Office of Clean Energy Demonstrations

THE OFFICE OF

# CLEAN ENERGY DEMONSTRATIONS


## Regional Clean Hydrogen Hubs

## Pacific Northwest 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

**Chris Green,**
Assistant Director,
State of Washington
Office of Economic
Development and
Competitiveness

**Kate McAteer,**
Vice Chancellor for
Academic & Student
Affairs, Washington
State University

# Opening Remarks

# Agenda

- Welcome
- Opening Remarks
- OCED Overview
- H2Hubs Overview
- Community Benefits and Engagement
- Pacific Northwest 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

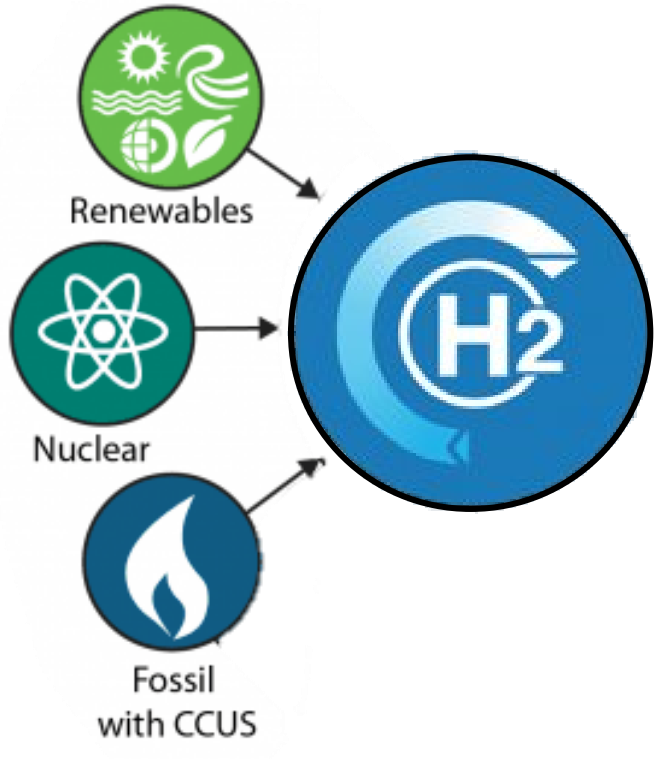
# OCED Scope

- 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?

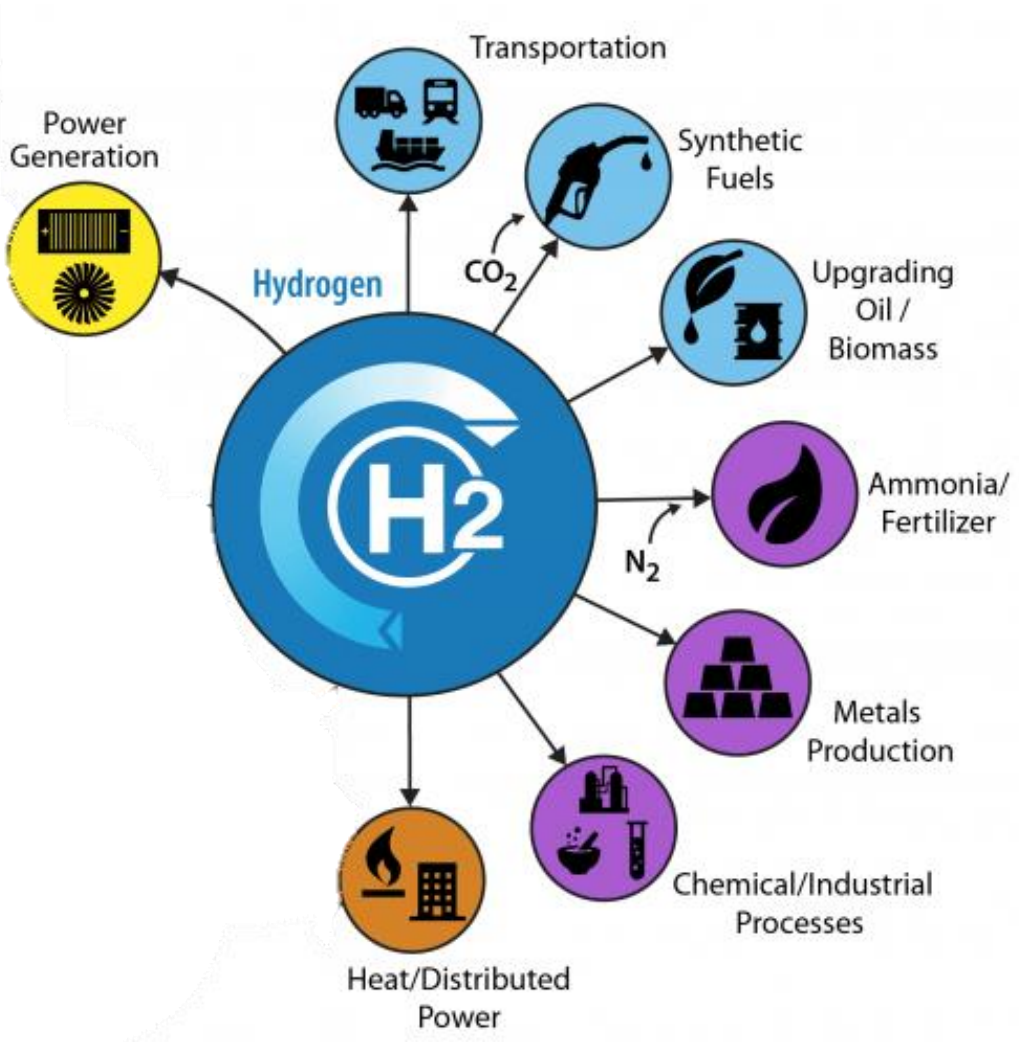
- **Hydrogen ($H_2$)** is the simplest and most abundant element known.
  - You might recognize it from the chemical formula for water – **$H_2O$**!




