HOUSE OF REPRESENTATIVES
2 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0002
(207) 287-1400
TTY: MAINE RELAY 711

Gerry Runte
House District 146
York-Wells-Ogunquit
Phone: (207) 361-7143
Gerry.Runte@legislature.maine.gov

May 2, 2023

LD 1775 An Act to Establish a Clean Hydrogen Pilot Program

Senator Lawrence, Representative Zeigler and fellow members of the Joint Committee on Energy, Utilities and Technology, I am here today as a co-sponsor of this bill that might initiate the production of clean hydrogen as an energy fuel.

I co-sponsored this bill because I devoted the second half of my professional career to commercializing various hydrogen energy and hydrogen production technologies for fuel cells and for use as a transportation fuel. And I have long believed hydrogen energy could play an important role in the portfolio of economic options to achieve our climate goals.

The availability of clean hydrogen should hold significance for Maine as its use aligns with the state's climate goals and can fuel multiple applications. It can be stored or transported as a compressed gas for use in fuel cells to generate electricity or in fuel cell electric vehicles. When combusted in an engine or consumed in a fuel cell, its only emission is water vapor.

However, hydrogen's role in a clean energy economy is largely dictated by how it is derived. Most hydrogen produced today comes from natural gas, and its production unfortunately emits greenhouse gases. However, several different methods exist which result in near-zero greenhouse gas emissions, both in its production and use.

Electrolysis of water using renewable energy sources like solar, wind, or hydroelectric power is the primary means to obtain clean hydrogen. Another possible pathway to generate hydrogen is to reform a renewable feedstock such as anaerobic digester gas.

The availability of clean hydrogen should be important to Maine because it enables several applications that complement the state's climate goals.

As compressed gas, hydrogen can fuel vehicles, and the ideal target market would be heavy fleet vehicles. These vehicles are typically diesel with low miles per gallon and represent significant greenhouse gas emitters. Each of these pilots could produce about 3 million kilograms of hydrogen, enough to fuel a little over 100 transit buses traveling 45,000 miles annually, with reduced greenhouse gas emissions by 90%. Several major companies have converted battery-powered materials handling equipment to fuel cell power achieving much lower operational costs.

In addition to transportation possibilities, fuel cells could use hydrogen from these pilots to generate electricity on-site using fuel cells or transported to other locations for the same purpose. Several

manufacturers of stationary fuel cells offer modules from 200 kW to 20 MW using different technologies. Several manufacturers offer modular stationary fuel cell units, operating 24/7 and which are dispatchable. Companies like Bloom Energy, Fuel Cell Energy, Doosan, and Plug Power are worth mentioning here.

While I am in support of establishing hydrogen production facilities in Maine, I would like to touch upon some specific terms in the bill.

Definitions. The bill defines the pilots as producing "clean" hydrogen below a maximum of 4 kilograms of carbon per kilogram of hydrogen produced. Four kg or less is the minimum qualification standard for the IRS incentive. The facility can only emit .47 kg per kg of hydrogen produced to get the most incentive. Some might argue that the pilot be constrained to the .47 kg limit; however, doing so might eliminate the use of solar and other renewable technologies as the energy source for hydrogen production. Overly constraining the definition now could be counterproductive.

Thermal REC prohibition. This prohibition and its purpose need to be clarified and may be unnecessary.

Procurement. The bill proposes that the commission procure three pilot plants. I suggest one. A single plant might complement the GEO's more significant effort to participate in the 7-state Northeast Hydrogen Hub program. The hydrogen this pilot produces will need a market, which currently does not exist and will have to emerge. However, having a source of hydrogen would be a significant factor in creating a market.

Rate subsidy. Most of the cost of producing hydrogen in these pilots will be electricity. As written, the bill seeks rate relief for a broad category of rates and fees, including those regulated by the state and those imposed by ISO-NE. The specific elements of the relief sought need to be delineated, reviewed, and limited.

