



THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



Regional Clean Hydrogen Hubs Midwest Regional H2Hub Community Briefing

11/1/2023

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



Crystal Farmer,
Project Manager,
H2Hubs, OCED



**Lydia Kubiak-
Cardona,**
Community
Engagement
Specialist –
H2Hubs, OCED



Elizabeth Kocs,
Chief Equity Justice
Officer, MachH2



Neil Banwart,
Chief Integration
Officer, MachH2





Opening Remarks

Agenda

- Welcome
- Opening Remarks
- OCED Overview
- H2Hubs Overview
- Community Benefits and Engagement
- Midwest 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

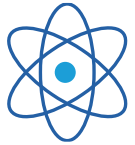
Leverage private sector and broader energy ecosystem to inform OCED and DOE technology commercialization efforts



OCED Scope



Regional Clean Hydrogen Hubs (\$8 billion)



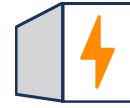
Advanced Reactor Demonstrations (\$2.5 billion)



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)

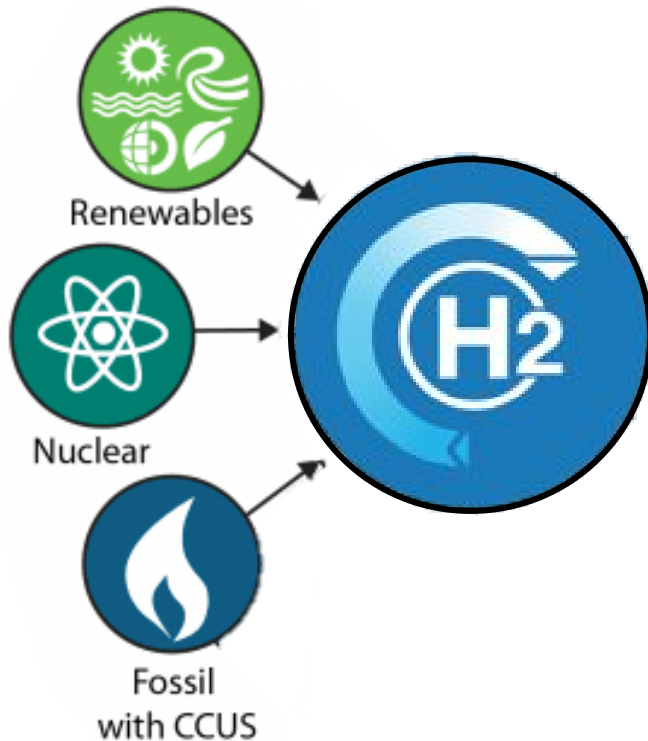


H2Hubs Overview



What is Hydrogen?

