

## THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



## Regional Clean Hydrogen Hubs Gulf Coast Regional H2Hub Community Briefing

10/30/2023 Office of Clean Energy Demonstrations U.S. Department of Energy

# Welcome!

## **Welcome & Meeting Objectives**

- The Office of Clean Energy Demonstrations (OCED) at DOE recently announced the selection of seven Regional Clean Hydrogen Hubs (H2Hubs)
- We at DOE wanted to connect to help clarify our process and the opportunities to plug in and help shape your community's energy future
- Engage with DOE and the partners involved in these H2Hubs



## Introductions















Emmanuel Taylor Facilitator Todd Shrader, Director, Project Management, OCED

Suzy Baker, Stakeholder Engagement Lead – H2Hubs, OCED Lydia Kubiak-Cardona, Community Engagement Specialist – H2Hubs, OCED

John Hall, President & Chief Executive Officer, Houston Advanced Research Center (HARC) Brian Korgel, Rashid Engineering Regent Chair & Energy Institute Director, The University of Texas at Austin

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# **Opening Remarks**

- Welcome
- Opening Remarks
- OCED Overview
- H2Hubs Overview

## Agenda · Community Benefits and Engagement

- Gulf Coast Regional H2Hub Project Overview
- Next Steps & Resources
- Feedback Session
- Wrap-up & Close

# **OCED Overview**

## **OCED** Mission

Deliver clean energy technology 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** Mandate



#### SCALE EQUITABLE, CLEAN ENERGY

Help enable 100% clean electricity by 2035 and net zero emissions by 2050 through an equitable energy transition



### UNLOCK NEW INVESTMENT

Unlock and scale trillion-dollar clean energy follow on investment from the private sector and other sources of capital



### DE-RISK TECHNOLOGY

Maintain risk-based, balanced, and defensible portfolio of investments



### SERVE AS CENTER OF EXCELLENCE

Serve as primary DOE office to deliver full scale clean energy demonstration projects and project management oversight excellence



## ENGAGE & COLLABORATE

Leverage private sector and broader energy ecosystem to inform OCED and DOE technology commercialization efforts



## **OCED** Scope



Regional Clean Hydrogen Hubs (\$8 billion)



Advanced Reactor Demonstrations (\$2.5 billion)



Carbon Management (\$7 billion)



Industrial Demonstrations (\$6.3 billion)

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



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



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



Other Initiatives (\$133 million)



# H2Hubs Overview

## What is Hydrogen?

- Hydrogen (H<sub>2</sub>) is the simplest and most abundant element known.
  - You might recognize it from the chemical formula for water H<sub>2</sub>O!



- Hydrogen can be made using a variety of domestic energy resources.
- Hydrogen can be produced through several processes, including:
  - Electrolysis; Direct Solar Water Splitting
  - Steam Methane Reforming
  - Biological (e.g., algae)
- Currently, the U.S. produces 10 million metric tons of hydrogen each year.



## What Can Hydrogen Do?

- Hydrogen is part of a suite of solutions that can help our nation achieve its net-zero goals.
- Helps hard-to-decarbonize sectors such as heavy-duty transportation, steel and chemicals manufacturing, and production of liquid fuels.
- Supports increased integration of renewable energy into the grid and offers multiple revenue streams for clean power generation.





## Whole of Government Approach to Clean Hydrogen



U.S. National Clean Hydrogen Strategy and Roadmap



**Clean Hydrogen Standard** 



Hydrogen Shot (\$1/kg by 2031)



H2Hubs Demand-Side Support Initiative



**IRA tax incentives** 



Coordination with Canada and Mexico on building out the clean

hydrogen supply chain and economy across North America



Clean Hydrogen Pathways to Commercial Lift-Off Report



Additional DOE funding: Clean H2 Electrolysis Clean H2 Manufacturing and Recycling (additional \$1.5B) AND...



## Regional Clean Hydrogen Hubs

Build regional clean H2Hubs across the country to create networks of clean hydrogen producers, consumers, and local connective infrastructure to accelerate use of clean hydrogen.

