



THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



Gulf Coast Hydrogen Hub Community Briefing

Office of Clean Energy Demonstrations

U.S. Department of Energy

December 12, 2024



Welcome!



Meeting Background & Objectives

- The Department of Energy's (DOE) Office of Clean Energy Demonstrations (OCED) announced the selection of seven Regional Clean Hydrogen Hubs (H2Hubs) in October 2023
- On November 20th, OCED announced that it had awarded the Gulf Coast Hydrogen Hub—led by HyVelocity (HyV)—with \$22 million to begin Phase 1 activities
- DOE and HyV are here to provide an update on the Gulf Coast Hydrogen Hub and opportunities to help shape your community's energy future
- Engage with DOE and the partners involved in these H2Hubs



Introductions



Emmanuel Taylor
Facilitator



Josh Tomblin,
Project Manager,
H2Hubs, OCED



Danielle Moon,
Stakeholder
Engagement
Specialist,
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Ted Barnes,
Senior Director, Low
Carbon Energy
Solutions, GTI Energy



Doug Bannerman,
Senior Manager for
Community
Benefits,
GTI Energy



Agenda

- OCED Project Management Oversight Overview
- Next Steps & Resources
- HyVelocity Overview
- Q&A Session
- Closing



OCED Project Management Oversight Overview

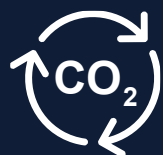
OCED's Mission

“Deliver clean energy demonstration projects at scale in partnership with the private sector to accelerate deployment, market adoption, and the equitable transition to a decarbonized energy system.”

OCED's Portfolio



Advanced Nuclear
(\$3.3 billion)



Carbon Capture
(\$3.5 billion)



Clean Energy Demonstrations on Mine Land (\$500 million)



Distributed Energy Systems Demonstrations (\$50 million)



Energy Improvements in Rural or Remote Areas (\$1 billion)



Industrial Demonstrations
(\$6.3 billion)



Long-Duration Energy Storage Demonstrations (\$505 million)



Regional Clean Hydrogen Hubs
(\$8 billion)