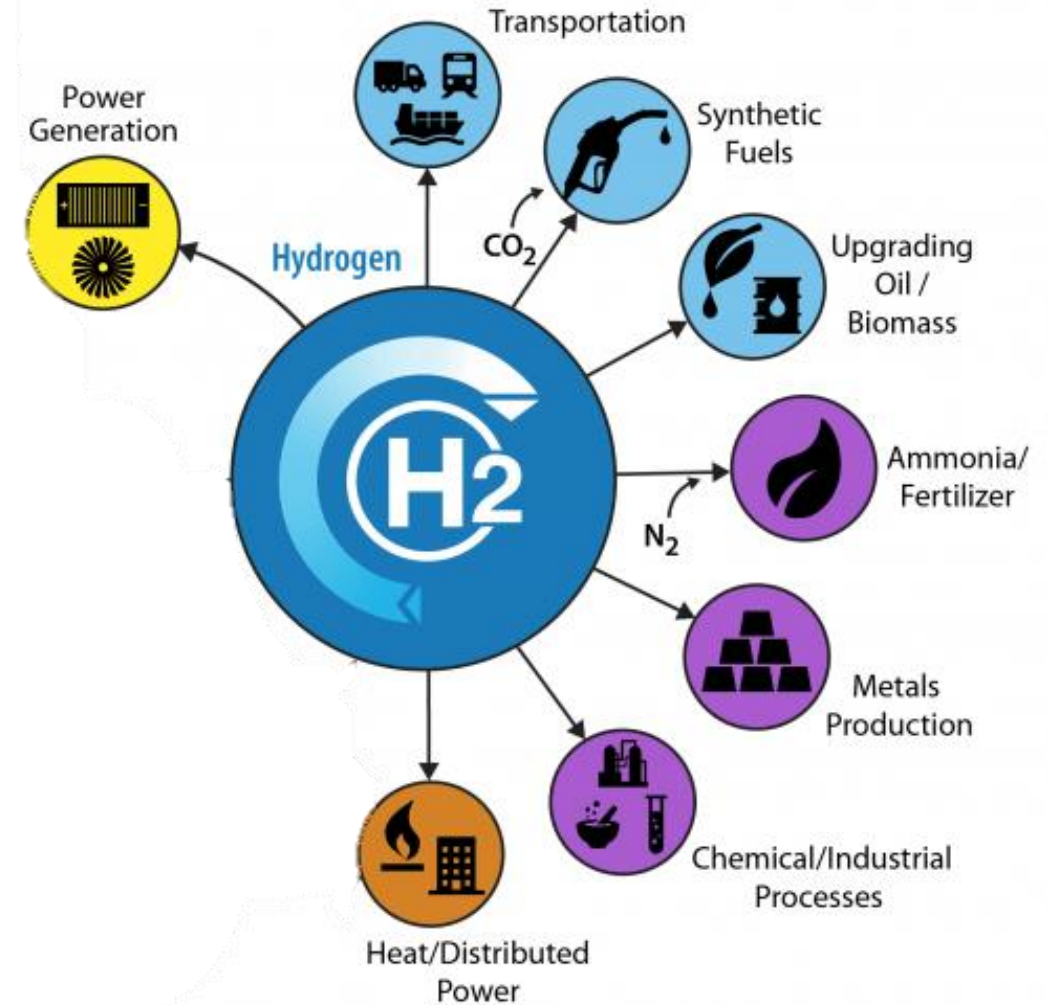
- **Hydrogen (H_2)** is the simplest and most abundant element known.
 - You might recognize it from the chemical formula for water – H_2O !



- **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



Hydrogen Shot
(\$1/kg by 2031)



Clean Hydrogen Standard



H2Hubs Demand-Side Support Initiative



IRA tax incentives



Clean Hydrogen Pathways to Commercial Lift-Off Report



