December 1, 2022

The Honorable Jennifer M. Granholm Secretary
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Re: Department of Energy's (DOE) Draft National Clean Hydrogen Strategy and Roadmap

Submitted via hydrogenfuelcells@ee.doe.gov

Dear Secretary Granholm:

Thank you for the opportunity to provide comments on the Department of Energy's (DOE) Draft National Clean Hydrogen Strategy and Roadmap. The American Chemistry Council (ACC)[1] is pleased to participate in this important effort to expand the hydrogen economy as part of an energy and industrial base that is diverse, resilient, competitive, consistent with economic, national security, and climate objectives.

ACC represents a diverse set of companies engaged in the business of chemistry, an innovative, $517 billion enterprise. We work to solve some of the biggest challenges facing our nation and our world, driving innovation through investments in research and development (R&D) that exceed $11 billion annually. They supply the chemical products, polymers, and materials underpinning the energy sector's industrial base and the energy efficiency, clean energy, and clean energy-enabling technologies needed for a low-carbon economy. Products of chemistry will be important enablers of developing hydrogen technologies, and critical elements of the hydrogen and fuel cell supply chain.

U.S. chemical and petrochemical manufacturers have a history of leadership in hydrogen production and utilization, accounting for roughly a third of the 10 million-ton U.S. hydrogen market in 2020 - one of the largest markets for hydrogen globally. Beyond serving as a valuable commodity in contemporary chemical manufacturing processes, hydrogen offers tremendous promise as a building block for a more competitive, lower emissions chemical sector and national economy in the future. In a 21st century clean hydrogen economy, chemical manufacturers are hydrogen producers

[1] ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier, and safer. ACC promotes improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing.

and suppliers, hydrogen technology enablers, clean hydrogen users, and market creators.

The innovation, infrastructure, and production incentives authorized under the Bipartisan Infrastructure Law and Inflation Reduction Act have tremendous potential to advance and accelerate clean hydrogen's deployment across the economy. To maximize the impact of the various hydrogen incentives, DOE, the Treasury, and other implementing agencies should interpret, define, and execute these programs in a manner that retains the nation's current hydrogen productive capacity and competitive position while promoting a smooth transition to cleaner hydrogen sourcing, production, and use. ACC urges the Administration to focus on the following principles as it develops its clean hydrogen policies.

1. Recognize current hydrogen production technologies, infrastructure, and markets as building blocks rather than impediments in the clean hydrogen transition.

2. Make realistic assessments of current technology readiness levels of candidate hydrogen technologies; the level of infrastructure investment, siting, construction, and permitting needed to deploy each technology at a national, commercial scale, and the timing required for such deployment.

3. Work with other agency and state regulators to accelerate the siting, permitting, and funding process for critical expansion and upgrades of critical infrastructure needed to support adoption and deployment of clean hydrogen sourcing, production, and distribution technologies and products to utilization markets.

3. Develop definitions, metrics, and implementation guidance for clean hydrogen production that incentivize both early adoption of current technologically and economically feasible lower-emissions hydrogen production technologies and continued investment into emerging solutions.

4. Adopt realistic, performance-based definitions and standards for clean hydrogen production and program eligibility and allow for technology or feedstock neutrality (e.g., grey, blue, green hydrogen, etc.).

5. Implement DOE's funding authorities in a manner that maximizes access to delegated funding and minimizes the cost, burden, and uncertainty, associated with the application, project selection, and project implementation process.

These principles are consistent with the text of the BIL and DOE's draft CHPS standard, and they support the Department's goal of "reducing the carbon intensity of hydrogen production from diverse feedstocks over time." Consistent with these principles, ACC provides the following preliminary responses to the topics raised in the RFI.

I. Opportunities for Expanded Use

The strategy list of industrial feedstocks identifies oil refining, ammonia, ethanol as existing opportunities and synthetic fuels as an emerging opportunity. While the listed feedstocks are important opportunities, there are many others under consideration, or that may emerge, and we encourage DOE to be flexible in designing its funding opportunities, other incentives, and technical assistance programs to allow for submission of other potential hydrogen uses within the chemical sector.

II. Potential barriers to Broad Clean Hydrogen Deployment

The strategy identifies a number of potential barriers to broad deployment of hydrogen, including: 1) Limited gov. support for R&D; 2) Limited suitable end uses; 3) Safety concerns; 4) Competing technologies; 5) Limited incentives for companies; 6) Need for technology advancements; 7) Public awareness/understanding: 8) Need for sufficient infrastructure; and Cost to end user.

ACC agrees with DOE's current list generally and offers additional comments on several enumerated barriers as well as an additional category: the cost, time, and uncertainty associated with project review, permitting, and approval.

A. Limited government support for R&D and need for technology advancement

ACC is hopeful that the significant investments Congress made through the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) to support research, development, and deployment of hydrogen technologies and infrastructure could significantly address this long-standing barrier to broad hydrogen deployment**.** At this point, however, the impact of these laws is uncertain, contingent on timely, fair, and effective implementation by DOE and its sister Agencies at the federal and state level. ACC urges the Department to adopt the implementation principles identified above to ensure maximum impact of the tremendous funding opportunities granted by these landmark laws.

