



HYDROGEN STUDY TASK FORCE
Funding Working Group #2
Meeting Minutes

Wednesday, October 26, 2022
10:30 a.m. – Noon

The second meeting of the Hydrogen Study Task Force Funding Working Group was held on October 26, 2022.

All the participants joined via the Teams conference call.

Task Force Members Present: Eric Annes (Designee – DEEP), Samantha Dynowski (Sierra Club), Bryan Garcia (CT Green Bank), Sridhar Kanuri (HyAxiom), Shannon Laun (Conservation Law Foundation, Lidia Ruppert (Designee – DEEP), Becca Trietch (Designee – DEEP), Carmen Molina-Rios (Designee - DEEP)

Others Present: Tyler Anderson, Lily Backer (Strategen), Sophia Browning (Day Pitney), Erin Childs (Strategen), Brian Farnen (CT Green Bank), Barbara Fernandez (UCONN), Nathan Frohling (The Nature Conservancy), Jennifer Gorman (Strategen), Kaiqi Hu (Strategen)

1. Call to Order

- Lily Backer, a Manager at Strategen providing technical support for the Funding Working Group, called the meeting to order at 10:31 a.m.

2. Welcome and Introductions

- Ms. Backer provided an overview of the meeting agenda including welcome and introductions, a review of objectives and an update on progress, an overview of key areas opportunity for Connecticut within the Infrastructure Investment and Jobs Act (IIJA), an overview of existing relevant state programs, and discussion on the Working Group's next steps.
- Ms. Backer prompted attendees to briefly introduce themselves. Each participant introduced their name and organization.
- Ms. Backer provided an overview of Strategen's role. She noted that the Strategen team will be managing Working Group logistics and will be providing technical support to accomplish the Working Group objectives.

3. Review of Objectives and Update on Progress

- Ms. Backer shared that the objective of the Funding Working Group is to study hydrogen-fueled energy in the state's economy and energy infrastructure. By

January 15, 2023, the Hydrogen Task Force will submit a report on its findings and recommendations to the joint standing committee the General Assembly.

- Ms. Backer reminded participants of the statutory responsibilities of the Funding Working Group, which include:
 - An examination of how to position the state to take advantage of competitive incentives and programs created by the IIJA;
 - Development of recommendations for funding and tax preferences for building hydrogen-fueled energy facilities at brownfield sites through the Targeted Brownfield Development Loan program; and
 - Development of recommendations regarding funding sources for developing hydrogen-fueled energy programs and infrastructure.
- Ms. Backer shared the meeting schedule for the past and remaining Working Group meetings. She reminded participants that in the previous meeting, the Working Group discussed relevant brownfield remediation programs in Connecticut, as well as some of the basics of hydrogen-related federal funding opportunities and participation requirements.
- Ms. Backer acknowledged the comprehensive presentation during last Working Group meeting by Binu Chandy, Project Planner and Engineer at the Department of Economic and Community Development (DECD), on the various programs for brownfield remediation and redevelopment that may be relevant for hydrogen production and use. Ms. Backer commented that information related to this presentation will be included in the final legislative report.
- Ms. Backer suggested that the next steps for the Funding Working Group will include:
 - Discussion of any outstanding questions on potential ways to leverage brownfield programs for hydrogen infrastructure and investment needs.
 - Exploration of relevant incentives federal incentives for developing on brownfields. Ms. Backer provided an example of a 10% “adder” from the Inflation Reduction Act for repurposing Brownfields for wind and solar projects, which could be a good starting point for developing more strategic brownfield redevelopment.
 - Development of a detailed overview of opportunities from DECD’s presentation for the report.
- Barbara Fernandez, a Special Assistant to the University of Connecticut’s Vice-President for Research, Innovation, and Entrepreneurship, raised a question regarding whether DECD is considering amending their tax incentives. She noted that in the past, the State of Connecticut has tried to incentivize a new industry by providing some tax credits through DECD. She also noted that the state only pays out any incentives if the private entity of the organization completes a project so there is no up-front cost.
 - Carmen Molina-Rios, Community Development Specialist at DECD acknowledged the perspective Ms. Fernandez provided and suggested that the Working Group chairs and Strategen team look further into the recommendation.
 - Ms. Fernandez recommended that the Strategen team could research examples of other states that have tax incentives.
 - Jennifer Gorman, an analyst at Strategen, mentioned that examples of tax incentives will be discussed later in the meeting.

