



**OCEd**  
Office of Clean Energy Demonstrations

# THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



## Regional Clean Hydrogen Hubs

May 2024

Office of Clean Energy Demonstrations

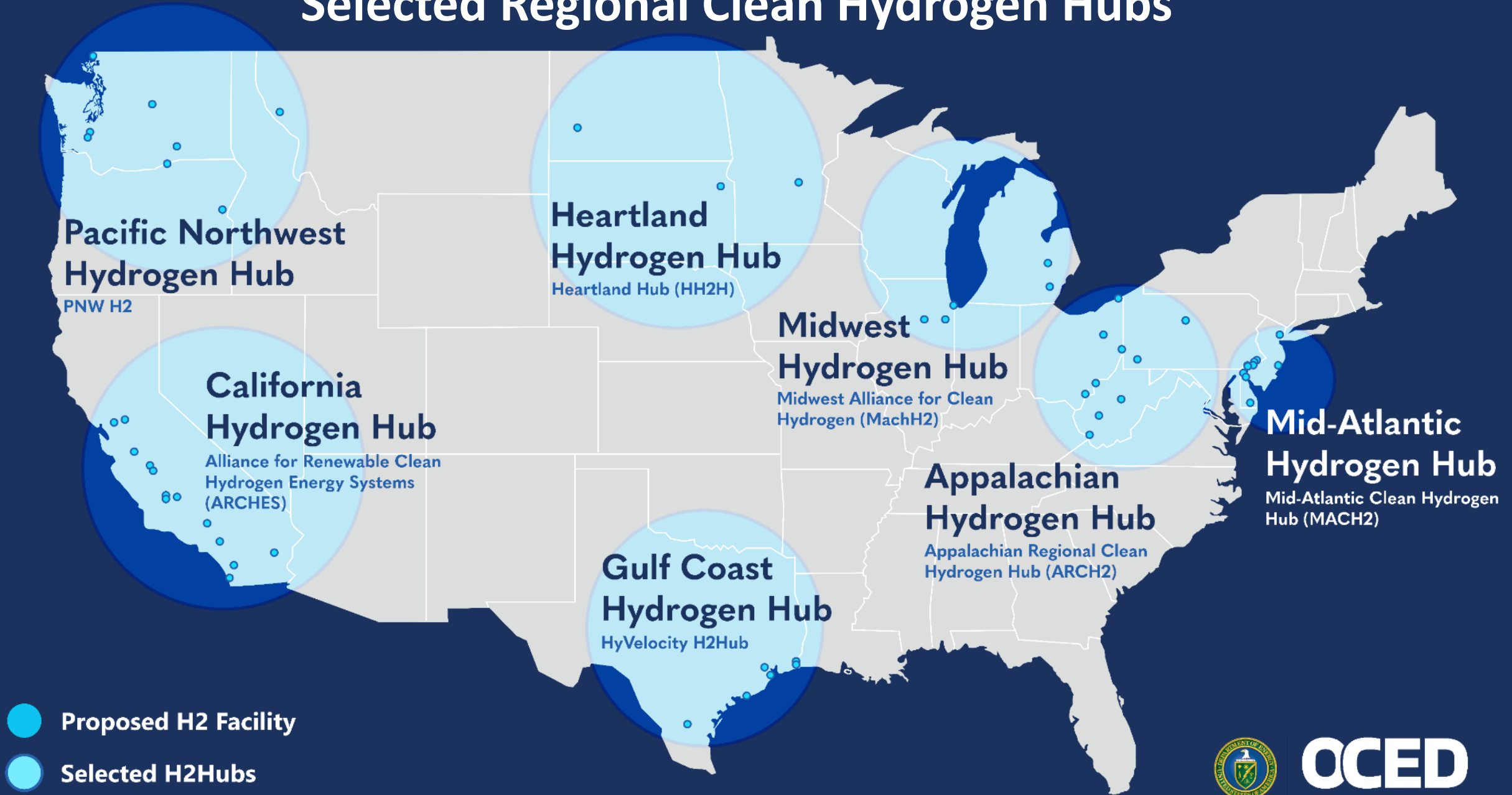
U.S. Department of Energy

# Regional Clean Hydrogen Hubs

- Kickstart a **national network of clean hydrogen producers, consumers, and connective infrastructure** while supporting the production, storage, delivery, and end-use of clean hydrogen.
- **Reduce 25 million metric tons of carbon dioxide** emissions from end-uses each year
  - Roughly equivalent to combined annual emissions of 5.5 million gasoline-powered cars
- **Create tens of thousands of good-paying jobs** across the country while supporting healthier communities

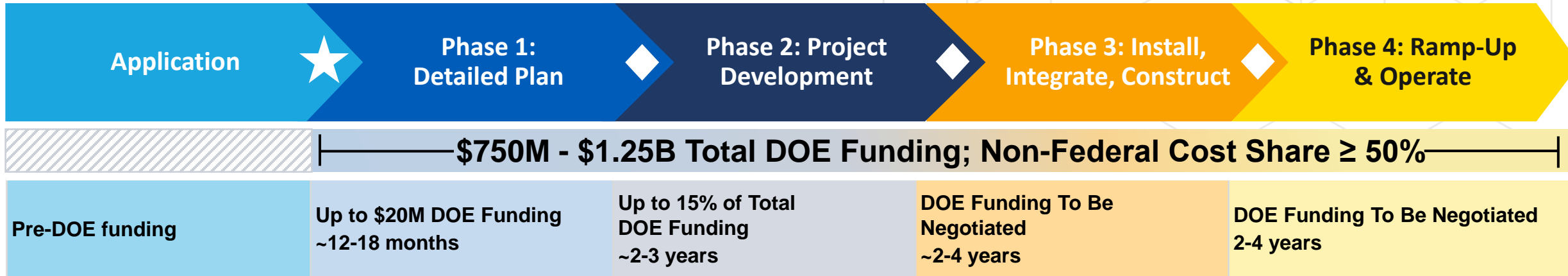


# Selected Regional Clean Hydrogen Hubs



# Phased Approach to Project Management

- ☆ Initial Application
- ◇ Go/No-Go Decisions



# Appalachian Hydrogen Hub

## Hub: Appalachian Regional Clean Hydrogen Hub (ARCH2)



### Project Overview

Prime Applicant:  