- **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**

**Clean Hydrogen Standard**

**IRA tax incentives**

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

**Hydrogen Shot**
***($1/kg by 2031)***

**H2Hubs Demand-Side Support Initiative**

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

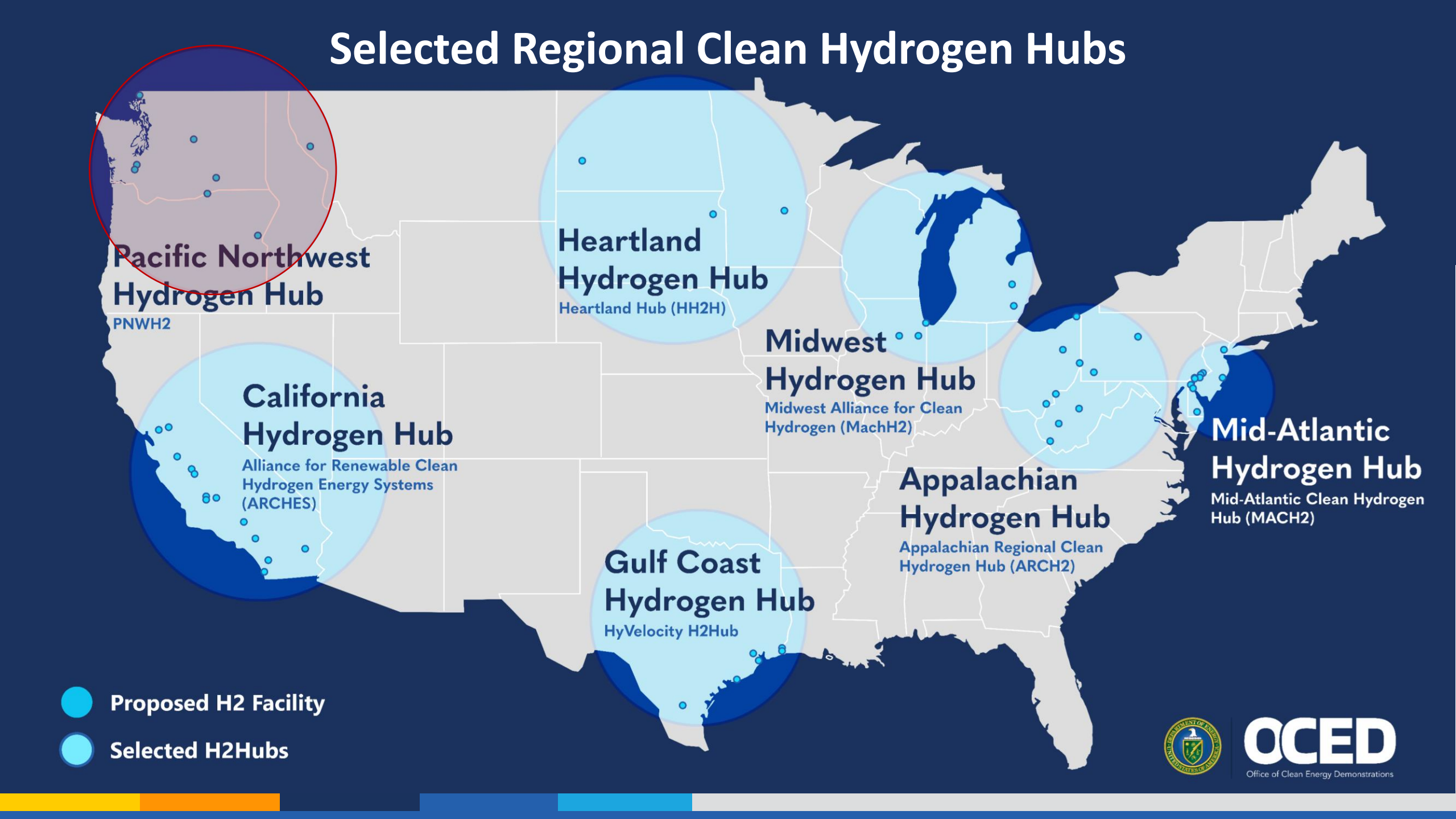
### *H2Hubs Current Status*

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

# What is a Regional Clean Hydrogen Hub?

OCED