4. Key Areas of Opportunity for Connecticut within the IIJA, Eligibility Requirements, and Existing Relevant State Programs

- Ms. Gorman introduced the topic of the IIJA federal funding opportunities.
- Ms. Gorman emphasized that per the Justice40 Executive Order, 40% of the overall benefits of certain federal investments must flow to disadvantaged communities. Moreover, energy projects that receive federal funding will need to demonstrate commitments to environmental justice and demonstrate how they minimize negative impacts on disadvantaged and tribal communities. This policy concern is abundantly present in the hydrogen hubs RFI which does require a community benefits agreement and engagement with local communities. One of the requirements that a proposed hydrogen hub must meet to move into phase two of the selection process is that it has an equity, environmental and energy justice strategy that includes significant and meaningful community engagement plans. Proposed hubs must also show that they have plans to ensure that environmental impacts on disadvantaged communities are minimized. The RFI has a non-exhaustive list of eight environmental justice policies that will be high priority for consideration and funding hydrogen hubs, which include:
 - Decrease energy burden in disadvantaged communities;
 - Decrease environmental exposure and burdens for disadvantaged communities;
 - Increase parity in clean energy technology access and adoption in disadvantaged communities;
 - Increase access to low-cost capital in disadvantaged communities;
 - Increase clean energy enterprise creation and contracting in disadvantaged communities;
 - Increase clean energy jobs, job pipeline, and job training for individuals from disadvantaged communities;
 - Increase energy resiliency in disadvantaged communities; and
 - Increase energy democracy in disadvantaged communities.
- For identifying disadvantaged communities (DAC), Ms. Gorman explained that the Department of Energy (DOE) has developed definitions and tools to locate and identify disadvantaged. As per the DOE's definition, to be considered as a DAC, a census tract must rank in the 80th percentile of the cumulative sum of 36 burden indicators and have at least 30% of households classified as low income. Tribal lands in US territories are also categorized as disadvantaged communities.
 - Ms. Gorman also mentioned that the DOE has a very useful tool called the Energy Justice mapping tool.
- Bryan Garcia, the President and CEO of the CT Green Bank, commented that in the last Task Force meeting, Adrienne Farar-Houel from the Greater Bridgeport Community Enterprises spoke about the communities LEAP project in Bridgeport. He noted that the LEAP grant is providing the Bridgeport community with technical assistance and the Bridgeport community is working on developing a community benefits agreement.
- Mr. Garcia also pointed out that all the DOE is very serious about the Justice40. He noted that all hydrogen hubs proposals will need to include Justice40 principles. He suggested
 - Ms. Gorman seconded Mr. Garcia's suggestions. She also mentioned to the participants that at the last Policy and Workforce Development Working Group, Aziz Dehkan spoke to Connecticut's policy regarding

about community benefit agreements which does apply to fuel cell projects that are greater than two megawatts.