**Battelle Memorial Institute**

Locations:  
**Ohio, Pennsylvania, and  
West Virginia**

Federal Cost Share:  
**Up to \$925 Million\***

\*Pending negotiations

### Production

- Thermal reforming with carbon capture and storage
- Electrolysis

### Connective Infrastructure

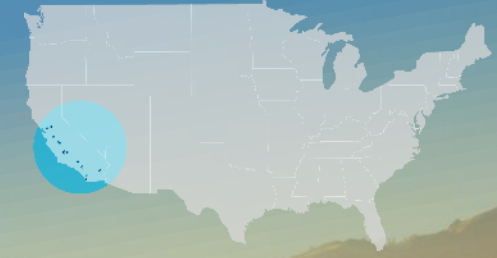
- Hydrogen pipelines
- Geologic Hydrogen Storage
- Permanent CO<sub>2</sub> storage

### End Uses

- Heavy duty vehicles
- Materials handling and forklifts
- Low-carbon aviation fuel
- Industrial heat
- Ammonia

# California Hydrogen Hub

## Hub: Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)



### Project Overview

Prime Applicant:  
**Alliance for Clean Hydrogen  
Energy Systems**

Location:  
**California**

Federal Cost Share:  
**Up to \$1.2 Billion\***

\*Pending negotiations

### Production

- **Electrolysis**
- **Biomass gasification with carbon capture**

### Connective Infrastructure

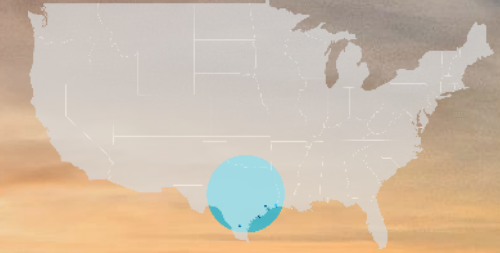
- **Hydrogen pipeline**
- **Hydrogen fueling stations**