RPS exemption. For the pilot to qualify as "clean" under the terms of this bill and to obtain any IRA incentive, its competitive supplier must provide certifiably renewable energy.

In conclusion, the availability of hydrogen is a key catalyst in attracting these applications, as well as high tech businesses and jobs to Maine. By leveraging clean hydrogen, we can expedite our shift towards a low-carbon future, tackle climate change, and construct a more sustainable and robust global energy system. Developing hydrogen's role and the applications it facilitates will require time, and this pilot sets us on that path.

Thanks for your consideration.

Gerry Runte

Gerry Runte

APRIL 7, 2023
Albany, NY

Seven States in Northeast Regional Clean Hydrogen Hub Announce Submission of $3.62 Billion Proposal to U.S. Department of Energy for Funding and Designation as National Hub

More Than a Dozen Projects Proposed for the Northeast to Advance Production, Consumption, and Infrastructure for Clean Hydrogen for Use in Hard to Decarbonize Sectors

Supports Each State's Climate and Clean Energy Goals Including Reducing Greenhouse Gas Emissions and Transitioning to Clean Energy Across All Sectors of the Economy

The States of New York, New Jersey, Maine, Rhode Island, Connecticut, Vermont and the Commonwealth of Massachusetts today announced the submission of the group's proposal for a Northeast Regional Clean Hydrogen Hub to the U.S. Department of Energy to compete for a $1.25 billion share of the $8 billion in federal hydrogen hub funding available as part of the Infrastructure Investment and Jobs Act. Together with the federal portion, the proposal represents a $3.62 billion investment and includes over one dozen projects across seven Northeast states that advance clean electrolytic hydrogen production, consumption, and infrastructure projects, for hard to decarbonize sectors, including transportation and heavy industry, among others. Today's announcement supports each state's climate and clean energy goals to reduce greenhouse gas emissions and transition to clean energy across all sectors of the economy.

"As a leader on climate action and founding partner of the Northeast Regional Clean Hydrogen Hub, New York State is leading the way in establishing a connected and sustainable hydrogen industry that will bring jobs and economic development to the region," **Governor Hochul said.** "We are ready to work with our state partners and local communities to capitalize on federal funding and ensure this program benefits the entire region while becoming part of a connected hydrogen hub network nationwide and reaching our ambitious climate goals."

Connecticut Governor Ned Lamont said, "This is a momentous day for the Northeast Regional Clean Hydrogen Hub, and I'm thrilled with the compelling application we made to the U.S. DOE. The public-private partners in our hydrogen ecosystem are worldwide leaders in business innovation, and climate leadership. I thank them for the collective effort getting us to this point, and I look forward to a favorable decision from the DOE and the good-paying, local jobs and many other community benefits that will result."

Maine Governor Janet Mills said, "I am excited about the Northeast Regional Clean Hydrogen Hub's application to the U.S. Department of Energy. My Administration looks forward to collaborating with public and private partners to explore the potential of clean hydrogen to reduce emissions and generate economic growth."

Massachusetts Governor Maura Healey said, "With this proposal, we have a unique opportunity to leverage substantial federal funding to begin building a market for clean hydrogen that will address some of our most difficult to decarbonize sectors. The Northeast Hydrogen Hub will create opportunity, prioritize equity, and enable significant progress toward our ambitious climate requirements. I look forward to working with this impressive coalition of state leaders and partners in the private sectors to bring economic growth and industry to the region."

New Jersey Governor Phil Murphy said, "The submission of this game-changing proposal marks a significant milestone toward the cultivation of a clean energy economy not just in New Jersey, but across our region. Just as importantly, it further demonstrates the synergy between federal and state governments united by their belief in the importance of innovative climate action. By securing funding through the Biden Administration's historic Infrastructure Investment and Jobs Act, New Jersey and its regional partners will advance clean hydrogen production and consumption, especially in industries that significantly contribute to GHG emissions and pollution in our local communities."

