



Hydrogen Power Study Task Force: Funding Working Group Meeting #2

Hosted by Strategen Consulting
October 26, 2022

Meeting Logistics

- + Mute Microphone – in order to prevent background noise that disturbs the meeting, if you aren't talking, please mute your microphone or phone.
- + Chat Box – if you aren't being heard, please use the chat box or raise your hand to ask a question. Please try to limit comments in the chat as these may not be officially captured in the record.
- + Recording Meeting – we will record and post the meetings at www.ctgreenbank.com/hydrogentaskforce and you can also access meeting dates and dial-in information through Secretary of State.
- + State Your Name – for those talking, please state your name for the record.

Agenda

- + Welcome and Introductions (10 min)
- + Review of Objectives and Update on Progress (10 min)
- + Key Areas Opportunity for CT within IIJA, Eligibility Requirements, and Existing Relevant State Programs (40 min)
 - H2 Specific Provisions
 - Hubs
 - Manufacturing
 - R&D
 - Other Relevant Provisions
 - Examples of State-Level Funding Programs That May Amplify Connecticut's Competitiveness
- + Next Steps (10 min)
- + Adjourn

Introductions

Please share your name, title, and organization for the public record



Reminder: Strategen's Role

- + The Strategen team will handle meeting logistics including scheduling and recording meeting minutes.
- + The Strategen team will coordinate with Working Group Co-Chairs to develop meeting agendas which will be provided to participants a week before Working Group meetings.
- + The Strategen team will provide technical assistance (including research), where appropriate, for the Working Group.
- + It is expected that this working group will meet on a monthly cadence. Meeting recordings and meeting minutes will be publicly available.

Review of Working Group Objectives and Progress



About the Task Force

With the passage of Special Act 22-8, the Hydrogen Task Force was created to study hydrogen-fueled energy in the state's economy and energy infrastructure. By January 15, 2023, the Hydrogen Task Force shall submit a report on its findings and recommendations to the joint standing committee the General Assembly.

The Task Force is supported by activity from 5 Working Groups: Policy & Workforce Development; Funding; Hydrogen Sources; Hydrogen Infrastructure; Hydrogen Uses.

Statutory Responsibilities

“An examination of how to position the state to take advantage of competitive incentives and programs created by the federal Infrastructure Investment and Jobs Act;

Recommendations for funding and tax preferences for building hydrogen-fueled energy facilities at brownfield sites through the Targeted Brownfield Development Loan program;

Recommendations regarding funding sources for developing hydrogen-fueled energy programs and infrastructure.”

Interpretation of Statutory Responsibilities

“An examination of how to position the state to take advantage of competitive incentives and programs created by the federal Infrastructure Investment and Jobs Act;”

- + Identify hydrogen opportunities in the IIJA and the necessary qualifications
- + Identify which opportunities CT try to qualify for? What are the qualifications?
- + Which state resources could be applied and make CT more competitive?

Recommendations for funding and tax preferences for building hydrogen-fueled energy facilities at brownfield sites through the Targeted Brownfield Development Loan program;

Recommendations regarding funding sources for developing hydrogen-fueled energy programs and infrastructure.”

- + What other state and federal sources can be leveraged for clean hydrogen?
 - + Federal Ex: IRA; Buy America; existing programs in the DOE; Chips and Science Act

Funding Working Group Meeting Schedule

	9/27 4:00 – 5:00pm	10/26 10:30am – 12:00pm	11/18 10:30am – 12:00pm	12/15 10:30am – 12:00pm
Learning Objective	Understand the opportunities & what it takes to be eligible for funding.	Learn about how others are preparing and incentivizing hydrogen; dig deeper on CT specific opportunities in IIJA.	Work together to narrow down priority areas for non-IIJA funding opportunities.	Review proposed results and findings for final legislative report.
Federal Opportunities and Best Practices	Overview of federal funding opportunities and participation requirements	Hypothesis on areas where CT may want to lean in for IIJA.	Additional areas of federal funding for consideration (IRA; Buy America)	
Brownfield Loan Program Exploration	Intro/overview of the Targeted Brownfield Loan Program		Examples and recommendations to utilize programs for H2 applications.	Outline opportunities to leverage or further the program to support hydrogen
State Funding		Share how others are approaching hydrogen incentives deployed in other states.	Initial recommendations for incentive funding based on WG 1&2 findings and outcomes from Uses, Sources & Infrastructure WG.	Review state funding recommendations to support IIJA and other priorities