- Ms. Gorman noted that several, but not all IIJA funding opportunities require match funding. Specifically, the Clean Hydrogen Hubs opportunity requires 50% match funding. Ms. Gorman explained that several sources are eligible for match funding, including:
 - Third-party financing;
 - State or local government funding or property donations;
 - Project participant funding; and
 - Donation of space or equipment.
- Ms. Gorman explained that the opportunities for Connecticut state-level match are diverse and extensive, as they include:
 - Funding from existing hydrogen-related programs;
 - Funding from newly established hydrogen-related programs;
 - Funding from participating developers;
 - Legislative appropriations;
 - Local government funding;
 - Donations of property from the government; and
 - Donations of property, or equipment from participating partners.
- Ms. Gorman commented that realistic sources for match funding are going to depend on the specific federal funding opportunity. For example, the Clean Hydrogen Hub solicitation is expected to fund at least four hubs with \$8 billion over 5 years, which is a maximum for \$400 million per year, with an expected 50% match funding. Therefore, for the hydrogen hubs funding, larger funding match funding will need to be investigated.
- Ms. Gorman explained that Connecticut does have exciting existing hydrogen-specific fundings and incentives. These include the CHEAPER vehicle rebates and several Connecticut Green Bank programs, which have been authorized in statute. In addition, fuel cells are granted property tax exemptions and the Commissioner of Economic and Community Development is authorized to establish an economic development grant program to expand hydrogen and fuel cell industries, although funding has not been appropriate to support this DECD grant program.
- Samantha Dynowski, Director of the Connecticut Chapter of the Sierra Club, inquired about whether funding for solar development for the purpose of producing hydrogen would be qualified for match funding.
 - Ms. Backer suggested that since solar is included on the production side of hydrogen, it may be qualified for match funding, but recommended this as a topic for further investigation.
 - Lidia Ruppert, a Research Analyst at DEEP noted that if any part of the project is already funded by some other federal funding, then it is ineligible for cost match.
 - Ms. Dynowski emphasized that key feedstocks should be prioritized and further investigation is still required to learn more about environmentally appropriate uses of hydrogen.
- Ms. Gorman identified funding opportunities in Connecticut that are not hydrogen-specific may be utilized to support the growth of a hydrogen economy. For example, CT Green Bank has programs such as Smart-E Loans and C-PACE. DECD also has programs such as Brownfield Remediation Grants and Loans, The Manufacturing Innovation Fund Apprenticeship Program, and the

Manufacturing Innovation Fund Voucher Program. She also explained that PURA has recently established its regulatory sandbox program the Innovative Energy Solutions, which provides \$25 million and funding for third party projects, utility projects, or partnerships to test and demonstrate innovative technologies. This program is expected to kick off in early 2023.

- Ms. Backer inquired about whether participant could identify any additional funding opportunities in Connecticut which could further support and incentivize the growth of a hydrogen economy.
 - Sridhar Kanuri, Chief Technology Officer at HyAxiom, identified federal microgrid funding.
 - Ms. Backer replied that at the next Funding Working Group, IRA opportunities and other federal sources of funding will be discussed in depth.
 - Nathan Frohling, Director of External Affairs at the Nature Conservancy, raised a question of whether the match funding was expected to be covered by the State of Connecticut.
 - Ms. Backer noted that the hydrogen hub is a part of a large regional effort, so the Connecticut funding would serve as a portion of the match funding needed.
 - Ms. Fernandez noted historic challenges on the state level developing a program that leverages both state and private funds. She recommended that early-stage developments that are at a low technology readiness level would benefit the state and lead to the creation of new companies.
 - Mr. Garcia replied that if there was a Connecticut investment in a company that leads to a hydrogen project, that project may count toward match funding, He also noted that it was likely that early-stage research could not be counted in the hub context.
 - Ms. Fernandez clarified that recommended program is not for early-stage research, rather this could help move beyond the hub concept to implementation. She gave an example of a \$75 million fund that the state put together to fund manufacturers.
 - Mr. Garcia acknowledged that if there is a competitive reason to engage in some early-stage projects this would be possible.
 - Ms. Ruppert clarified that for the hub funding opportunity, projects can be in earlier stages, such as under technology readiness level (TRL) 8 before the completion of the fourth phase of the hydrogen hub implementation. However, projects must be at TRL 8 for final implementation.
- Ms. Backer summarized this section of discussion into three key takeaways; To be competitive for IIJA funding, Connecticut must:
 - Identify opportunities to create benefit for environmental justice communities;
 - Determine opportunities for state-level match funding; and
 - Seek to further support targeted areas of the Sources, Infrastructure, and Uses Working Groups with incentives and funding.
- Ms. Backer provided a brief overview of the prioritized end uses that were discussed in the Uses Working Group. She suggested that Connecticut could match funding opportunities with high priority end use opportunities.
- Shannon Laun, the Vice President and Director of the Conservation Law Foundation, inquired about opportunities for transparency regarding the

availability of federal funding. She inquired whether there are any plans on the part of DEEP or the Green Bank to have any public-facing resources about the availability of federal funding and status of dispersed funding.