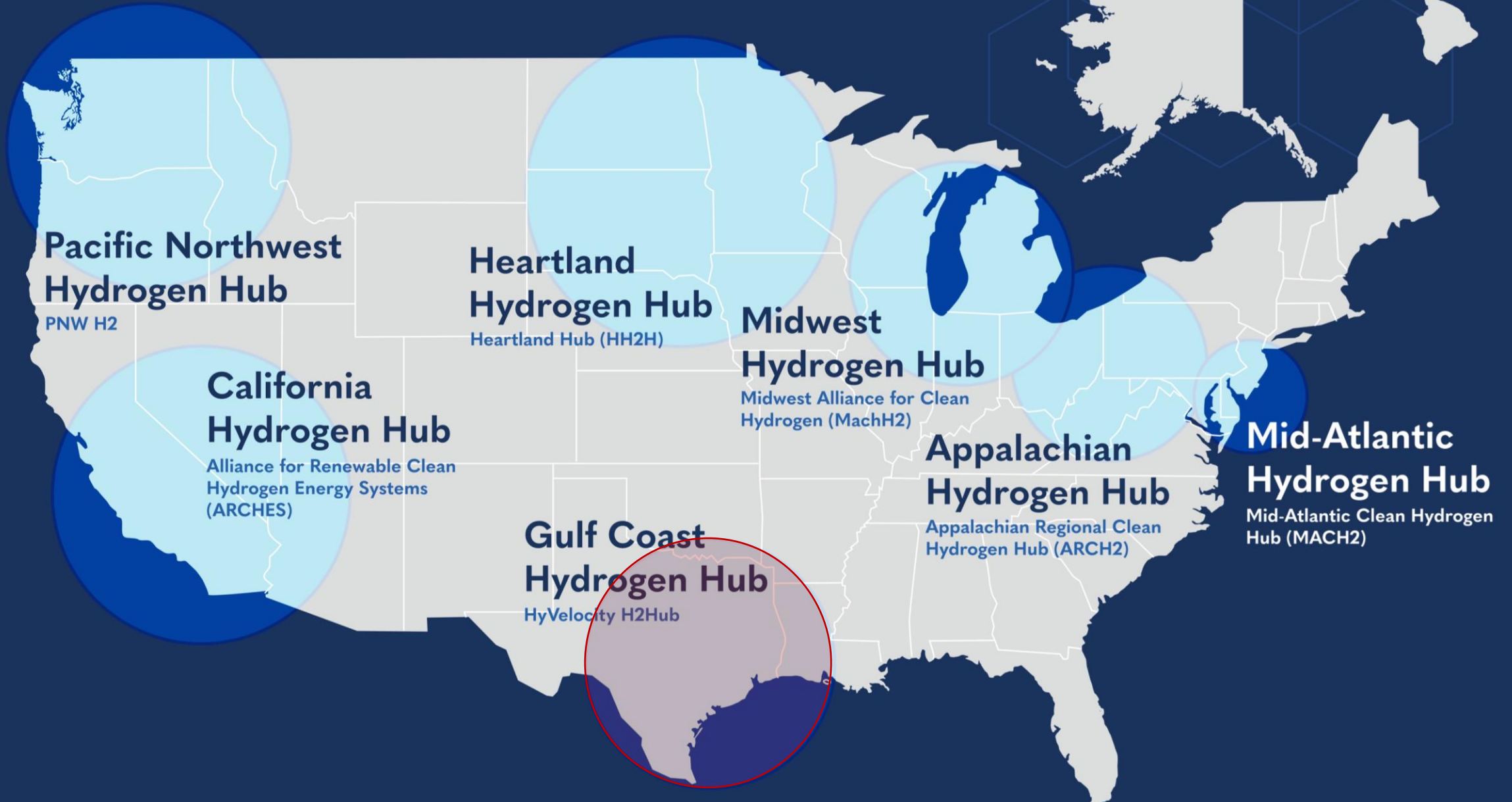


Regional Direct Air Capture Hubs
(\$3.5 billion)



Liftoff Enabling Programs
(\$133 million)

Selected Regional Clean Hydrogen Hubs



Gulf Coast Hydrogen Hub Overview

Unprecedented investment in America's hydrogen infrastructure

- Federal investment of up to \$1.2 billion

To accelerate adoption of hydrogen technologies

- Clean hydrogen production from diverse feedstocks
- End-use in trucking and marine transportation, industry, ammonia production, and refining and petrochemical production
- Transportation and storage infrastructure

Providing tangible benefits for communities

- Dedicated dollars for community benefits
- Tens of thousands of new, quality jobs
- Greenhouse gas reduction of 7 million metric tons per year

OCED Project Management Oversight Overview



**CBPs are considered alongside assessments of engineering, procurement, and construction; business development and management; permitting and safety; and technical data and analysis.*



Prioritizing Community Benefits in OCED Projects

OCED **requires** its awards to include community benefits to help ensure broadly shared prosperity in the clean energy transition.

By **prioritizing community benefits**, we can ensure the next chapter in America's energy story is marked by greater justice, equity, security, and resilience.