At the last Working Group meeting, DECD described a suite of tools to encourage the remediation and redevelopment of brownfields

Grants (Municipalities
and Economic
Development
Agencies)

Liability Relief
Programs

Low-Interest Loans
(Developers,
Municipalities,
Agencies)

The Brownfield Land
Bank Program

Next Steps

- + Write up a detailed overview of opportunities from DECD's presentation for the report
- + In upcoming Working Groups: ask any outstanding questions from DECD experts on potential ways to leverage programs for hydrogen infrastructure and investment needs
- + Explore relevant incentives for developing on Brownfields (ex: a 10% "adder" from the Inflation Reduction Act for repurposing Brownfields for wind and solar projects)

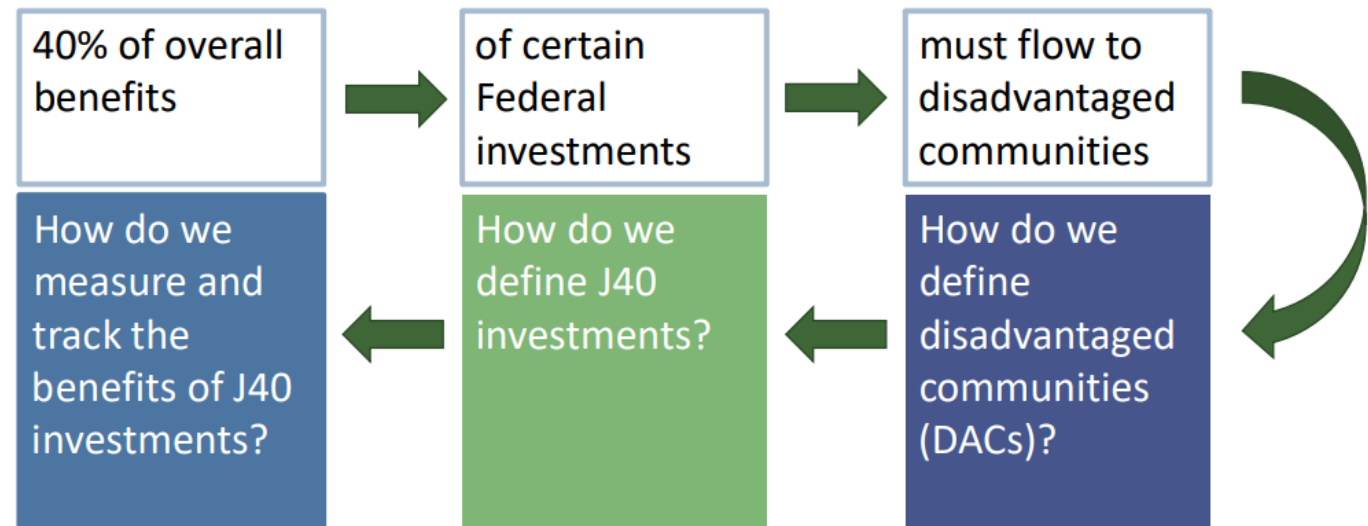
Setting the Stage: IIJA Requirements and the Existing CT State Funding and Incentive Landscape