Coordination with Canada and Mexico
on building out the clean hydrogen supply chain and economy across North America



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

AND...





H₂

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:
https://www.youtube.com/watch?v=QgOL_Xg7K1Q

H2Hubs Current Status

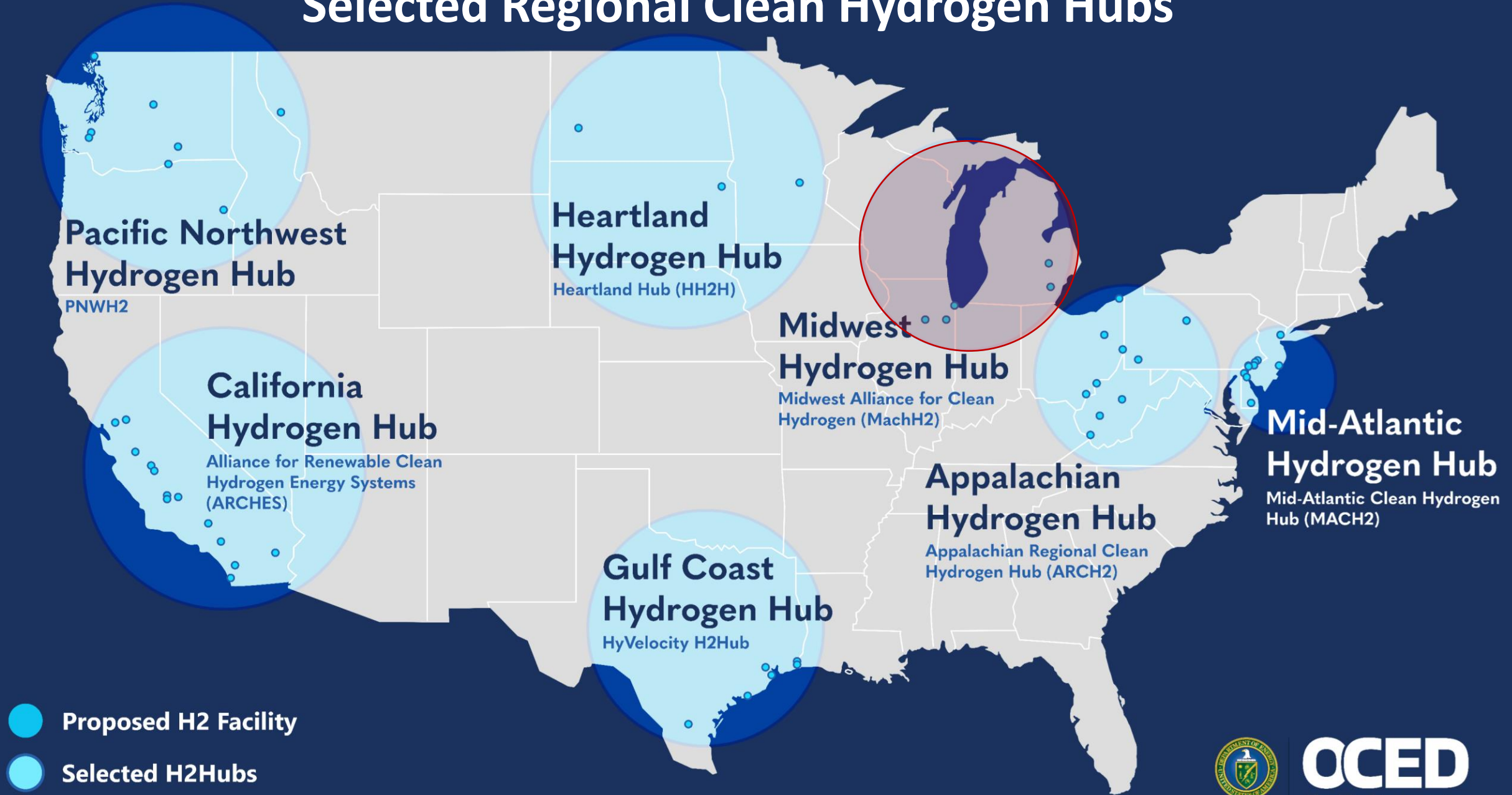
- October 2023: DOE announced 7 projects selected for award negotiations.