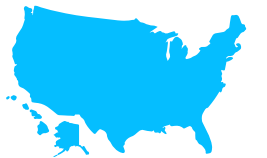
Community & Labor Engagement



Diversity, Equity, Inclusion, & Accessibility



Investing in the American Workforce

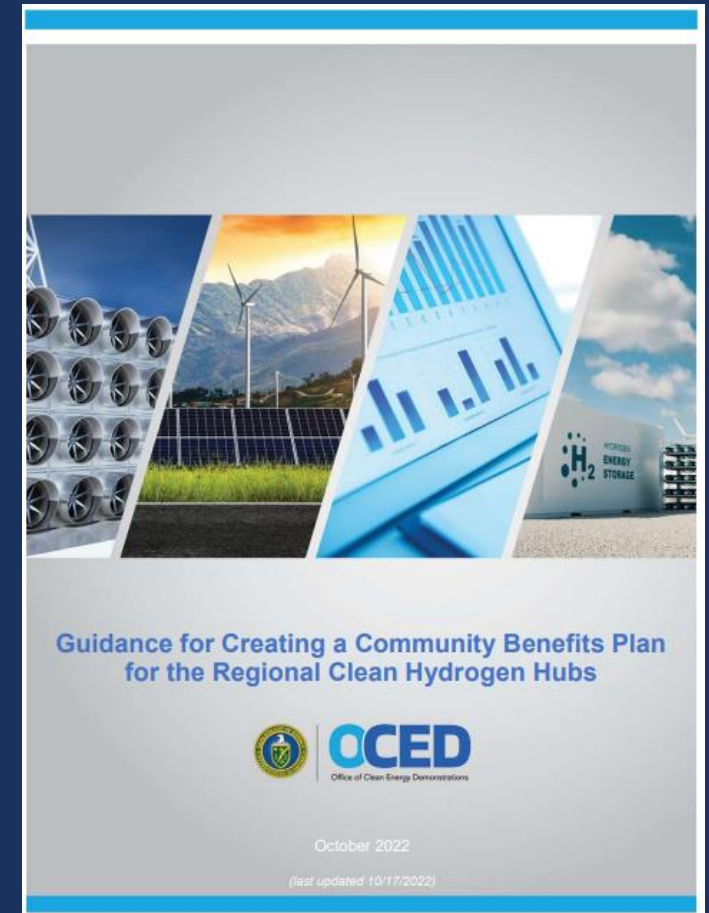


Justice40 Initiative



Strong Community Benefits Commitments

- Demonstrate moving beyond a vision or assessment into **actionable goals, outcomes, and implementation steps** supported by adequate money, people, and time resources
- Include mechanisms for **accountability to and transparency with** impacted communities
- Propose clear **metrics** to measure success
- Match proposed actions to the **needs and priorities** of impacted communities
- **Robustly address** all four topic areas discussed on the previous slide
- **Minimize and mitigate negative impacts** and harm, especially to already overburdened communities
- **Create quality jobs**, equitable access, and invest in workforce development
- **Evolve** to incorporate community and worker feedback
- **Build** toward lasting and enforceable Community and Labor Agreements



**OCED FOA CBP Guidance docs
available with each FOA at:
<https://oced-exchange.energy.gov/>**



Next Steps & Resources

Next Steps – Phase 1

Phase 1: 12-18 months

- Includes planning, design, and **community and labor engagement activities**
- Each technology provider will be responsible for the planning and development of their respective facilities, while all Hub collaborators will contribute to community benefits activities
- Negotiations over the Phase 2 award will consider the status and quality of implementation during Phase 1, including community benefits commitments, which will be updated to reflect key learnings and developments as community feedback is collected and incorporated
- OCED will work with recipients to ensure compliance with the National Environmental Policy Act (NEPA)



Get Involved

How could this Hub impact me?

Learn more about OCED's
Community Benefits Plan
Framework →

Is there an H2Hub near me?

View the OCED selected &
awarded projects map here →



What is an H2Hub?

Learn more →

Project
awarded

WE ARE
HERE

What H2Hubs meetings are
planned or have happened?

Learn more →

1

~12-18 months

2

~2-3 years

3

~2-4 years

4

~2-4 years

Phase 1: Detailed Plan

Community Benefit Commitments Public

Phase 2: Project Development

Community Benefit Commitments Public

Phase 3: Install, Integrate, Construct

Community Benefit Commitments Public

Phase 4: Ramp-Up & Operate

Community Benefit Commitments Public

Ongoing community engagement
throughout each phase

Learn more about project phases →

How do I stay informed?

Sign up for updates →

Project
selected



Announcement and Negotiations
Projects have been selected, but awards
have not been made



OCED
Office of Clean Energy Demonstrations



Community Benefit Commitments Public



Go/No-Go Decisions

Next Steps – Virtual H2Hubs Community Briefings

OCED has announced
Phase 1 awards for five
H2Hubs to date.

Information and to
register: <https://www.energy.gov/oced/h2hubs-local-engagement-opportunities>

California Hydrogen Hub
Monday, August 5, 2024

Pacific Northwest Hydrogen Hub
Thursday, August 8, 2024

Appalachian Hydrogen Hub
Friday, August 16, 2024

Midwest Hydrogen Hub
Monday, December 9, 2024

Gulf Coast Hydrogen Hub
Thursday, December 12, 2024



Selectee Webpages

Appalachian Hydrogen Hub

<https://www.arch2hub.com/>

California Hydrogen Hub

<http://www.arches.org/>

Heartland Hydrogen Hub

<http://www.heartlandh2hub.com/>

Gulf Coast Hydrogen Hub

<https://www.hyvelocityhub.com>

Mid-Atlantic Hydrogen Hub

<https://mach-2.com/>

Midwest Hydrogen Hub

<https://machh2.com/>

Pacific Northwest Hydrogen Hub

<https://pnwh2.com/>



H2Hubs Resources (1)

