project developer, financier, and operator focused on producing renewable, hydrogen-derived fuels that enable the transition to a low-carbon future. Founded in 2006, StormFisher initially focused on developing and operating biogas facilities. We successfully developed several biogas facilities, including one in Orlando, Florida, and another in London, Ontario, Canada. We have turned our focus to clean hydrogen as we see enormous potential and need for infrastructure development in North America. StormFisher is pursuing various pathways for hydrogen, including direct industrial use, conversion to methane for heating applications, and conversion to methanol for the marine sector.

Methodology – Co-Product and By-Product Allocation

StormFisher has experience evaluating the different GHG emissions allocation methodologies for hydrogen production in the case of co-products and by-products. In particular, StormFisher has engaged with many chlor alkali producers. We have found that by-product hydrogen is handled in any combination of venting, burning onsite for heat and power, and even used to make further products such as hydrochloric acid. By-product hydrogen generally goes to various end uses rather than a sole use case.

In the case of chlor alkali by-products, each GHG emissions allocation method has its flaws. The light nature of hydrogen distorts the mass allocation method. Energy allocation is not practical in the case of non-energy by-products. The concept of displacement or system expansion is not straightforward since the base scenario can be ambiguous. Due to these complications, StormFisher encourages the Department of Energy to consider economic allocation as the primary method.



GHG emissions should be allocated on an economic basis to by-product hydrogen and hydrogen co-products, rather than energy-based, mass-based, or system expansion approaches.

Economic allocation offers a fair method that removes the bias created by mass differences and non-energy products. The critical requirement for economic allocation to work is to set the economic values in a fair and transparent manner. This is an area where the Department of Energy could provide clear direction, making economic allocation suitable and easy to use methodology.

Implementation – Renewable Energy Credits, Power Purchase Agreements, and other Market Structures

Implementation is critical to the success of the IRA measures. The IRA created a buzz with headlines and initiated interest and activity within the clean energy industry. A pragmatic implementation of the IRA measure needs to occur to maintain this excitement and momentum. With respect to the Hydrogen Production Tax Credit (the 45V Credit), implementation regarding allowable market structures will determine how much investment activity the Credit will create.

Renewable Energy Credits (RECs) and Power Purchase Agreements (PPAs) should be accepted as clean electricity sources within the Clean Hydrogen Production Standard.

StormFisher recommends that Renewable Energy Credits (RECs) and Power Purchase Agreements (PPAs) be accepted for characterizing the intensity of electricity emissions for hydrogen production. This would allow clean hydrogen producers to utilize electrical transmission systems to move clean electricity to the best and most efficient sites for hydrogen production. The best sites for hydrogen production, which may be near existing hydrogen consumers, ports, or fuel hubs will tend not to align with the best sites for clean energy production.

If RECs and PPAs are not allowed, the Credit will encourage hydrogen production in inefficient and unnecessary locations while discouraging hydrogen production in some excellent site locations. It would eliminate the ability to use the grid, one of America's great infrastructure assets. It would also encourage the unnecessary transportation of hydrogen or hydrogen-derived fuels instead of electricity transmission, which is more efficient.

Regarding geographical limitations, StormFisher encourages the DOE to exclude any geographical restrictions. Assuming a project is grid-connected, it is possible to show a connection between the electricity source and end-use location. While the concept of a geographical link between the clean electricity source and hydrogen production facility makes sense in theory, any geographical limits (say by state or by grid interconnection) would create arbitrary lines that will limit industry development.

StormFisher is open to the concept of time-of-use tracking requirements. Time-of-Use requirements would create a better link between clean energy production and clean hydrogen production. However, if implemented, a key consideration must be to make the administration of time-of-use effective and manageable. StormFisher understands that there are time-of-use tracking platforms and systems available. However, they are relatively new and may not be ready to be implemented on a large scale. Therefore, it would be pragmatics to add time-of-use tracking requirements to the CHPS at a later date once these tracking systems are proven.



Closing Comments

StormFisher appreciates the opportunity to provide comments and suggestions and stands ready to work with the DOE to progress the Clean Hydrogen Production Standard.

Please do not hesitate to contact us if you have any questions about the information contained herein.

Yours truly,

Brandon Moffatt, P.Eng, MBA

A handwritten signature in black ink, appearing to read "B. Moffatt", written over a light blue grid background.

Co-Founder

StormFisher Hydrogen Ltd.

Phone 519-573-8719

Web www.stormfisher.com

Email bmoffatt@stormfisher.com

320 Bay St Suite 101, Toronto, ON M5H 4A6