- ENERGY
- CONSUMERS
- COMMUNITY
- HYDROGEN PRODUCTION STORAGE



16

Selected Regional Clean Hydrogen Hubs



Selected H2Hubs Overview

**Unprecedented
Investment in America's
Hydrogen Infrastructure**

Federal investment of
\$7 billion

**To accelerate adoption of
hydrogen technologies**

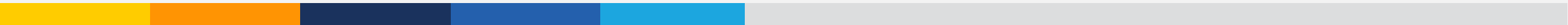
Approximately 3
Million Metric Tons of
Hydrogen Production
per Year

**Providing tangible
benefits for Americans**

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



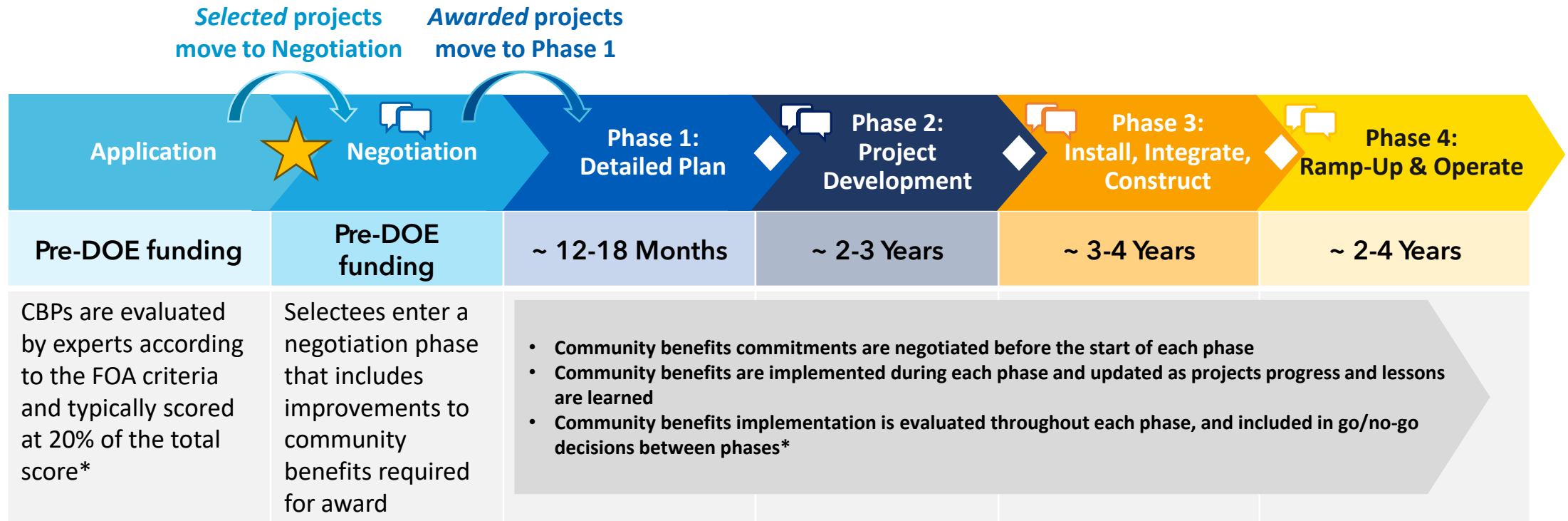
Investing in the American Workforce



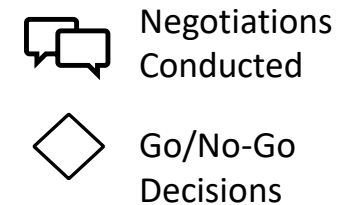
Justice40 Initiative



Community Benefit Commitments - Implementation Requirements per Phase

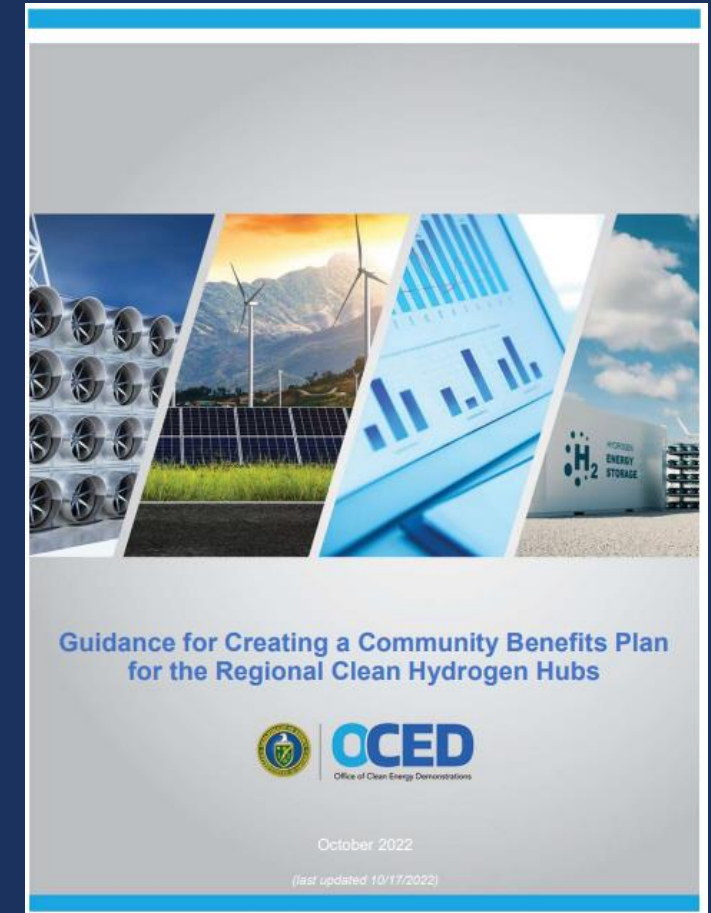


**CBPs are considered alongside assessments of engineering, procurement, and construction; business development and management; permitting and safety; and technical data and analysis.*



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/>





Midwest Regional Clean Hydrogen Hub



MIDWEST ALLIANCE FOR CLEAN **HYDROGEN**

Delivering on the Promise of U.S. Department of Energy's Clean Hydrogen Hub Program

H2 Hub Community Briefing
11/01/2023

The MachH2 Hub is Founded on 4 Pillars

PILLAR 1

a core of **nuclear, renewable, and natural gas** with **carbon capture** for safe clean hydrogen production to support decarbonization in the Midwest

PILLAR 2

a leading **transportation corridor** with a concentration of agriculture, manufacturing, industrial sectors

PILLAR 3

financially strong project sponsors with demonstrated **management and operational excellence**, bringing a robust governance structure that enables a **single, integrated hub**