### End Uses

- **Power generation**
- **Heavy duty vehicles**
- **Port equipment**
- **Public transit**

# Gulf Coast Hydrogen Hub

Hub: HyVelocity H2Hub



## Project Overview

Prime Applicant:  
**HyVelocity, Inc.**

Location:  
**Texas**

Federal Cost Share:  
**Up to \$1.2 Billion\***

\*Pending negotiations

## Production

- **Electrolysis**
- **Thermal reforming with carbon capture and storage**

## Connective Infrastructure

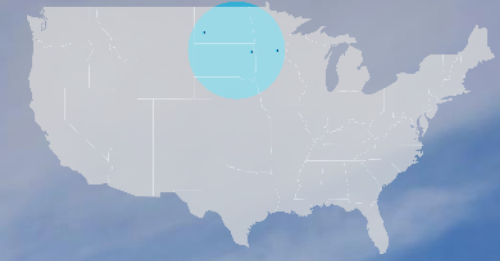
- **Hydrogen pipeline**
- **Hydrogen refueling stations**

## End Uses

- **Heavy duty vehicles**
- **Ammonia**
- **Refineries / petrochemicals**
- **Marine fuel**

# Heartland Hydrogen Hub

## Hub: Heartland Hub (HH2H)



### Project Overview

Prime Applicant:  
**Energy and Environmental  
Research Center (EERC)**

Locations:  
**Minnesota, North Dakota,  
South Dakota, Wisconsin,  
Montana**

Federal Cost Share:  
**Up to \$925 Million\***

\*Pending negotiations

### Production

- **Electrolysis**
- **Thermal reforming with carbon capture and storage**

### Connective Infrastructure

- **Hydrogen pipeline**
- **Geologic Hydrogen Storage**
- **CO<sub>2</sub> storage**

### End Uses

- **Fertilizer**
- **Power generation**
- **Refineries**



# Mid-Atlantic Hydrogen Hub

## Hub: Mid-Atlantic Clean Hydrogen Hub (MACH2)

### Project Overview

Prime Applicant:  
**Mid-Atlantic Clean Hydrogen  
Hub, Inc.**

Locations:  
**Delaware, New Jersey,  
Pennsylvania**

Federal Cost Share:  
**Up to \$750 Million\***

\*Pending negotiations

### Production

- **Electrolysis**
- **Biomass with carbon capture and storage**

### Connective Infrastructure

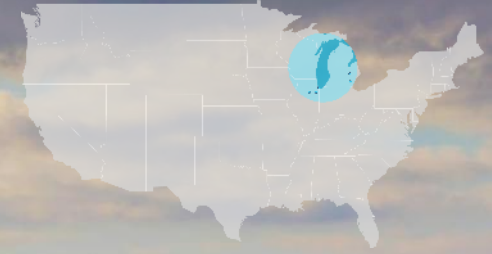
- **Hydrogen pipeline infrastructure**
- **Hydrogen refueling stations**
- **Truck loading facility**

### End Uses

- **Heavy duty vehicles**
- **Material and cargo handling**
- **Power generation**
- **Combined heat and power**

# Midwest Hydrogen Hub

## Hub: Midwest Alliance for Clean Hydrogen (MACHH2)



### Project Overview

Prime Applicant:  
**Midwest Alliance for Clean Hydrogen (MACHH2)**

Locations:  
**Illinois, Indiana, Michigan**

Federal Cost Share:  
**Up to \$1 Billion\***

\*Pending negotiations

### Production

- **Electrolysis**
- **Thermal reforming with carbon capture and storage**

### Connective Infrastructure

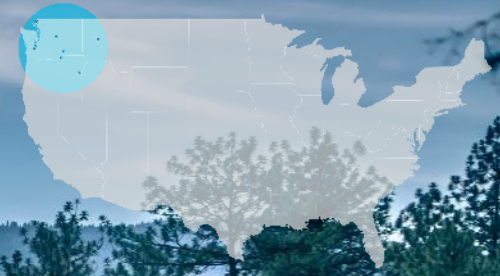
- **Hydrogen refueling stations**
- **Liquefaction**