Regional Clean Hydrogen Hubs

- [Program Page](#)
- [Press Release](#)
- [Overview of Selected Projects](#)
- [Local Engagement Opportunities](#)
- [Fact Sheet: OCED CBP Overview](#)
- [Fact Sheet: Incorporating Public Input into OCED's H2Hubs Negotiations](#)

Demand-Side Support Initiative for Clean Hydrogen

- [Selection of Consortium](#)
- [Video: OCED Update on Demand-Side Support Initiative](#)



H2Hubs Resources (2)

Additional Clean Hydrogen Resources

- [U.S. National Clean Hydrogen Strategy and Roadmap](#)
- [Hydrogen Interagency Task Force](#)
- [Clean Hydrogen Pathways to Commercial Liftoff Report](#)
- [Hydrogen Shot](#)
- [DOE Hydrogen and Fuel Cell Technologies Office](#)

Additional DOE Resources

- [Office of Energy Jobs technical assistance to advance CBP components on jobs, labor, and skilled workforce](#)





HyVelocity Gulf Coast Hub Overview

HyVelocity at a Glance

- HyVelocity is an industry led Hub that includes 6 core industry partners:
 - AES Corporation, Air Liquide, Chevron, ExxonMobil, MHI Hydrogen Infrastructure, and Ørsted
- HyVelocity is administered by GTI Energy and includes collaborating organizations:
 - The University of Texas at Austin, the Center for Houston's Future, and Houston Advanced Research Center

Funding	Scope & Location	Timing
• Total OCED cost-share amount: up to \$1.2B • Phase 1 OCED award amount: \$22M	• Phase 1 SOW: Planning & Development • Project locations: U.S. Gulf Coast, including Corpus Christi, Houston, Texas Triangle region, and others	• Project start date: Fall 2024 • Initial phase timeline: Up to 18 months

HyVelocity Award Announcement Overview

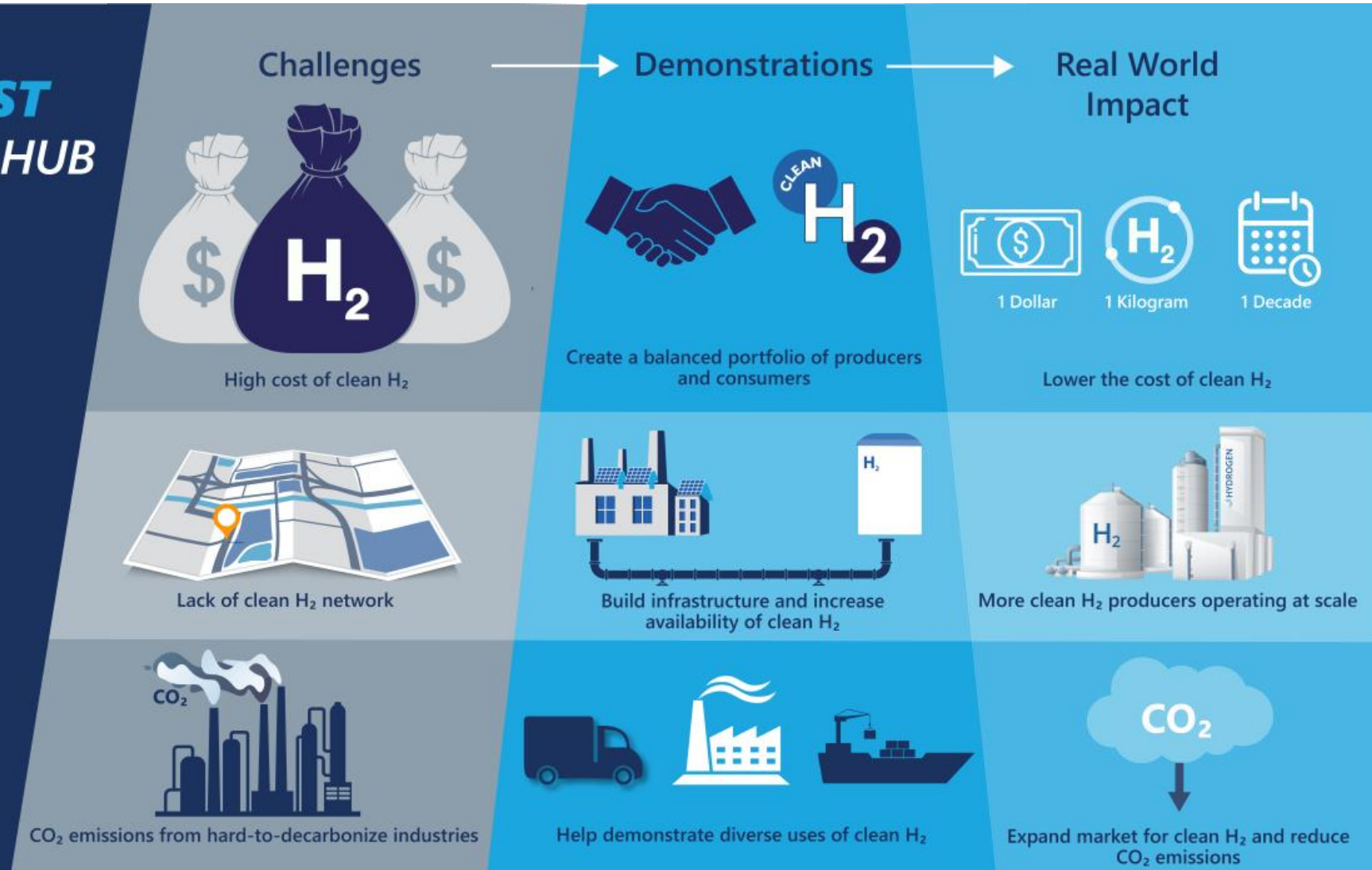
GULF COAST HYDROGEN HUB (HyVelocity)