PILLAR 4

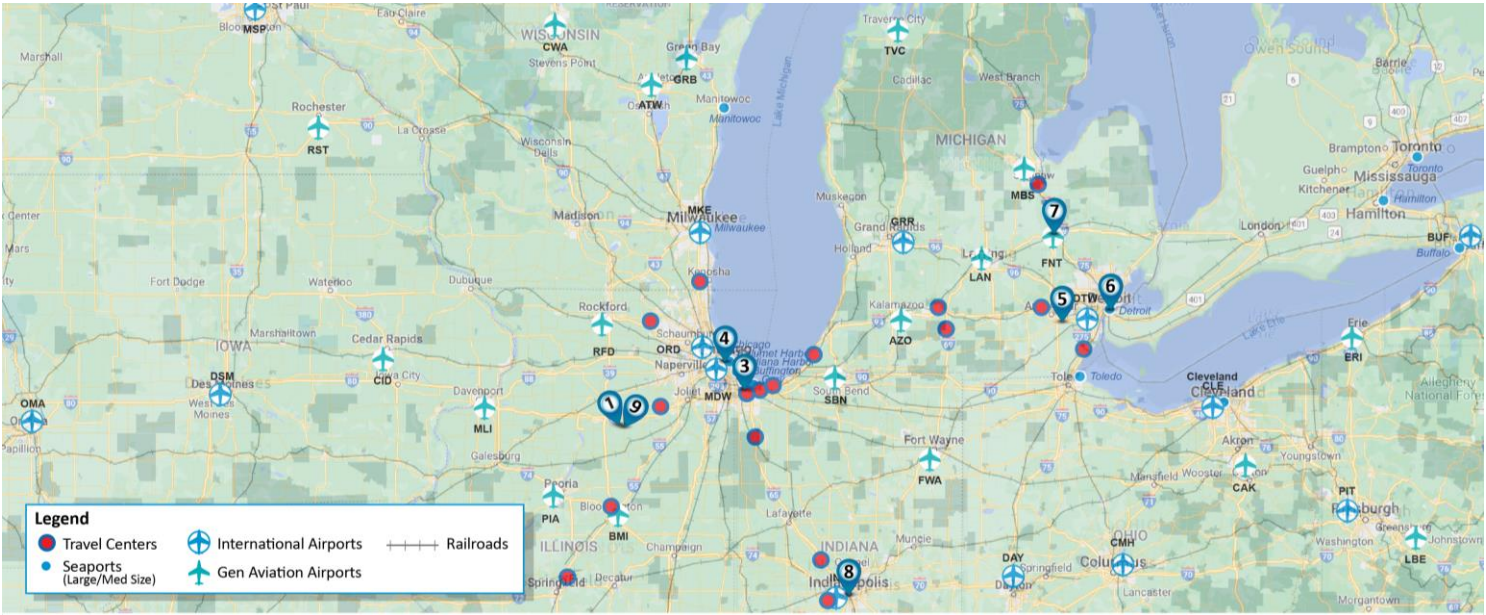
Holistic approach to CBP where EJ opportunities supporting **quality jobs and entrepreneurship** in DACs at regional project sites

Accelerating the nation's clean hydrogen energy transformation with a market-driven, regional approach

MachH2 At A Glance

Resources & Infrastructure

- ➔ Great Lakes & Rivers
- ➔ Major Transit & Pipeline Hub
- ➔ 6 Class A Rail Lines
- ➔ 6 Major Airports



High Impact Demand Sectors

- ➔ Industrial facilities
- ➔ Agriculture
- ➔ Heavy-duty trucking
- ➔ Aviation fuel

Projects to Establish and Integrate the Regional H2 Hub

- 1 Nuclear-Powered Electrolysis**
Constellation Energy
- 2 Liquid H2 to Decarbonize**
Midwestern Logistics
Invenergy and Air Liquide
- 3 Northern Indiana Clean H2 Node**
bp
- 4 SWITCH – Solutions Working**
to transform Industry and
Transportation to Clean H2
GTI Energy

Projects to Decarbonize Midwestern Transportation Corridors

- 5 H2 for MI Freight and Transit**
American Center for Mobility (ACM)
- 6 H2 Truck Stop of the Future**
Michigan Infrastructure Office (MIO)
- 7 H2 Fueling Station Expansion**
Mass Transportation Authority (MTA)
- 8 Midwest Mobility Project**
Midwest Hydrogen Corridor Coalition, LLC (MHCC)