Rhode Island Governor Dan McKee said, "Rhode Island's 2021 Act on Climate sets an ambitious goal to achieve net-zero emissions economy-wide by 2050. To make this future a reality, Rhode Island must rely upon diverse sources of clean energy, particularly for hard-to-decarbonize industries. We are proud partners in this interstate effort to create a clean hydrogen infrastructure that will help New England lead the fight against climate change."

Vermont Department of Public Service Commissioner June E. Tierney said, "Vermont is proud to be a partner in this innovative and forward-looking proposal. Hydrogen technology is part of a multi-pronged approach to tackling climate change. We look forward to collaborating with other northeastern states toward a clean energy future."

Senate Majority Leader Charles Schumer said, "From Western New York to Rochester to Albany, and the North Country to Long Island, New York can lead the nation in clean-hydrogen energy production

and has all the right ingredients to lead the nation's first ever Northeast Regional Clean Hydrogen Hub to power America's clean-energy future. Our bipartisan Infrastructure Investment and Jobs Act includes $9.5 billion to expand the clean hydrogen industry and further reduce greenhouse gasses; A New York-centric North East Regional Clean Hydrogen hub would mean thousands of new, good-paying clean-energy jobs in communities that need it most, from Maine to New Jersey and with New York at its heart. New York's powerhouse workforce, top tier research institutions, and easy access to a diverse array of renewable energy resources that can power green hydrogen production makes it uniquely suited to supercharge our efforts to become a global leader in clean-hydrogen production. Clean, green hydrogen has the potential to power our fight against climate change, and you can be assured I will be using all my clout as majority leader to elevate this project for the Department of Energy, and make sure it delivers for all New York communities."

Representative Brian Higgins said, "Creating a sustainable future means investing in resources to help our communities transition away from fossil fuels. Federal hydrogen hub funding, included in the Infrastructure Investment and Jobs Act, represents a long-term investment that will create jobs, bolster economic development, and facilitate decarbonization. We urge the U.S. Department of Energy to harness the potential of Western New York and all communities in the Northeast Regional Clean Hydrogen Hub by supporting this worthy proposal."

Representative Paul Tonko said, "Clean hydrogen will play a critical role in developing our clean energy future, particularly in greening difficult to decarbonize sectors like heavy-duty transit. I worked hard to advance clean energy provisions under our Infrastructure Investment and Jobs Act and am thrilled to see our region taking advantage of this crucial funding opportunity. Following this submission, I look forward to continuing to push for federal action that empowers our state and nation to be leaders in the clean energy transition."

Representative Hakeem Jeffries said, "Under the leadership of President Biden, House Democrats and Governor Hochul, the Infrastructure Investment and Jobs Act has been delivering real and transformational change to New York. As we continue to confront the climate crisis, I applaud Governor Hochul for her work to ensure that New York can be a clean energy hub for the nation. I look forward to working with federal and state partners to invest in our clean energy economy to lower costs, create good-paying jobs and expand economic opportunity in every zip code."

Representative Joe Morelle said, "New York has long been a leader in fighting the climate crisis. Advancing our role as a regional hydrogen hub is a key part not only of reversing the effects of climate change, but also growing our clean energy economy. I'm proud to support these efforts and am grateful to Governor Hochul for her continued support and leadership as we work to invest in a more sustainable future."

Representative Ritche Torres said, "New York's strategy for tackling the climate crisis is leading the nation in reducing greenhouse gas emissions and transitioning to a clean energy economy across all sectors in a way that creates good-paying jobs and supports disadvantaged communities. But there is power in numbers - and it's hard to ignore that an entire region of the country has come together in a coordinated, multi-state effort to try and secure crucial federal investments to become a national hub for clean hydrogen. I'm grateful to everyone involved in this effort for submitting a competitive, forward-thinking proposal to the U.S. Department of Energy - one that will advance our region's collective clean energy goals and support more than a dozen projects in hard to decarbonize sectors."