B. Limited incentives for companies

As noted above, the significant funding provided by BIL and IRA have the potential to provide significant new incentives to projects selected by DOE, and our members are eager to work with DOE to utilize these funds to advance the industry's investment in clean hydrogen technologies and infrastructure across the chemical value chain. To ensure that this funding provides the desired impact, ACC encourages DOE to adopt the full range of principles identified above.

C. Need for sufficient infrastructure

Even with the most promising, well-tested, and impactful new technologies, unprecedented federal incentives and funding, and a willing investor and business

community, progress toward a hydrogen economy will stagnate if the infrastructure needed to connect clean energy and feedstocks to producers, clean hydrogen products to users is unavailable. Recognizing that infrastructure investments can be time and resource intensive and serve bottlenecks for subsequent hydrogen technology deployment. ACC urges DOE to make infrastructure expansion an immediate priority.

In assessing infrastructure upgrade and expansion priorities, DOE and other coordinating federal and state agencies must recognize that clean hydrogen deployment will continue to require robust, resilient natural gas infrastructure, particularly during early phases of the hydrogen economy's expansion.

D. Cost, time, and uncertainty associated with project review, permitting, and approval

Deployment of hydrogen supply chain, production, delivery, and utilization technologies and infrastructure will rely on a permitting process that is predictable, timely, and consistent with the current deployment of assets. Absent concerted action to rationalize the project permitting process, the Administration will be unable to achieve its economy-wide decarbonization objectives, and DOE and project developers could find that permitting delays will render the time-limited funding provisions of BIL and IRA impractical.

ACC urges DOE to make a realistic assessment of the significant time needed to plan new capital projects, go through the FOA competitive process and either negotiate grant terms or obtain alternative funding, and then navigate the federal and state permitting process, including but not limited to new requirements under Justice40 and other policy-driven mandates.

III. DOE Strategic Priorities

A. Target strategic, high-impact uses of hydrogen

As noted above, ACC supports DOE's inclusion of ammonia and methanol production as strategic opportunities for advancing the hydrogen economy while encouraging the Department to recognize and consider other current and emerging applications within the chemical sector that may be raised during the implementation phase of the strategy.

B. Reduce the cost of clean hydrogen

DOE identifies several technology pathways to reducing the cost of clean hydrogen production, including hydrogen production through water splitting; hydrogen production from fossil fuels with carbon capture and storage; hydrogen production from biomass and waste feedstocks; and reducing other system costs.

ACC supports the listed opportunities while encouraging the Department to remain open to considering alternative innovative technologies and uses, including

production as co-products and byproducts of other manufacturing processes, as potential areas for support.

IV. DOE's Guiding Principles for Implementation

DOE identifies 8 guiding principles for implementation of its hydrogen strategy, including: a) Enable deep decarbonization through strategic, high-impact uses; b) Catalyze innovation and investment; c) Foster diversity, equity, inclusion; d) Advance environmental justice; e) Grow sustainable jobs; f) Spur domestic manufacturing and robust supply chains; g) Enable affordability and versatility; and h) Approach holistically.

ACC supports the principles identified in the strategy at the policy level and believes that building a clean hydrogen economy offers opportunities to advance all of the enumerated principles. As the Department implements the strategy at the program and project-specific level, ACC encourages DOE to ensure flexibility in the implementation procedures, standards, and policies. Applying an overly rigid checklist-style assessment of every decision may inadvertently discourage the allocation of research, development, demonstration, and deployment of clean hydrogen production technologies, infrastructure, and markets needed during the transition to a clean hydrogen economy.

V. DOE Actions Supporting the National Clean Hydrogen Strategy

ACC supports DOE's broad action plan, consistent with the implementation principles it has articulated. With respect to the short-term (2022-2025) actions needed to support clean hydrogen production, ACC recommends that the Department add "Work with sister Departments and states to establish reasonable, predictable, and timely procedures for siting and permitting critical infrastructure needed to source, manufacture, utilize, and market clean hydrogen products at scale." While the siting and permitting process will vary depending on the nature of the project, the Administration will only be able to meet its 2020 and 2035 transition goals articulated in the strategy if it develops a coherent process for private, public, and community collaboration based on predictable standards and clear objectives.

Conclusion

ACC and its members have appreciated the thoughtful, inclusive process DOE is taking in developing and implementing an economy-wide clean hydrogen strategy, and we see tremendous opportunities for constructive engagement and collaboration as DOE finalizes and implements its strategy. We would welcome the opportunity to talk further with DOE's hydrogen team to explore early opportunities for advancing progress in the short-term as well as long-term high value investment areas where our members can advance our shared goal of a safe, robust, and internationally competitive clean hydrogen economy.

Thank you for your consideration of these comments. If you have any questions or would like more information, please free to contact ACC at (202) 297-4420 or Charles_Franklin@americanchemistry.com.

Sincerely,

Charles Franklin

Charles Franklin, Senior Director
Energy, Climate, and Environment