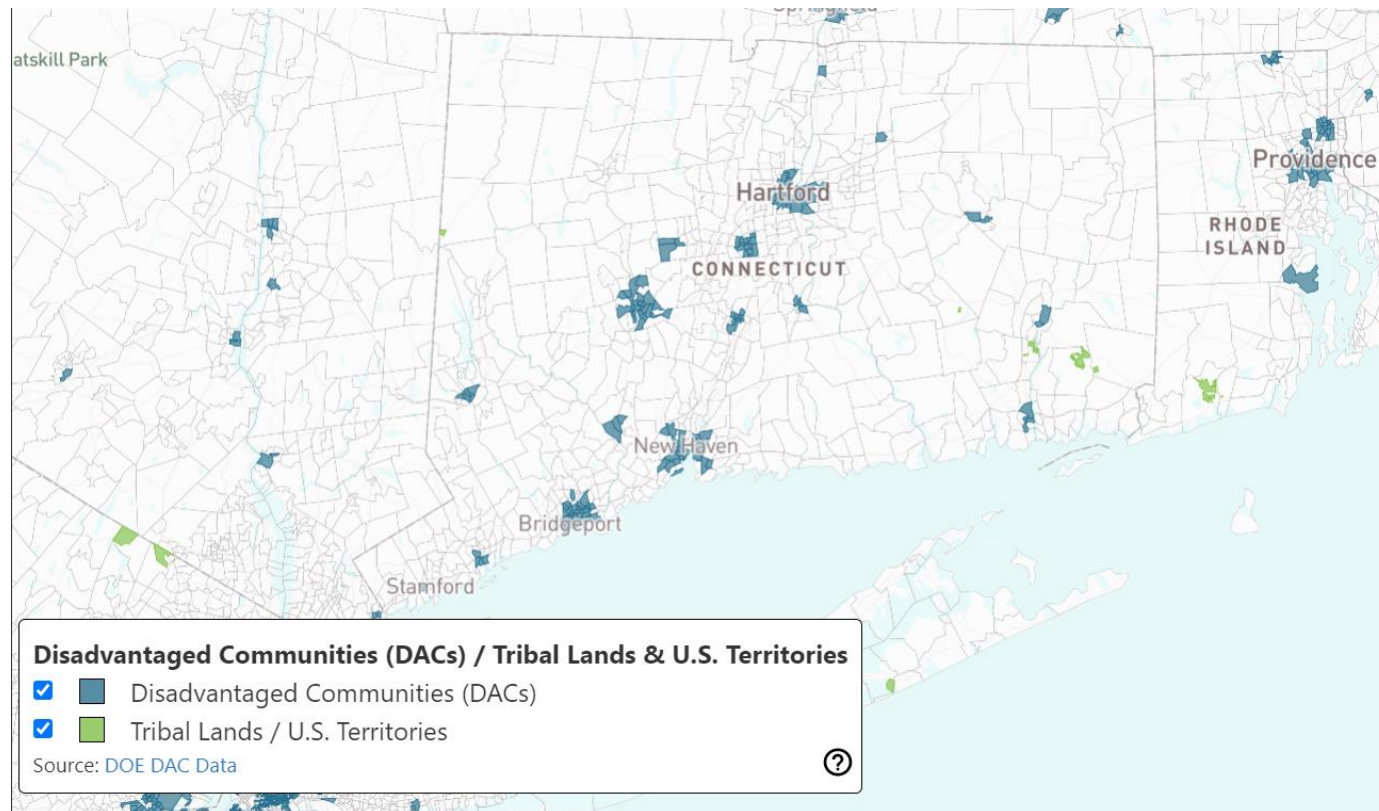
Per the Justice40 Executive Order, 40% of the overall benefits of certain Federal investments must flow to disadvantaged communities*

8 Policy Priorities to Guide DOE Implementation of Justice40

1. Decrease energy burden in disadvantaged communities
2. Decrease environmental exposure and burdens for disadvantaged communities
3. Increase parity in clean energy technology access and adoption in disadvantaged communities
4. Increase access to low-cost capital in disadvantaged communities
5. Increase clean energy enterprise creation and contracting (MBE/DBE) in disadvantaged communities
6. Increase clean energy jobs, job pipeline, and job training for individuals from disadvantaged communities
7. Increase energy resiliency in disadvantaged communities
8. Increase energy democracy in disadvantaged communities



Identifying Disadvantaged Communities



- + To be considered a DAC, a census tract must rank in the 80th percentile of the cumulative sum of 36 burden indicators (i.e. fossil dependence, environmental and climate hazards, etc.) and have at least 30% of households classified as low-income.
- + Federally recognized tribal lands and U.S. territories, are categorized as DACs

Understanding Match Funding Requirements in the IIJA

+ **What qualifies for cost sharing?**

- + Third-party financing;
- + State or local government funding or property donations;
- + Project participant funding; or
- + Donation of space or equipment.

+ **What cannot be used for cost sharing?**

- + Any partial donation of goods or services;
- + Revenues or royalties from the prospective operation of an activity beyond the project period;
- + Proceeds from the prospective sale of an asset of an activity;
- + Federal funding or property (e.g., federal grants, equipment owned by the federal government); or
- + Expenditures that were reimbursed under a separate federal program.