Representative Nick Langworthy said, "As part of an all-of-the-above energy strategy, I'm pleased to join Governor Hochul in supporting the state's efforts to bring this infrastructure funding to New York. New York has a unique ability to support a diverse energy portfolio and adding a hydrogen hub that several Western New York and Southern Tier companies will partner in will be a benefit to our region."

Representative Brandon Williams said, "As the Chairman of the House Subcommittee on Energy, I look forward to directing DOE research funding into Hydrogen research and other critical efforts for securing our energy future."

The proposal will be reviewed by the U.S. Department of Energy with awarded proposals designated one of the nation's regional clean hydrogen hubs. Awards are anticipated to be announced in fall 2023.

Since the launch of the Northeast Regional Clean Hydrogen Hub (NE Hub) in March 2022, six states and more than 100 partners signed a memorandum of understanding (MOU) joining the New York State Energy Research and Development Authority (NYSERDA) to collaborate in developing the proposal submitted. The NE Hub partnership - which is committed to demonstrating and capitalizing on the economic and decarbonization opportunities presented by clean hydrogen - initially included the States

of New York, Connecticut, New Jersey, the Commonwealth of Massachusetts, and 40 partners active in the development and deployment of clean hydrogen as an important component of the broader energy transition. The partnership expanded in August 2022 to include the states of Rhode Island, Maine, and over 25 additional hydrogen ecosystem partners. In February 2023, the partnership grew to more than 100 partners, with Vermont also joining.

Doreen M. Harris, President and CEO of NYSERDA said, "The submission of the Northeast Regional Clean Hydrogen Hub proposal to the Department of Energy is the culmination of more than a year of collaborative work between New York, our six state partners, and more than 100 hydrogen ecosystem partners. We are proud to have played a critical role in building this robust and diverse team of partners and excited to work together to build a hydrogen ecosystem that supports the production and use of this new resource and its potential deployment for challenging to decarbonize sectors as part of a just and equitable clean energy transition."

New York Power Authority Acting President and CEO Justin E. Driscoll said, "The IRA funding would significantly reduce the cost of producing hydrogen in New York, allowing the Northeast Regional Clean Hydrogen Hub to greatly accelerate the deployment of green hydrogen throughout the region. New York will expand its quickly growing clean energy economy—acting as a model for the rest of the country—by reducing its carbon footprint and creating more green jobs."

Empire State Development President, CEO & Commissioner Hope Knight said, "We are proud to be a part of this multi-state proposal for a Northeast Regional Clean Hydrogen Hub, one that will fuel New York State's ambitious climate goals and strengthen our green economy. This proposal represents partnership and progress as we work together to create a clean energy ecosystem that will also create jobs and opportunities for New Yorkers."

Adam Zurofsky, Interim Director of the Northeast Regional Clean Hydrogen Hub said, "The Northeast Regional Clean Hydrogen Hub was initiated to explore and capitalize on the opportunities clean hydrogen presents to advance critical priorities such as decarbonization, economic development, and environmental justice. Today's proposal reflects the ability of our region to cooperate to build a hydrogen ecosystem that can realize those opportunities and demonstrate the benefits of clean hydrogen beyond our borders. We are grateful for the opportunity to participate in this groundbreaking

federal program and look forward to making the vision of the Northeast Regional Clean Hydrogen Hub a reality."