Office of Clean Energy Demonstrations

# Selected Regional Clean Hydrogen Hubs




OCED
Office of Clean Energy Demonstrations

# 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.

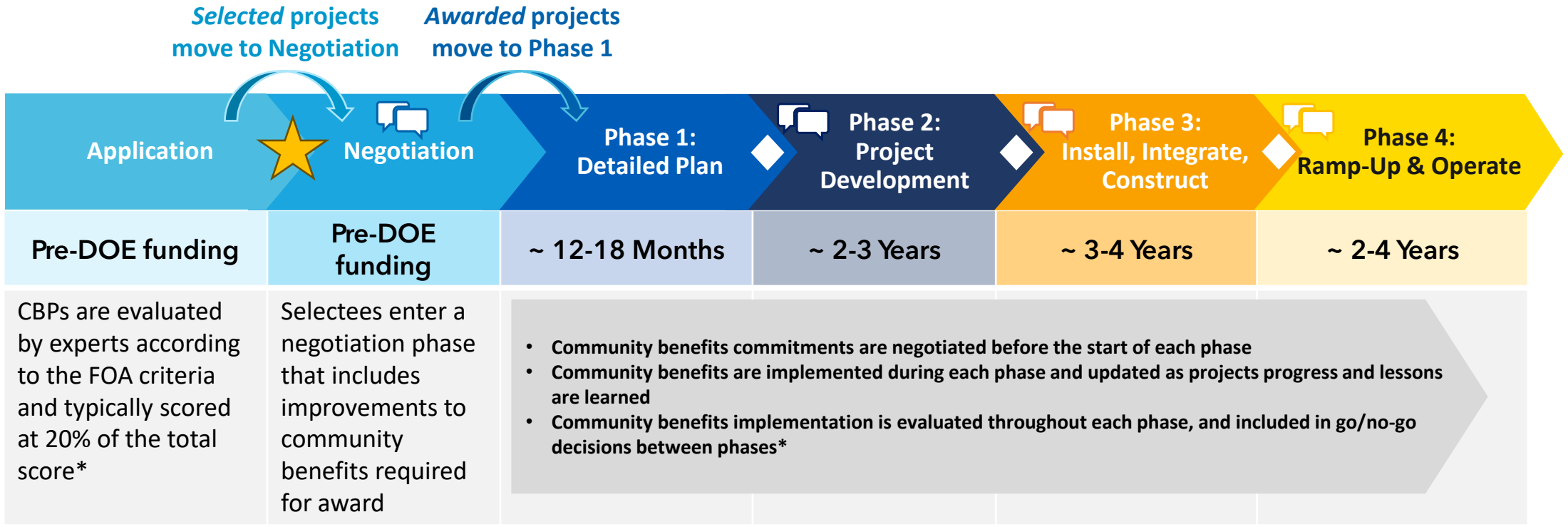
**Community & Labor Engagement**

**Diversity, Equity, Inclusion, & Accessibility**

**Investing in the American Workforce**

**Justice40 Initiative**

# Community Benefit Commitments - Implementation Requirements per Phase



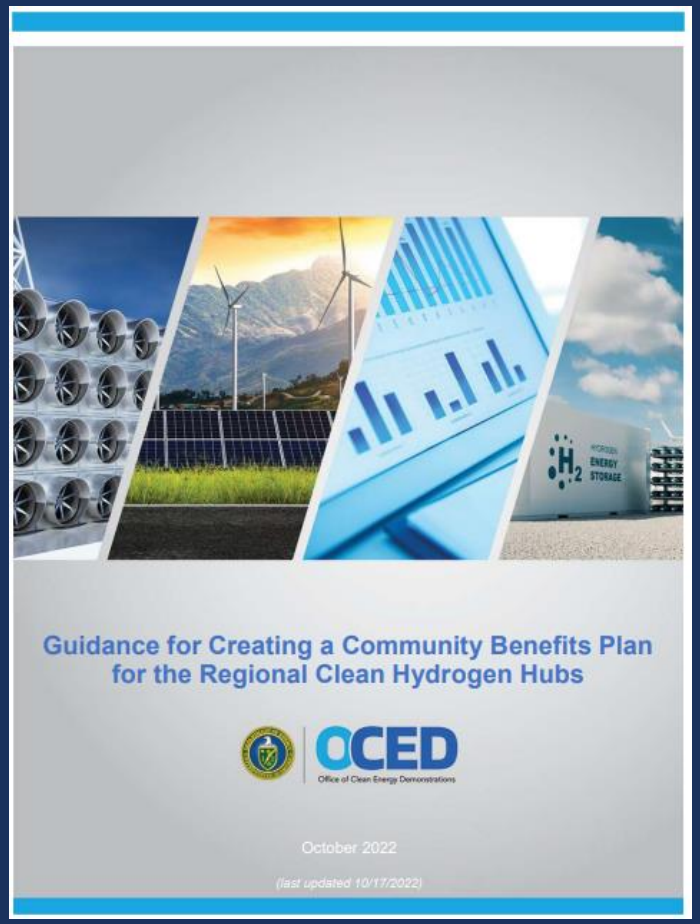