### End Uses

- **Steel and glass production**
- **Power generation**
- **Refining**
- **Heavy duty vehicles**

# Pacific Northwest Hydrogen Hub

Hub: PNW H2



## Project Overview

Prime Applicant:  
**Pacific Northwest Hydrogen Association**

Locations:  
**Montana, Oregon, and Washington**

Federal Cost Share:  
**Up to \$1 Billion\***

\*Pending negotiations

## Production

- **Electrolysis**

## Connective Infrastructure

- **Hydrogen pipeline**
- **Hydrogen refueling stations**

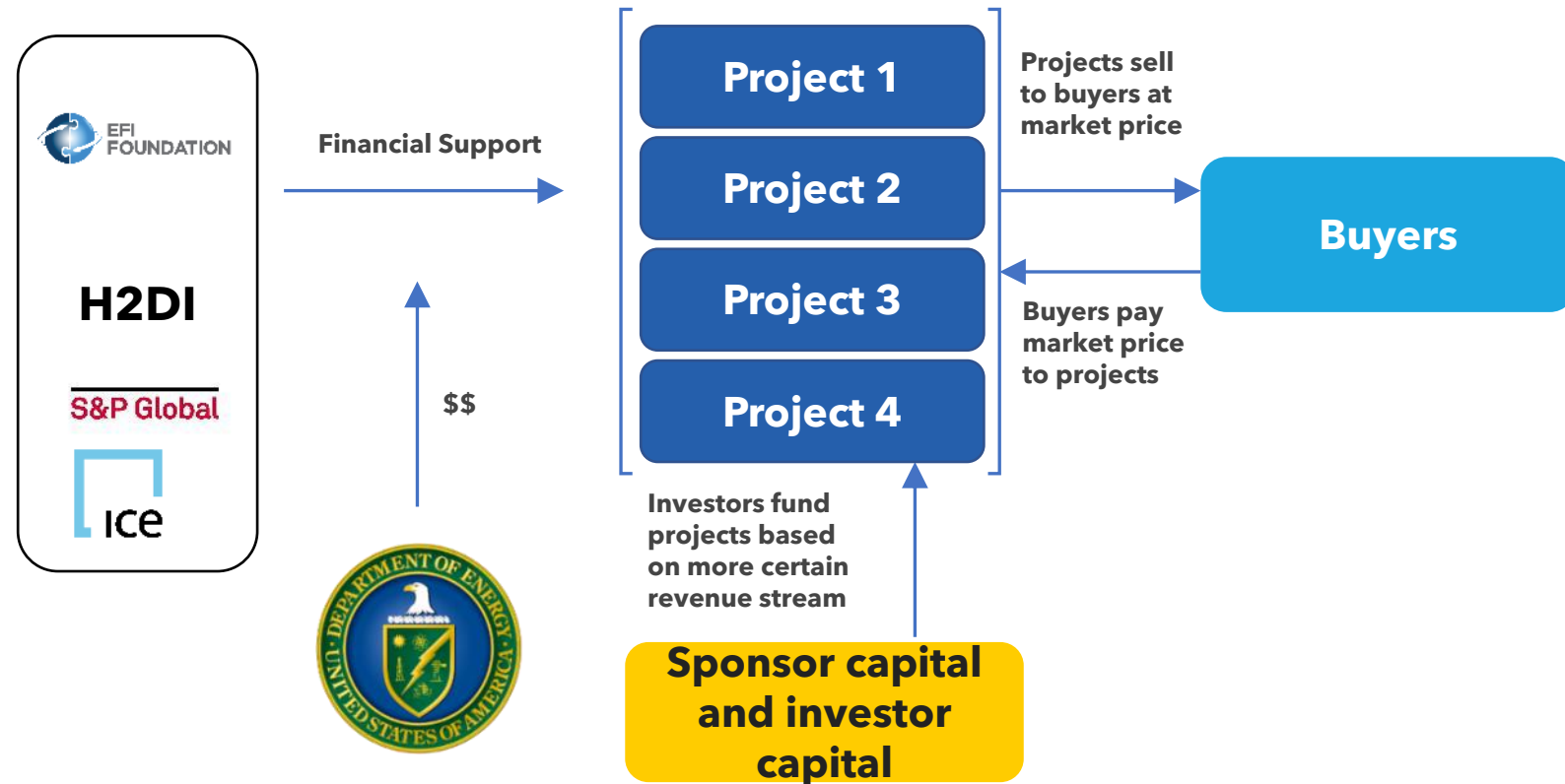
## End Uses

- **Medium Duty/Heavy Duty trucking, transit buses, mining vehicles**
- **Ports**
- **Peaking plants / generators**
- **Refineries**
- **Data centers**

# Demand Signal Needed for Market Certainty

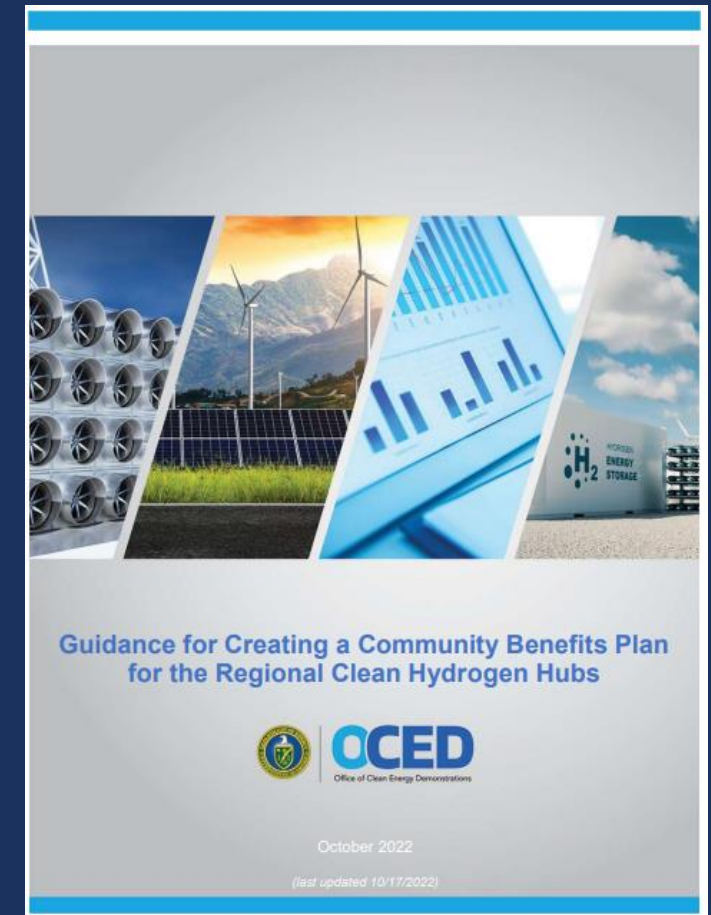
January 2024, OCED announced the selection of the H2DI consortium, led by EFI Foundation, S&P, and ICE to support design of a demand-side program

Announcement kicks off a 6-9-month Design Phase to determine most catalytic demand-side mechanism



# 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/>**

# 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

- [Press Release](#)
- [Video: OCED Update on Demand-Side Support Initiative](#)

## 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](#)

## 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](#)



**For more information**

- Reach DOE OCED about the H2Hubs [Engage\\_h2hubs@hq.doe.gov](mailto:Engage_h2hubs@hq.doe.gov)
- OCED Website & Newsletter Sign-up [energy.gov/oced](https://energy.gov/oced)  
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Thank you!



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