\$1.2B
federal investment

~7M
metric tons CO₂
avoided annually



Note: Anticipated based on information provided to the Department of Energy as of Fall 2024.



OCED
Office of Clean Energy Demonstrations

Project Sites



BAYOU GREEN H2 (AES)

- Build a new electrolytic clean hydrogen production plant in Harris County, TX.
- The facility would be designed to provide an estimated nameplate capacity of up to 175 metric tons per day (MTPD) powered by renewable energy.



STAR E-METHANOL (ØRSTED)

- Produce an initial target of 160 MTPD of clean hydrogen utilizing either proton exchange membrane or alkaline electrolysis.
- The H2 would be used to create e-methanol for fossil fuel-reliant industries.
- Potential to reduce GHG emissions from equivalent maritime shipping fuel by more than 90%.



PROJECT ZEUS (AIR LIQUIDE, EQUISTAR)

- With Equistar, construct a clean hydrogen pipeline to an Equistar chemical manufacturing facility, retrofitted to support infrastructure to utilize clean H2.
- Potential to reduce GHG emissions at Equistar's facility while demonstrating the viability of using clean hydrogen as a fuel in hard to abate sectors.



PROJECT MERCURY (AIR LIQUIDE)

- Build and operate a clean H2 liquefaction facility in the Texas Triangle area capable of producing 30 MTPD of clean liquid hydrogen.
- The facility would support the region's future fueling stations and/or other liquid hydrogen customers.



CRESCENT BAYOU (CHEVRON)

- Build a clean H2 production facility that uses natural gas with plans to capture at least 95% of CO2 emissions.
- Transport and sequester the captured CO2 in nearby geologic formations.
- Proposes to produce up to 700 MTPD of clean hydrogen, which would be converted to 4,000 MTPD of lower-carbon ammonia.



HYDROGEN PIPELINE (EXXONMOBIL)

- Evaluate low-carbon H2 pipeline infrastructure to connect production facilities to demand centers in the greater Houston area.
- Additional details on the potential size, route, and capacity of the pipelines will be defined during the planning phase of the project.