- Ms. Ruppert replied that there is no existing channel that compiles all the relevant information, but this opportunity is of interest. She also suggested releasing a web page that compiles all the initiatives of the ongoing work that organizations are doing and the related hydrogen funding opportunities.
- Ms. Backer introduced different hydrogen specific provisions in the IIJA, which include:
 - Electrolysis research, development, and demonstration;
 - Clean hydrogen technology manufacturing and recycling R&D; and
 - Regional clean hydrogen hubs.
- Ms. Backer provided a brief review of potential sources of federal funding. She mentioned that regarding the clean hydrogen hubs, there is funding available of \$7 billion in total, and the federal government plans to fund up to 10 hubs, so each region may get about \$1 billion. The match requirement for this would be 50% non-federal cost sharing. She mentioned some Connecticut resources that could potentially be applied for match funding, which include C-PACE by the Green Bank, the Non-Residential Renewable Energy Solutions Program, the Shared Clean Energy Facility Program, and the Innovative Energy Solutions program. Ms. Backer posed a question for participants regarding whether the C-PACE funding could be utilized for critical facilities.
 - Mr. Garcia indicated that it would depend on the type of critical facilities. He noted that because most of the critical facilities are public property, historically they would be financed through a combination of the DEEP microgrid grants, but because they can have direct payment or transfer investment tax credits for public entities due to the Inflation Reduction Act (IRA), there is a chance that C-PACE can be applied to nonprofit organizations that can benefit given the new tax treatment.
 - Brian Farnen, General Counsel and Chief Legal Officer of the CT Green Bank, seconded Mr. Garcia's reply and pointed out that the tax treatment is going to be a huge benefit for their organization.
 - Ms. Backer included that the Brownfield Remediation Grants and Loans may be applicable for acquiring land for green hydrogen projects.
 - Ms. Molina-Rios agreed that at the project level, the identified financing options are applicable.
- Ms. Backer introduced the electrolysis research, development, and demonstration funding opportunity in the IIJA. She explained that the purpose of this funding is to demonstrate technologies to produce clean hydrogen using electrolyzers and to validate information on the cost, efficiency and durability and feasibility of commercial deployment. She noted that there is \$1 billion total available and the application opening date is soon. Ms. Backer identified the IES program as a potential source of match funding.
 - Mr. Garcia added that utilities including Eversource and Avangrid as well as third parties are going to be invited to submit proposals into the IES. He noted that PURA has established a target of three proposals for the utility. He also explained that there will be a benefit cost assessment of the projects supported through the IES.
 - Ms. Ruppert added that the IES program will start next year.