### H2Hubs Demand-Side Support Initiative

- Sept 2023: Announced \$1B RFP. Responses were due on October 26, 2023.
- Learn more about the initiative here: <u>https://www.youtube.com/watch?v=QgOL\_Xg7K1Q</u>

### H2Hubs Current Status

October 2023: DOE announced 7 projects selected for <u>award negotiations.</u>

## What is a Regional Clean Hydrogen Hub?







## Selected Regional Clean Hydrogen Hubs

## Pacific Northwest Hydrogen Hub

### California Hydrogen Hub

Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)

Proposed H2 Facility

80

Selected H2Hubs

Heartland Hydrogen Hub Heartland Hub (HH2H)

0

#### Midwest ° ° Hydrogen Hub Midwest Alliance for Clean Hydrogen (MachH2)

Gulf Coast Hydrogen Hub Appalachian Hydrogen Hub

Appalachian Regional Clean Hydrogen Hub (ARCH2)

### Mid-Atlantic Hydrogen Hub

Mid-Atlantic Clean Hydrogen Hub (MACH2)



## **Selected H2Hubs Overview**

Unprecedented Investment in America's Hydrogen Infrastructure

To accelerate adoption of hydrogen technologies

**Providing tangible benefits for Americans** 

Federal investment of \$7 billion Approximately 3 Million Metric Tons of Hydrogen Production per Year Dedicated Dollars for Community Benefits

Tens of Thousands of Jobs

**Greenhouse Gas Reduction of 25 million Metric Tons Per Year** 

# **Community Benefits**

## **Prioritizing Community Benefits in OCED Projects**

OCED **requires** applicants to include a Community Benefits Plan (CBP) 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** 

n<u>.</u>

Investing in the American Workforce



## **Justice40 Initiative**



## **Community Benefit Commitments -Implementation Requirements per Phase**



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







## **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
- 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/



# Gulf Coast Regional Clean Hydrogen Hub



Clean Hydrogen from Texas, Southwest Louisiana, and the Gulf Coast

## H2Hubs Community Briefing

October 30, 2023













- 7 Project Sponsors (AES, Air Liquide, Chevron, ExxonMobil, Mitsubishi Power, Orsted and Sempra Infrastructure)
- 3 Hub Organizers (GTI Energy, Center for Houston's Future, The University of Texas at Austin)
- 6 Special Advisors (HARC, EPRI, NETL, NREL, Port Houston, Upskill Houston)
- 8 Major academic institutions (including 3 HBCUs and MSIs)
- 20+ Community, workforce, and economic development organizations
- 17 Clean Hydrogen Off-takers Identified
- 100+ Energy and Industrial Gas Industry Supporters



## **HyVelocity: Envisioned Clean Hydrogen Ecosystem**



## **HyVelocity Envisioned Projects**





### HyVelocity Clean H2 Production Capacity: >5,000 mtpd



Note: Map shows general preliminary project locations and are subject to change during future negotiations and site planning

## **HyV Community Engagement**





HyV will meaningfully engage stakeholder organizations to ensure disadvantaged and impacted communities receive at least 40% of the benefits as outlined under Justice40.

- Potential Job Creation up to 45,000 direct jobs
  - Up to 35,000 construction jobs
  - Up to 10,000 permanent jobs
- Anticipated Community Benefits Plan Funding \$120 million

## **HyV Community Engagement**



HyVelocity Management Committee / Board of Directors

#### **CBH Advisory Council (CBHAC)**

CBHAC will bring community priorities to the CAB to inform decisions that reflect community interests including how local CBH funding should be allocated.

### **Community Advisory Board (CAB)**

The CAB presents and makes decisions for hubwide CBP funding opportunities and strategic initiatives with final approval from the HyV Board.

#### Workforce Advisory Council (WAC)

WAC will bring workforce priorities to the CAB to inform decisions related to developing quality jobs, workforce development strategies, and workforce agreements.

#### Community Benefits Hubs (CBH)

Navigation, Communication, and Information Exchanges – Comprised of community members and CBOs

**DEIA Framework** 

Justice40 Tracker



# Hyvelocity Hub





## www.hyvelocityhub.com



# Next Steps & Resources



- Attend Hub-specific virtual • briefing
- DOE involvement ends\*

Email the H2Hub

DOE

involvement

ends\*

- Email DOE at • engage\_H2Hubs@hq.doe.gov
- Attend local engagements • (details TBD)
- Read Initial CBP summary •

DOE will use feedback from engagements to inform the negotiation process

- project performers to raise priorities and concerns
- Reach out to H2Hub teams any time
- Participate in H2Hub engagements; workforce or community agreements; or advisory boards H2Hubs may have as part of their CBP activities
- Reach out to DOE if any questions or concerns are not being adequately addressed engage H2Hubs@hq.doe.gov
- Each phase has a go/no-go where DOE will assess project performance including CBP your feedback matters!