Projects to Decarbonize Industrial Processes and Products

- 9 H2 Pipeline Distribution and End Use**
Nicor Gas

Regional Impact to Communities

1,210

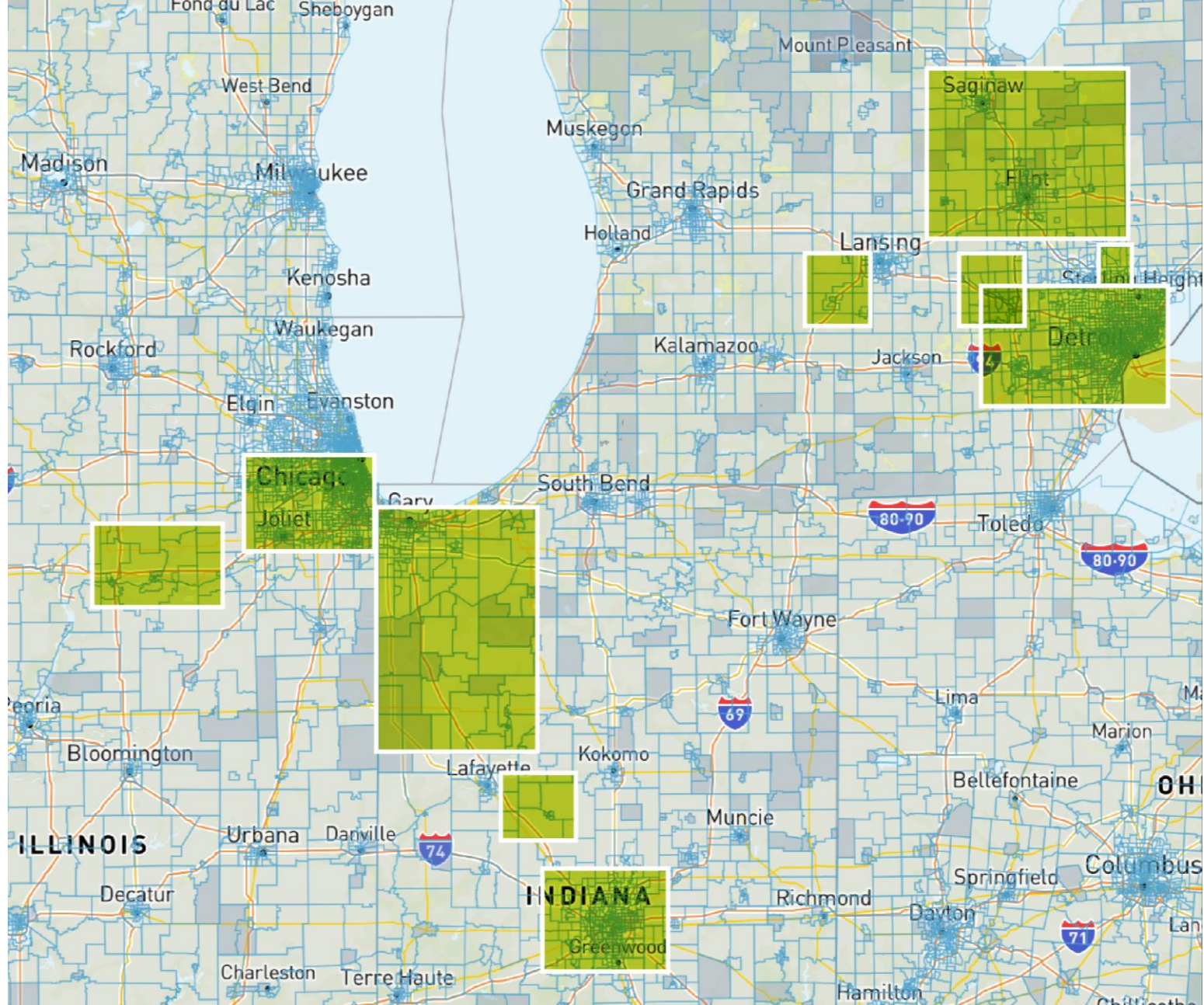
DACs and Tribal Areas

3.8M

People Living In DACs and Tribal Areas

3.9M

MT CO₂,e/year emissions avoidance by MachH2 Hub Projects



Information accurate as of August 7, 2023

Investing in the American Workforce and DEIA

Creation of

13,600

jobs, including

1,500

permanent jobs

Plan to invest

\$15M

in wrap-around
services to support
local workers

Long-term career pathways in engineering, design, procurement, supply chain, construction, installation, operations, maintenance, and safety.