Opportunities for state-level match funding are diverse and extensive

- + 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
- + Donations of property, or equipment from participating partners

CT has several exciting existing hydrogen-specific areas of funding and incentives

Funding and Incentives

- + **Conn. Gen. Stat. 22a-202. (2020)** establishes the Connecticut Hydrogen and Electric Automobile Purchase Rebate Board (CHEAPR) to provide rebates that total at least three million dollars annually. Currently, incentives up to \$9,500 are available for purchases of eligible vehicles. Only residential.
- + **Conn. Gen. Stat. 32-7f. (2014)** authorizes the Commissioner of Economic and Community Development to establish an economic development grant program to expand hydrogen and fuel cell industries.
- + **Conn. Gen. Stat. 16-245hh. (2019)** requires the Connecticut Green Bank to establish a “condominium renewable energy grant program.”
- + **Conn. Gen. Stat. 12-81. (2012)** provides property tax exemptions for Class I renewable energy resources and for Level 2 EV charging stations.

Funding opportunities in Connecticut that are not hydrogen specific may be utilized to support the growth of a hydrogen economy

- + **Smart-E Loans (CT Green Bank)** provide low-interest financing with flexible terms for home energy performance upgrades.
- + **C-PACE (CT Green Bank)** provides building owners access affordable, long-term financing for qualifying clean energy and energy efficiency upgrades
- + **Capital Solutions (CT Green Bank)** seeks to provide access by project developers and capital providers or investors to Green Bank capital.
- + **Brownfield Remediation Grants and Loans (DECD)** provide loan financing or grants to eligible entities for costs associated with the investigation, assessment, remediation and development of a brownfield.
- + **The Manufacturing Innovation Fund Apprenticeship Program (DECD)** supports a combination of on-the-job training and classroom instruction for apprentices in Connecticut's manufacturing industry.
- + **Manufacturing Innovation Fund Voucher Program (DECD)** provides grant-based financial assistance to Connecticut manufacturers.
- + **The Innovative Energy Solutions Program (PURA)** provides funding projects for developers and utilities to test and demonstrate innovative technologies.
- + **Non-Residential Renewable Energy Solutions Program** provides 20-year tariffs for commercial clean energy projects, providing net metering and Renewable Energy Certificate payments. This applies to projects that are equal to or less than 2,000 kW.
- + **Shared Clean Energy Facility Program (DEEP)** provides a 20-year tariff term for projects between 100 kW and 4,000 kW. Credits are applied to bills of participating electric customers at no cost (primarily aimed at low-income customers or those who cannot install solar).
- + **Microgrid Grants and Loans (DEEP)** helps to support local distributed energy generation for critical facilities

Additional development of funding opportunities in Connecticut could further support and incentivize the growth of a hydrogen economy

- + Are there any key funding opportunities related to hydrogen funding missing from the prior list? Anything we listed that does not feel relevant or up-to-date?
- + Are there any topics for further funding consideration that should be prioritized?

Key Takeaways

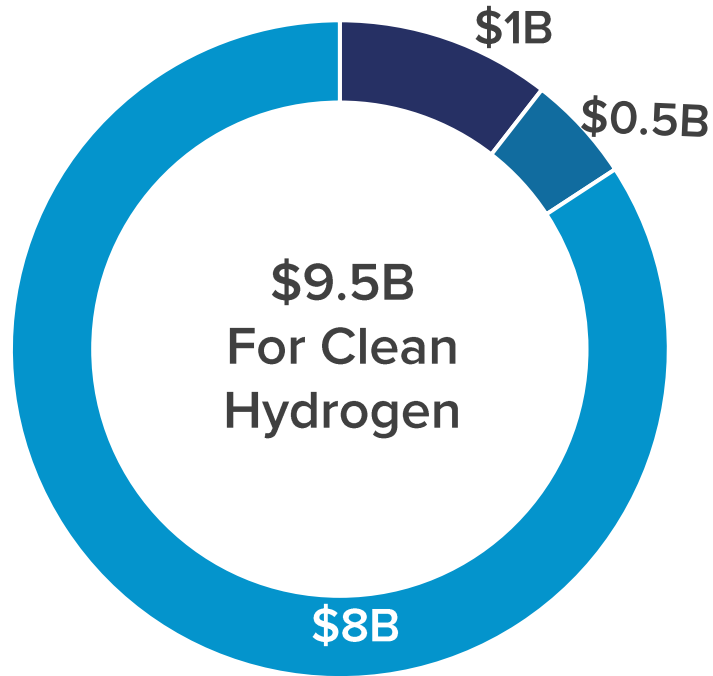
In order to be competitive for IIJA funding, Connecticut must:

