

Developments in Hydrogen Energy Law & Policy

University of Wyoming School of Energy Resources Energy Law and Policy in the Rockies October 14, 2022

Complex Supply Chain & Policy Needs





IIJA Clean Hydrogen Programs





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Regional Clean Hydrogen Hub FOA

Regional Clean Hydrogen Hubs Funding Opportunity
 Announcement (DE-FOA-0002779)

This FOA will provide \$6-7 billion in federal funding for the formation of 6-10 regional clean hydrogen hubs. In the FOA, DOE has defined a 4-phase structure for hydrogen hubs: Phase 1 will encompass initial planning and analysis activities to ensure that the overall H2Hub concept is technologically and financially viable, with input from relevant local stakeholders. Phase 2 will finalize engineering designs and business development, site access, labor agreements, permitting, offtake agreements, and community engagement activities necessary to begin installation, integration, and construction activities in Phase 3. Phase 4 will ramp-up the H2Hub to full operations including data collection to analyze the H2Hub's operations, performance, and financial viability.



Regional Clean Hydrogen Hubs FOA





Hydrogen Production Tax Credit 45V in IRA (reconciliation bill)

- Precludes facilities from using both the PTC and 45Q; renewable and nuclear energy electricity credits allowed
- Construction must begin before January 1, 2033, to qualify
- Direct pay
 - Taxable entities: available for the first five taxyears after project is placed in service with enhanced transferability after
 - Tax-exempt entities/Coops/Munis: Life of the credit
- Maximum credit value is \$3.00 per kg of clean hydrogen if hydrogen production facility meets the prevailing wage and apprenticeship requirements
- One year for rulemaking by Treasury on lifecycle analysis and other issues

Lifecycle GHG Intensity	PTC \$Value per kg (% of max credit)	ITC % Value (% of max credit)
< 0.45 kg	\$3.00 (100%)	30% (100%)
< 1.5 and <u>></u> 0.45 kg	\$1.00 (33.4%)	10.2% (34%)
< 2.5 and <u>></u> 1.5 kg	\$0.75 (25%)	7.5% (25%)
<4 and <u>></u> 2.5 kg	\$0.60 (20%)	6% (20%)

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Sen. Manchin Permitting Reform Bill

- No clear federal regulatory jurisdiction for regulating hydrogen in interstate pipelines
- FERC has authority to regulate "blends" of hydrogen in natural gas pipelines under the Natural Gas Act

SEC. ____23. DEFINITION OF NATURAL GAS UNDER THE NATURAL GAS ACT.

Section 2 of the Natural Gas Act (15 U.S.C. 717a) is amended by striking paragraph (5) and inserting the following:

"(5) 'Natural gas' means—

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"(A) natural gas unmixed;

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"(B) any mixture of natural and artificial gas; or

"(C) hydrogen mixed or unmixed with natural gas.".

- Pros of regulation of hydrogen under the natural gas act:
 - Eminent Domain
 - Potential for fast track
 permitting
- Cons:
 - Rate regulation
 - Certificate process
 - Potential for permitting delays

Regulation of Hydrogen in Electricity Sector

Electricity operates electrolyzer to produce H₂

- H₂ used to produce electricity, electrolyzer is part of electric storage system
 - Fuel cell
 - Combustion turbine (blended or 100%)
- H₂ used for another purpose, electrolyzer is another load

Electric regulatory questions

- Characterization of the electrolyzer impacts:
 - The rules used to interconnect the electrolyzer to the electric transmission system (generator, transmission, load, or other);
 - Whether there can be a single interconnection or whether there must be a wholesale electric storage interconnection and a separate retail power interconnection;
 - Whether wholesale or retail electric power may be utilized in the electrolysis process; and
 - Whether the electrolyzer costs (both capital and operation and maintenance) may be allocated to its various uses

Electric storage system

- FERC should recognize that H₂ electric storage systems have distinct parts (production, storage, transport, and generation)
 - H₂ doesn't have to be produced and used for generation at the same site to be considered storage
 - Recognition will allow a wholesale interconnection and allow access to wholesale electric power

Regulation of Hydrogen in Electricity Sector

<u>H₂ used for another purpose</u>

- Can the electrolyzer always use wholesale power, or
 - Wholesale power only when making hydrogen for electricity storage
 - Retail power when making H₂ for any other purpose
- If using retail electricity for another purpose, is there a separate retail interconnection or can the wholesale interconnection be used?

Adjacent issues

- Dividing rates/costs when electrolyzer used for electricity storage system and other purposes
- Regulated utility allowed to recover costs of electrolyzer when used to make H₂ not for electricity?
- How interconnected must elements (production, storage, transport, generation) of the electric storage system be?

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Contact information

Shannon Angielski

Principal, Van Ness Feldman

President, Clean Hydrogen Future Coalition

sma@vnf.com

(202) 492-3443

www.vnf.com

www.cleanh2.org



CHFC Members Represent the Complete Clean Hydrogen Supply Chain

174 Power Global American Clean Power Association Equinor American Gas Association American Public Gas Association **Apex Clean Energy Battelle Bayotech** bp **California Fuel Cell Partnership** Chevron **ClearPath Action Daroga Power** Dastur

Duke Energy Gas Technology Institute **GE Gas Power** Int'l Brotherhood of Boilermakers INGAA LanzaTech Linde Nikola Nel North Slope Borough **Nuclear Energy Institute ONE** Gas

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CHFC Foundational Principles

- (1) Clean hydrogen is a critical pathway to achieve U.S. decarbonization objectives.
- (2)Investments in the full value chain of clean hydrogen production, transport and delivery, storage and use, as well as the infrastructure across multiple sectors, will be necessary to scale clean hydrogen in the U.S.
- (3)Policies designed to stimulate clean hydrogen production and use throughout the U.S. economy should be fuel agnostic and technology neutral and focus on the carbon intensity of CO₂ hydrogen production method.
- (4)Skilled labor and the use of existing infrastructure are essential to the deployment of clean hydrogen throughout our economy.