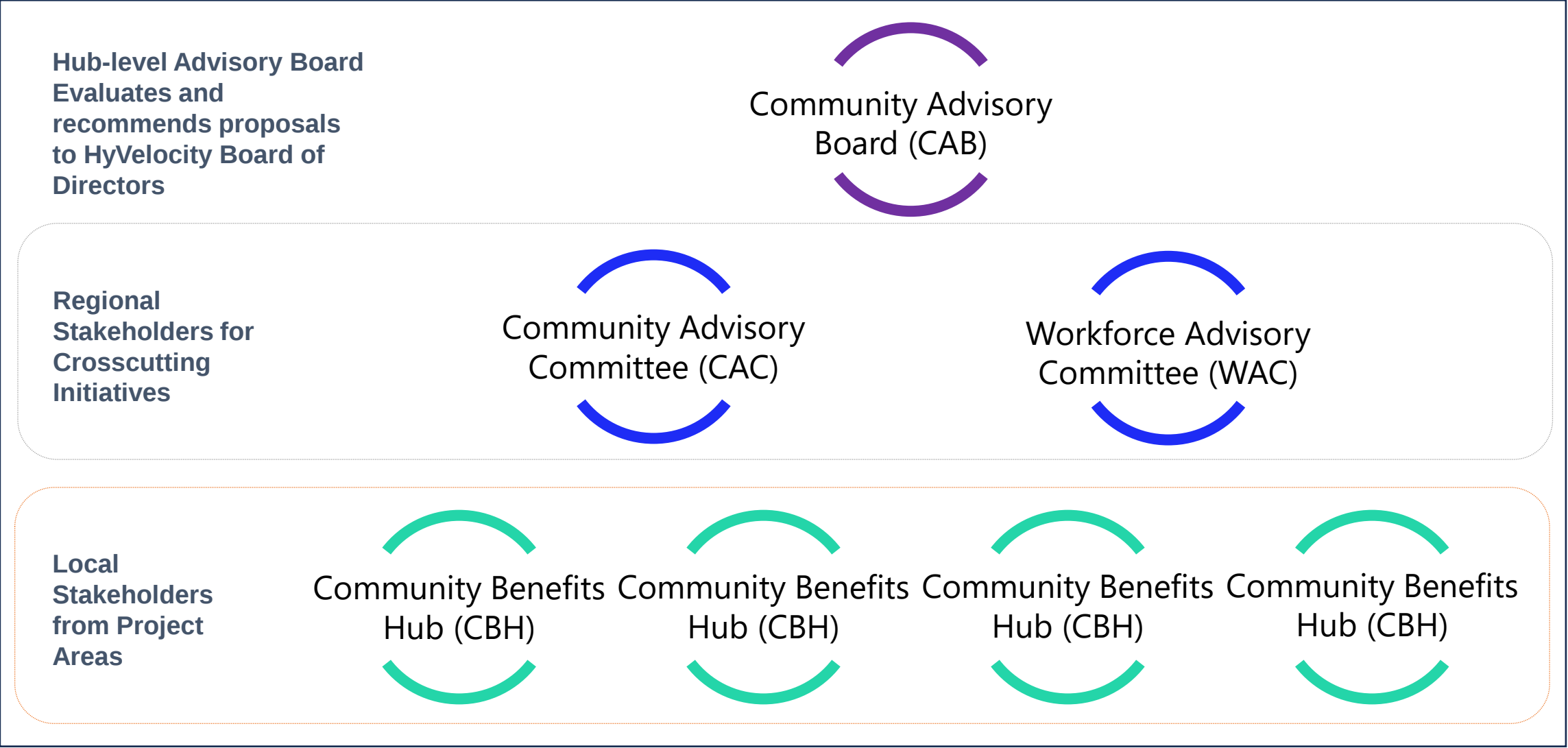
MORNING HAWK (MHI HYDROGEN INFRA-STRUCTURE LLC)

- Develop an electrolytic production plant capable of producing up to 240 MTPD nameplate capacity of clean hydrogen in Duval County, TX.
- The project plans to procure renewable energy from a third-party source and/or to produce it on the project site.



HyVelocity Gulf Coast Hub Overview

HyVelocity Community Benefits Plan Governance





HyVelocity Gulf Coast Hub Overview



Q&A Session



Ground Rules for Discussion

- Submit questions using the Q&A feature
 - You can also see and upvote other questions that have been asked
- Be respectful
- One idea at a time
- It is okay to build on the ideas of others
- Clarifying questions are okay





Stay Connected

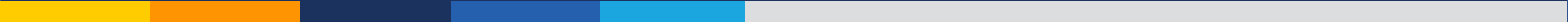
- Reach HyVelocity
Engage@hyvelocityhub.com
- Reach OCED about the Hub
GulfCoastH2Hub@hq.doe.gov
- Reach OCED about general H2Hubs engagement
Engage_H2Hubs@hq.doe.gov
- OCED Website & Newsletter Sign-Up
energy.gov/oced/contact-us
- OCED Exchange (RFIs, NOIs, and FOAs)
oced-exchange.energy.gov
- Follow us on LinkedIn
linkedin.com/company/doe-oced/



Thank you!



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For more information, please visit: energy.gov/OCED