- + Identify of opportunities to create benefit for environmental justice communities.
- + Determine opportunities for state-level match funding.
- + Seek to further support targeted areas of Sources, Infrastructure, and End Uses (from relevant Working Groups) with incentives and funding

Areas of Opportunity for Hydrogen in the IIJA and Potential Sources of State Match Funding



Hydrogen Specific Provisions in the IIJA



- Electrolysis research, development, and demonstration
- Clean hydrogen Technology manufacturing and recycling R&D
- Regional clean hydrogen hubs (at least 4)

Other Hydrogen Provisions

- Directs work to reduce the cost of clean hydrogen to \$2 per kilogram by 2026
- Requires developing a National Hydrogen Strategy and Roadmap
 - [Draft released](#) last week for comments

Regional Clean H2 Hubs

- + **Funding Available:** \$7bn. The federal govt plans to fund 6 – 10 hubs, so each region is likely to get approximately \$1bn
- + **Timing:** Concept papers due November 7, full application due on April 7
- + **Match Requirement:** 50% non-federal cost sharing requirement

Potentially Relevant Sources of State Match Funding:

C-PACE (CT Green Bank) provides building owners access affordable, long-term financing for qualifying clean energy and energy efficiency upgrades.

Brownfield Remediation Grants and Loans (DECD) provide loan financing or grants to eligible entities for costs associated with the investigation, assessment, remediation and development of a brownfield.

The Innovative Energy Solutions Program (PURA) provides funding projects for developers and utilities to test and demonstrate innovative technologies.

Non-Residential Renewable Energy Solutions Program provides 20-year tariffs for commercial clean energy projects, providing net metering and Renewable Energy Certificate payments. This applies to projects that are equal to or less than 2,000 kW

Shared Clean Energy Facility Program (DEEP) provides a 20-year tariff term for projects between 100 kW and 4,000 kW (150 MW total in program). Credits applied to bills of participating electric customers at no cost (primarily aimed at low-income customers or those who cannot install solar)

Electrolysis Research, Development, and Demonstration

To establish a research, development, demonstration, commercialization, and deployment program for purposes of commercialization to improve the efficiency, increase the durability, and reduce the cost of producing clean hydrogen using electrolyzers. Expansion of an existing program.

- + **Funding Available:** \$1bn.
- + **Timing:** Est. application opening date: Q4 2022
- + **Eligible Recipients:** Industry partners
- + **Match Requirement:** Unknown

Potentially Relevant Sources of State Match Funding:

- + The Innovative Energy Solutions Program (PURA) provides funding projects for developers and utilities to test and demonstrate innovative technologies.

Clean Hydrogen Manufacturing Initiative and Clean Hydrogen Recycling RD&D

Advance new clean hydrogen production, processing, delivery, storage and use equipment manufacturing technologies and techniques.

- + **Funding Available:** \$500 million
- + **Timing:** Original DOE estimated date was Q2 2022.
- + **Match Requirement:** Unknown

Potentially Relevant Sources of State Match Funding:

- + Manufacturing Innovation Fund Voucher Program (DECD) provides grant-based financial assistance to Connecticut manufacturers.

Eligible Uses

- + Increasing the efficiency and cost-effectiveness of the recovery of raw materials from clean hydrogen technology components and systems;
- + Minimizing environmental impacts from the recovery and disposal processes;
- + Addressing any barriers to the research, development, demonstration, and commercialization of technologies and processes for the disassembly and recycling;
- + Developing alternative materials, designs, manufacturing processes, and other aspects of clean hydrogen technologies;
- + Developing alternative disassembly and resource recovery processes that enable efficient, cost-effective, and environmentally responsible disassembly of, and resource recovery from, clean hydrogen technologies; and
- + Developing strategies to increase consumer acceptance of, and participation in, the recycling of fuel cells.