This coordinated, multi-state strategy is designed to create an ecosystem that connects hydrogen producers and users and their associated safety experts, technology original equipment manufacturers (OEMs), and the research and development community, workforce organizations, and labor representatives, for the collective purpose of advancing clean hydrogen projects for inclusion in the proposal consistent with the following guiding principles:

- Prioritization of clean electrolytic hydrogen production - hydrogen made without creating greenhouse gas emissions using clean electricity and water;
- Utilization of clean hydrogen as a complement to electrification efforts by focusing on hard-to-electrify sectors of the economy;
- Critical focus on community engagement, safety, climate, environmental justice, diversity, equity, inclusion and accessibility;
- Realize the unique opportunity to grow the clean energy workforce, focusing not only on educating and training new, underrepresented, and dislocated workers, but also leveraging existing specialized and skilled workers to play a critical role in building the infrastructure needed for a sustainable clean hydrogen ecosystem as part of the clean energy transition;
- Leverage - and grow- Northeast's rich innovation ecosystem at scale; and
- Collaboration on critical policy initiatives and incentives.

In accordance with these guiding principles, the NE Hub projects include clean electrolytic hydrogen production for use in transportation, high-temp industrial thermal, and communal utilities for heat which are each representative of hard-to-decarbonize sectors. The projects included in the proposal are proposed to be sited to form a regional hub of integrated projects across states collectively producing and utilizing clean hydrogen, advancing a vision that enables a long-term sustainable clean hydrogen industry in the northeast region, and establishing strategic connections to other clean hydrogen hubs.

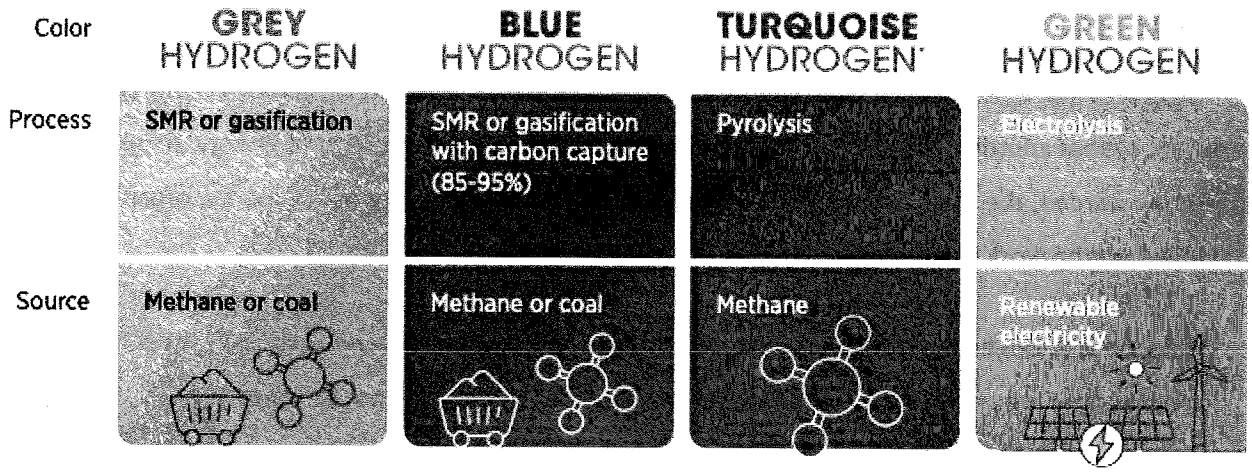
If selected for an award by the Department of Energy, the projects within the NE Hub will complete a rigorous series of four phases in development over the course of 10-12 years, with each subsequent

phase requiring completion of milestones before projects move forward in the process, including technical data and analysis, community engagement and impacts, engineering, permitting and safety, business development and management, procurement, and construction and operations.

If selected, management and oversight of this endeavor across seven states will be accomplished through close coordination and collaboration between the U.S. Department of Energy, NYSERDA as the prime awardee, the state partners, and sub-recipient project partners who will be the organizations implementing work in communities across the region.

While the U.S. Department of Energy completes the application review process, the full list of projects, locations, and organizations included within the NE Hub proposal will not be made public.

Image Source: International Renewable Energy Agency



Note: SMR = steam methane reforming.

** Turquoise hydrogen is an emerging decarbonisation option.*