DEIA Culture that begins at the top – 58% of our management team comprises diverse personnel
• Target 45%+ diverse hiring • 40% of subcontracted dollars to MBEs and DBEs

Inclusive Entrepreneurship

Minority, Women, Disabled
& Veteran-Owned SMBs
Opportunities

Heavy transport



Chemical
Manufacturing



Warehousing



Community
backup hubs



Commercial
buildings



MH2_069

Approximately
\$30M
for new start-ups
through an
inclusive
entrepreneurship
program
(focusing on
M/DBEs)

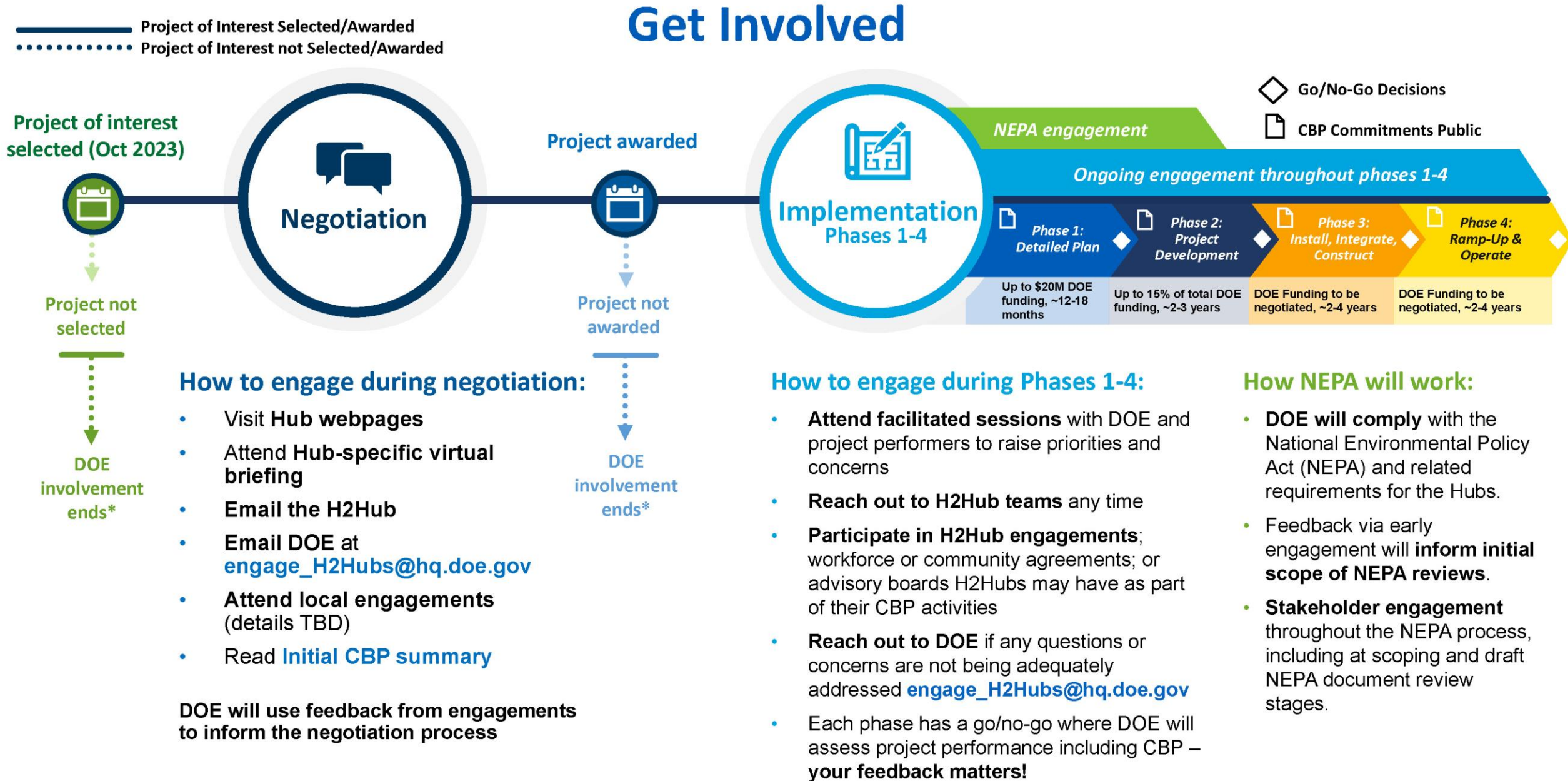
Phase 1: Community Engagement Opportunities