Other Applicable IJA Provisions



Low or No-Emission Bus Grants

- + **Funding Available:** \$5.62 billion of competitive grants
- + **Eligible Recipients:** Funding is available for states, counties, cities/townships to help transit agencies purchase or lease low or no-emission buses.
- + **Timing:** Funding for 2022 is closed; will reopen for 2023
- + **Match Requirement:** Federal share is up to 80 (for leasing or buying the bus); 90% (for bus related equipment and facilities)
- + **Potential CT H2 Application:** Fuel cell bus funding; maybe fueling stations?
- + **Potentially Relevant Sources of State Match Funding:** Unknown

Clean School Bus Program

Fifty percent of the funds are authorized for zero-emission school buses and fifty percent of the funds are authorized for alternative fuels and zero-emission school buses.

- + **Funding Available:** \$5 billion in grants and rebates
- + **Eligible Recipients:** State or local governments, eligible contractors, and nonprofit school transportation associations. Funds may be prioritized for rural or low-income communities or entities that have matching funds available.
- + **Match:** The EPA Administrator is authorized to provide funds to cover up to 100% of the costs for the replacement of the bus.
- + **Potential CT H2 Application:** FCEV school busses
- + **Potential Relevant Sources of State Match Funding:** Unknown

Reduction of Truck Emissions at Port Facilities

Coordinate and provide funding to test, evaluate, and deploy projects that reduce port-related emissions from idling trucks, including through the advancement of port electrification and improvements in efficiency, focusing on port operations, including heavy-duty commercial vehicles, and other related projects.

- + **Funding Available:** \$400 million
- + **Match Requirements:** Federal share not to exceed 80%
- + **Potential CT H2 Application:** Deploying fuel cell port equipment
- + **Potential Relevant Sources of State Match Funding:** Unknown

Electric or Low-Emitting Ferry Program

This program establishes an electric or low-emitting ferry pilot program that makes federal funding available to support the transition of passenger ferries to low or zero emission technologies.

- + **Funding Available:** \$250 million in competitive grants to a variety of recipients; \$50 million in 2023
- + **Match Requirements:** Federal share not to exceed 80% (can be up to 90% if project is a compliance-related purchase or leasing)
- + **Potential CT H2 Application:** Deploying a hydrogen-fueled ferry pilot program. See [example of a pilot project in CA](#)
- + **Potential Relevant Sources of State Match Funding:** Unknown

Research, Development, Demonstration, and Deployment Project

This program provides funding to assist innovative projects and activities that advance and sustain, safe, efficient, equitable, climate-friendly public transportation.

- + **Funding Available:** \$132.2 million of competitive grants, cooperative agreements, and contracts. Some of the funding may be allocated to training for maintenance and use.
- + **Match Requirement:** Federal share is not to exceed 85% of total transit bus cost. Federal share in the cost of leasing/acquiring related equipment and facilities is 90% of net project cost.
- + **Potential CT H2 Application:** Unknown
- + **Potential Relevant Sources of State Match Funding:** Unknown

Charging and Fueling Infrastructure Grants

Program funds will be made available to install electric vehicle charging and alternative fuel in locations on public roads, schools, parks, and in publicly accessible parking facilities.

It also uses funds to deploy electric vehicle charging and hydrogen/propane/natural gas fueling infrastructure along designated alternative fuel corridors and in communities.

- + **Funding Available:** \$2.5 billion in competitive grants
- + **Eligible Recipients:** Competitive grants to states, political subdivision of states, metropolitan planning organizations, local governments, special purpose districts, public authorities with a transportation function, tribes, or territories. Prioritized for rural areas, low-and moderate-income neighborhoods, and communities with low ratios of private parking, or high ratios of multi-unit dwellings.
- + **Timing:** Program must be established by November 15, 2022
- + **Potential CT H2 Application:** Deploying infrastructure to support hydrogen for heavy-duty truck fleets.
- + **Potential Relevant Sources of State Match Funding:**
 - + Brownfield Remediation Grants and Loans (DECD) provide loan financing or grants to eligible entities for costs associated with the investigation, assessment, remediation and development of a brownfield.

