CLEAN HYDROGEN: DEMAND-SIDE SUPPORT FEDERAL POLICY RECOMMENDATIONS (FACTSHEET)

C2ES CENTER FOR CLIMATE AND ENERGY SOLUTIONS

In January 2024, C2ES launched a clean hydrogen technology working group—one of four technology working groups focused on developing policy solutions that enable the deployment and commercialization of critical-path technologies. This group convenes leading voices across the clean hydrogen ecosystem, including current and prospective hydrogen consumers and producers, innovators and startups, energy and technology companies, infrastructure and capital providers, members of C2ES's Business Environmental Leadership Council (BELC), and other key stakeholders. Informed by working group discussions, C2ES has published a shortlist of specific actions the federal government can take to spur demand for clean hydrogen.

BACKGROUND

Rapid decarbonization necessitates the development and deployment of new clean technologies, as well as low- and zero-carbon fuels as substitutes in emissions-intensive sectors. Companies in the United States release the equivalent of *100 million metric tons of carbon dioxide* annually by producing hydrogen through carbon-intensive methods. Deploying cleaner production practices and extending the application of clean hydrogen to new industries will unlock durable emissions reduction potential. Sectors across the economy are working to electrify their products and facilities, however, the petroleum refining, chemical, aviation, maritime, and heavy-duty long-haul trucking industries are limited in their ability to directly substitute emissions-intensive fuels and feedstocks with clean electricity. Many of these activities could benefit from the use of clean hydrogen as a versatile, low-carbon energy carrier and feedstock. Clean hydrogen has the potential to safeguard U.S. economic competitiveness as global trade partners consider and begin to implement carbon pricing on imports, while also positioning the United States to lead in clean energy innovation and create high-quality domestic jobs in hydrogen production, transport, and export.

New federal interest in building a domestic market for clean hydrogen led to the *Regional Clean Hydrogen Hubs Program* under the 2021 Infrastructure Investment and Jobs Act and the *45V Credit for Production of Clean Hydrogen* established by Congress in 2022. Investments in domestic manufacturing and technology development have further supported progress toward the goal of producing ten million metric tons of clean hydrogen by 2030. Despite these federal investments, several factors slow market demand, including price signals that fail to account for the climate impacts of emissions-intensive hydrogen, nascent transportation and storage infrastructure, and a lack of large-scale technology demonstrations. C2ES' clean hydrogen federal policy recommendations—outlined below and in this brief—address these barriers.

1. PROVIDE FURTHER FUNDING FOR DEMONSTRATION AND COMMERCIAL-SCALE PROJECTS UNDER THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS

Congress should provide additional funding for demonstration and commercial-scale clean hydrogen applications under the U.S. Department of Energy's (DOE) Office of Clean Energy Demonstrations (OCED). Following OCED's announcement of available funding for seven awardees to launch Regional Clean Hydrogen Hubs, an *additional $1 billion* has been allocated to support a demand-side initiative designed to establish market certainty for the Regional Clean Hydrogen Hubs Program. With an average of less than $150 million in demand-side support available for each hub through the Regional Clean Hydrogen Demand-Side Support Mechanism, the existing one-time funding opportunity may be insufficient. A lack of near-term demand within the Regional Clean Hydrogen Hubs would significantly undermine clean hydrogen market in the United States.

2. GRANT THE FEDERAL ENERGY REGULATORY COMMISSION AUTHORITY TO REGULATE INTERSTATE HYDROGEN INFRASTRUCTURE AND COMMERCE

Congress should enact legislation granting the Federal Energy Regulatory Commission (FERC) the authority to oversee the rates and siting of interstate hydrogen infrastructure (including pipelines, compressor stations, and storage facilities). Safe, reliable, and affordable delivery of clean hydrogen will be an important prerequisite to building demand. Pipelines are the safest and most cost-effective transportation method for large volumes of hydrogen at long distances. The capital costs and time required to build out a network of dedicated interstate hydrogen pipelines demands strategic siting and would require greater certainty of long-term hydrogen demand volumes and locations. In the near term, it is important to establish the regulatory framework under which interstate hydrogen pipelines must operate by more closely aligning it with FERC's jurisdiction over interstate natural gas pipelines.

3. UPDATE THE RENEWABLE FUEL STANDARD

The Environmental Protection Agency (EPA) should update the Renewable Fuel Standard (RFS) to broaden eligibility for hydrogen-based transportation fuels. The RFS is a massively influential policy and has been one of several key drivers that has scaled the production of biofuels in the United States. However, since the RFS was enacted, new and often cleaner transportation fuels have emerged, which now have to compete against RFS-credited fuels. Updated rules under the RFS should confirm that hydrogen-based fuels produced with biomass-derived carbon dioxide qualifies as a credit-generating "renewable fuel." In the absence of a broader clean fuel standard (CFS) (See below), Congress should remove restrictions on the program's statutory ties to biomass altogether to allow technology-neutral crediting of clean hydrogen for vehicle fueling and liquid "e-fuels" produced from non-biogenic carbon dioxide and clean hydrogen.

4. ENACT A FEDERAL CLEAN FUEL STANDARD

The administration and Congress should implement a federal Clean Fuel Standard (CFS) program designed to achieve net-zero emissions in the transportation sector by 2050. The program would set carbon intensity benchmarks for transportation fuel that may be satisfied through the crediting of technology-neutral lower-carbon fuel. A proper incentive framework for hydrogen, hydrogen-based fuels, and other non-petroleum alternatives would signal and support durable demand growth for clean hydrogen while allowing the market to determine where the use of clean hydrogen is most economically efficient. A CFS that was broadened to credit improvements in petroleum refining could generate additional demand for clean hydrogen as a clean industrial input.

5. ENACT FEDERAL ECONOMY-WIDE CARBON PRICING

The administration and Congress should enact an economy-wide market-based carbon pricing program that could contribute to the achievement of net-zero emissions by 2050. Setting a price on carbon—whether through a carbon tax or a cap-and-invest program—confers a clear market value to emission reductions commensurate with the environmental, societal, and economic benefits of reducing global greenhouse gas pollution. A carbon pricing program would provide an important demand signal that can drive adoption of clean hydrogen, while supporting its economically preferable deployment across sectors of the economy

Please *click here* to explore the Clean Hydrogen Technology Working Group: Demand-side Support Policy Recommendations, developed in consultation with more than 50 companies across the clean hydrogen value chain.

https://www.c2es.org/document/clean-hydrogen-demand-side-support-policy-recommendations/

C2ES CENTER FOR CLIMATE AND ENERGY SOLUTIONS

The Center for Climate and Energy Solutions (C2ES) is an independent, nonpartisan, nonprofit organization working to secure a safe and stable climate by accelerating the global transition to net-zero greenhouse gas emissions and a thriving, just, and resilient economy.

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