- National Environmental Policy Act (NEPA) and related requirements for the Hubs.
- Feedback via early engagement will inform initial scope of NEPA reviews.
- Stakeholder engagement throughout the NEPA process, including at scoping and draft NEPA document review stages.

## **OCED Engagement**

OCED aims to support meaningful **community-awardee-OCED** engagement through the life of the awarded H2Hub. **How?** 

### **Local Engagements**



Small community dialogues



Deliberative forum

### Outcomes



Establish process for longterm engagement

### Co-develop priorities



Next Steps – Virtual H2Hub Community Briefings

OCED will hold seven community briefings to share information with the communities hosting H2Hubs.

Information and to register: <u>https://www.energy.</u> <u>gov/oced/h2hubs-local-</u> <u>engagement-opportunities</u> Appalachian Hydrogen Hub Tuesday, October 24, 2023 6:00-7:30 p.m. ET

Mid-Atlantic Hydrogen Hub Wednesday, October 25, 2023 6:00-7:30 p.m. ET

California Hydrogen Hub Wednesday, October 25, 2023 8:00-9:30 p.m. ET

Gulf Coast Hydrogen Hub Monday, October 30, 2023 6:00-7:30 p.m. ET Pacific Northwest Hydrogen Hub Monday, October 30, 2023 8:00-9:30 p.m. ET

Midwest Hydrogen Hub Wednesday, November 1, 2023 6:00-7:30 p.m. ET

Heartland Hydrogen Hub Wednesday, November 1, 2023 8:00-9:30 p.m. ET

\*Subject to change based on negotiations. Negotiations may take several months.

## Next Steps – Negotiations

Award Negotiations: OCED will commence negotiations with project selectees.

# After Award: *IF the projects receive an award* (successful negotiations)

- Selectees enter into cooperative agreement with OCED
- Detailed Project Plan begins
- OCED will work with selectees to ensure compliance with the National Environmental Policy Act (NEPA)
- Significant engagement with OCED and awardee



## **Selectee Webpages**

	Appalachian Hydrogen Hub	https://www.arch2hub.com/
	California Hydrogen Hub	https://archesh2.org/
	Heartland Hydrogen Hub	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/



## **Key DOE Offices for H2Hubs**





## **H2Hubs Resources**

### **Regional Clean Hydrogen Hubs**

- Program Page
- Press Release
- Overview of Selected Projects
- Local Engagement Opportunities
- OCED CBP fact sheet

## Demand-Side Support Initiative for Clean Hydrogen

- <u>Request for Proposals (RFP)</u>
- <u>Video: OCED Update on Demand-Side</u>
   <u>Support Initiative</u>

### **Additional Clean Hydrogen Resources**

- U.S. National Clean Hydrogen Strategy and Roadmap
- <u>Clean Hydrogen Pathways to Commercial</u>
   <u>Liftoff Report</u>
- Hydrogen Shot

### **Additional DOE Resources**

- Office of Economic Impact and Diversity assistance to advance equity & CBP in communities
- Office of Energy Jobs technical assistance to advance CBP jobs, labor & skilled workforce



# **Feedback Session**

## **Ground Rules for Discussion**

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





## For more information



- Reach OCED about the H2Hubs gulfcoasth2hub@hq.doe.gov
- OCED Website & Newsletter Sign-up
   <u>energy.gov/oced</u>
   Scroll to bottom to sign up here:

# Sign Up for OCED News & Alerts Subscribe and stay up-to-date on all upcoming funding opportunities, news announcements, upcoming events, and more. GO GO

- OCED Exchange (RFIs, NOIs, and FOAs)
   <u>oced-exchange.energy.gov</u>
- Follow us on LinkedIn <u>linkedin.com/company/doe-oced/</u>

# Thank you!



For more information; please visit energy.gov/OCED