In addition to project-specific facilitated sessions, engagement opportunities (examples) include:

1. **Community Benefits Advisory Committee** – Provides strategic advice and stakeholder input to MachH2 leadership and project sponsors led by a panel of community leaders across the region. Working groups, task forces, and sub committees will also be established to support the advisory committee and MachH2 programs leads.
2. **Community Advisory Councils** - Community forums established for each MachH2 project to ensure local perspectives and priorities are the basis of MachH2 project goals and activities.
3. **Community Benefits Town Halls and Focus Groups** – In-person and virtual Town Halls and Focus Groups to provide community benefits status updates.
4. **Community Engagement Dashboard** – Gathers community input and supports online reporting of our CBP and J40 progress



Next Steps & Resources



*Communities and labor can still engage with the applicant based on the information they released to date to explore a path forward without this specific source of federal funding.

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 long-term 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: <https://www.energy.gov/oced/h2hubs-local-engagement-opportunities>

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

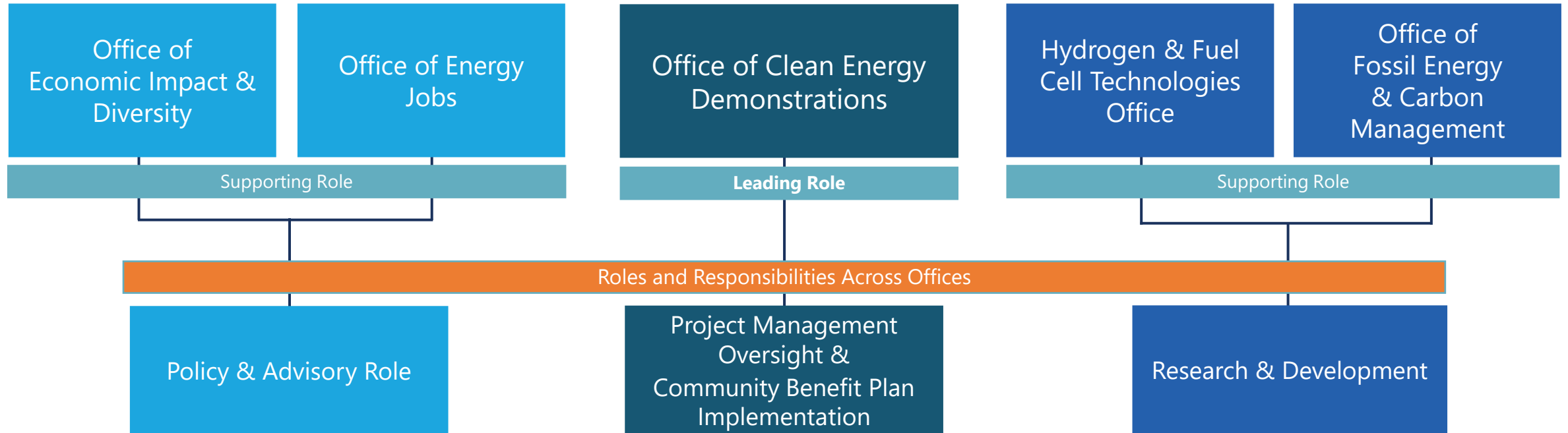
<https://machh2.com/>

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

- [Request for Proposals \(RFP\)](#)
- [Video: OCED Update on Demand-Side Support Initiative](#)

Additional Clean Hydrogen Resources

- [U.S. National Clean Hydrogen Strategy and Roadmap](#)
- [Clean Hydrogen Pathways to Commercial Liftoff Report](#)
- [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 MidwestH2Hub@hq.doe.gov
- OCED Website & Newsletter Sign-up energy.gov/oced
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

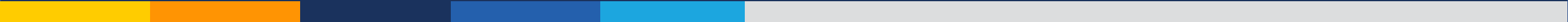
- OCED Exchange (RFIs, NOIs, and FOAs) oced-exchange.energy.gov
- Follow us on LinkedIn linkedin.com/company/doe-oced/



Thank you!



OCED
Office of Clean Energy Demonstrations



For more information; please visit energy.gov/OCED