- Ms. Laun mentioned that there is a \$5 million cap on individual projects under the IES.
- Mr. Frohling pointed out that the regional clean hydrogen hubs concept papers are due on November 7th and inquired whether Connecticut was prepared for this date.
 - Ms. Ruppert replied that this timeline will be met.
 - Ms. Fernandez added that for all the project applicants, the redacted version of the concept paper is on NYSERDA SharePoint and they will be sending out the unredacted concept paper tomorrow.
- Ms. Backer mentioned the Clean Hydrogen Manufacturing Initiative and Clean Hydrogen RD&D funding opportunity which aims to advance new clean hydrogen production and processing, delivery, storage and use equipment manufacturing technologies and techniques. Ms. Backer shared that a potential source of match funding for this opportunity is the Manufacturing Innovation Fund Voucher Program by DECD.
 - Ms. Molina-Rios clarified that the Manufacturing Innovation Fund Voucher Program is available for companies at a smaller scale and does not have the authorization to match funding at a program level.
 - Mr. Garcia explained to the participants that regarding greater funding transparency, some windows for submitting RFP's may have already passed and therefore recommended reaching to Task Force members to develop a database of applications that had been submitted. He suggested that this information might be useful for the legislature to see the distribution of interests.
- Ms. Backer noted that there are a wide variety of additional IIJA provisions that could be applicable to hydrogen. She introduced a grant opportunity for the transportation industry—Low or No-Emission Bus Grants. She shared that the the federal share for the Low or No-Emission Bus Grants is much higher compared to some other funding opportunities as it is between 80% and 90%. Moreover, in this program applicants can request an additional 0.5% for workforce development training for new fuel cell equipment or buses.
- Ms. Backer also briefly went over some other potential funding opportunities, including:
 - Reduction of Truck Emissions at Port Facilities;
 - Electric or Low-Emitting Ferry Program;
 - Charging and Fueling Infrastructure Grants; and
 - Industrial Emission Demonstration Projects.
- Ms. Backer inquired whether participants could identify IIJA funding opportunities that should be prioritized for Connecticut.
 - Mr. Garcia suggested that the Funding Working Group align with Uses Working Group to make cohesive recommendations.
 - Ms. Backer took note of this recommendation.
 - Mr. Kanuri mentioned that at HyAxiom, they have been attempting to identify potential uses for fuel cells in the transportation sector. He mentioned that in Korea, they are demonstrating a process where they take a slip stream of hydrogen from a natural gas power plant to support both electric vehicle charging and hydrogen refueling infrastructure.
 - Ms. Backer suggested that this concept may be a more relevant discussion for the Uses and Infrastructure Working Group.

- Mr. Frohling identified that in the previous Uses Working Group meeting, the cost effectiveness of different end uses of hydrogen had been identified. He inquired whether cost effectiveness would be considered when recommending funding opportunities.
 - Ms. Molina-Rios suggested that it is necessary to highlight and focus on Connecticut's competitive advantage to ensure that policy reflects and maximizes investment benefits.
- Ms. Gorman noted that the topic of hydrogen has been emerging across the country. She shared that there have been over 120 bills related to hydrogen that have passed over the past 3 years, and about a third of these have been specifically related to clean, green, or renewable hydrogen.
- Ms. Gorman provided a brief overview of examples of hydrogen specific incentives and funding that has been emerging in other states. She highlighted that Connecticut has the opportunity to develop policy that is innovative and should not feel that it has to stick with policies that have emerged in other states.
- Ms. Gorman pinpointed that one of the leading examples of hydrogen incentives that have emerged in multiple states are tax exemptions for alternative fuel vehicles and their purchase and distribution. There are other examples such as:
 - Income tax credits for zero emission vehicles;
 - Tax exemptions for facilities that produce or use green hydrogen;
 - Tax exemptions for labor and services related to the installation of construction of fuel cell infrastructure;
 - Tax deferrals for certain project investments that are related to hydrogen; and
 - Electrolytic green hydrogen tariffs that make grid electricity cheaper to use in an electrolyzer.
- Ms. Laun asked whether the statutory citations for referenced policies could be provided.
 - Ms. Gorman responded that Working Group slides posted to the Task Force website would include links.
- Ms. Fernandez inquired whether those tax exemptions for hydrogen use are for private facilities that use green hydrogen or other specific groups.
 - Ms. Gorman replied that these policies are generally applicable.
- Ms. Dynowski cautioned that the Task Force's recommendations should not incentivize hydrogen use that increases greenhouse gases and NOx emissions.
- Ms. Gorman provided an overview of of state-level grant and loan funding, which include:
 - Grants for hydrogen refueling infrastructure development;
 - Funding for clean hydrogen RD&D;
 - Grants for renewable development for hydrogen production;
 - Grants for decarbonization of industrial and manufacturing operations;
 - Low interest loans for alternative fuel conversions; and
 - Grants for innovative hydrogen use for maritime and drayage trucks.

5. Discussion of Work Plan and Next Steps

- Ms. Backer thanked participants their engagement. She reminded participants that the next Working Group meeting on November 18, 2022, would focus further on areas of non-IIJA funding.

6. Adjourn

- The second Hydrogen Study Task Force Funding Working Group meeting was adjourned by Ms. Backer at 12:04 p.m.

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