Industrial Emission Demonstration Projects

To fund demonstration projects that test and validate technologies that reduce industrial emissions.

- + **Funding Available:** \$500,000,000
- + **Eligible Recipients:** Technology Developers, Industry, Manufacturers, Universities, National Laboratories, Engineering and Construction firms, State and Local Governments, Environmental Groups, and Community Based Organizations.
- + **Potential CT H2 Application?**

Discussion:

Which programs do you think should be a priority for hydrogen in CT?

Did we miss areas of state funding?



Examples of State-Level Funding Programs That May Amplify Connecticut's Competitiveness



Coordinated policy and regulatory drivers are informing and driving public and private sector investment



Legislation

In the last 3 years, hydrogen specific legislation has skyrocketed. Hydrogen bills have typically been focused on a particular end use, for example:

- Mobility
- Gas and Electric Generation
- Industrial Uses

A smaller set of hydrogen related bills provide specific grant funding, authorize specific studies, or address safety provisions.

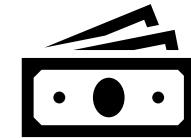


Incentives

Some States offer incentives for clean hydrogen production, distribution, or use. Incentive types include:

- Tax Credits
- Tax Exemptions
- Electrolytic Tariffs

Incentives are typically focused on a specific end use.



Grants & Loans

Grants and loans provide opportunities for states to reduce the upfront cost of hydrogen developments. Examples of grants and loans for hydrogen-related topics include:

- RD&D
- Renewable Deployment
- Infrastructure Development

Grant and loan programs are typically active for a limited time (i.e. one year) and are usually focused on a specific end use.

Examples of state-level hydrogen incentives

- + Use tax exemptions for alternative fuel vehicles (ex. [AZ Title 42-5159](#))
- + Excise tax exemptions for the distribution of alternative fuels (ex. [NM Stat § 7-16B-5](#), [MD HB1391](#))
- + Tax exemptions for facilities that produce or use green hydrogen (ex. [MT HB170](#), [UT HB223](#))
- + Income tax credit for ZEV purchases (ex. [CO HB 19-1159](#), [UT HB91](#))
- + Retail tax exemption for labor and services for installing, constructing, repairing, or improving fuel cell electric vehicle infrastructure (ex. [WA Chapter 82.08.816 RCW](#))
- + Tax deferrals for project investments above \$2 million (ex. [WA Chapter 82.29 RCW](#))
- + Electrolytic hydrogen tariffs (ex. [WA Tacoma Power Electrofuel Service Pilot](#), [AZ APS and Nikola Hydrogen Rate Schedule](#))

Examples of state-level grant and loan funding

- + Grants for hydrogen refueling infrastructure development (ex. [WA HB1080](#), [MI HB4321](#), [CA SB155](#))
- + Funding for clean hydrogen RD&D (ex. [AK SB241](#), [CA AB209](#))
- + Grants for renewable development for hydrogen production (ex. [CO HB22-1381](#))
- + Grants for decarbonization of industrial and manufacturing operations (ex. [CO SB22-193](#))
- + Low interest loans for alternative fuel conversions (ex. [SC Chapter 48-52-650](#))
- + Grants for innovative hydrogen use for maritime and drayage trucks (ex. [CA SB574](#))

Are there any areas that may benefit from additional financial support? Any examples that stand out to you?



Next Steps



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State Funding		Share how others are approaching hydrogen incentives deployed in other states.	Initial recommendations for incentive funding based on WG 1&2 findings and outcomes from Uses, Sources & Infrastructure WG.	Review state funding recommendations to support IIJA and other priorities

Working Group Meeting Schedule

	September	October	November	December
Funding	9/27 4-5pm	10/26 10:30am-12 pm	11/18 10:30am-12 pm	12/15 10:30am-12:00 pm
Infrastructure	9/28 2-3pm	10/24 2-3pm	11/17 3-4pm	12/19 3-4pm
Policy & Workforce Development	9/26 3-4pm	10/20 12-1pm	11/29 12-1pm	12/15 12-1pm
Sources	9/27 1-2pm	10/25 2-3:30pm	11/17 11am-12pm	12/20 1-2:30pm
Uses	9/27 12-1pm		11/22 12-1pm	