**CBPs are considered alongside assessments of engineering, procurement, and construction; business development and management; permitting and safety; and technical data and analysis.*

Negotiations Conducted

Go/No-Go Decisions

# 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/**

# Pacific Northwest Regional Clean Hydrogen Hub

# Pacific Northwest Hydrogen Hub

## An Overview


PNWH2

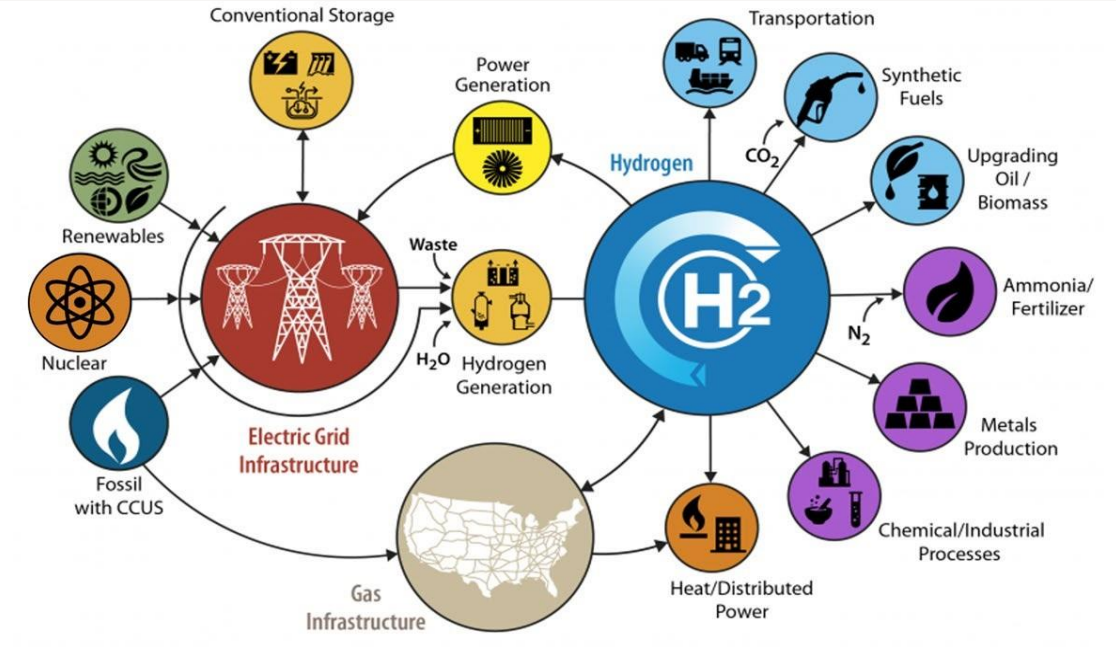
# A Statewide Commitment to Hydrogen

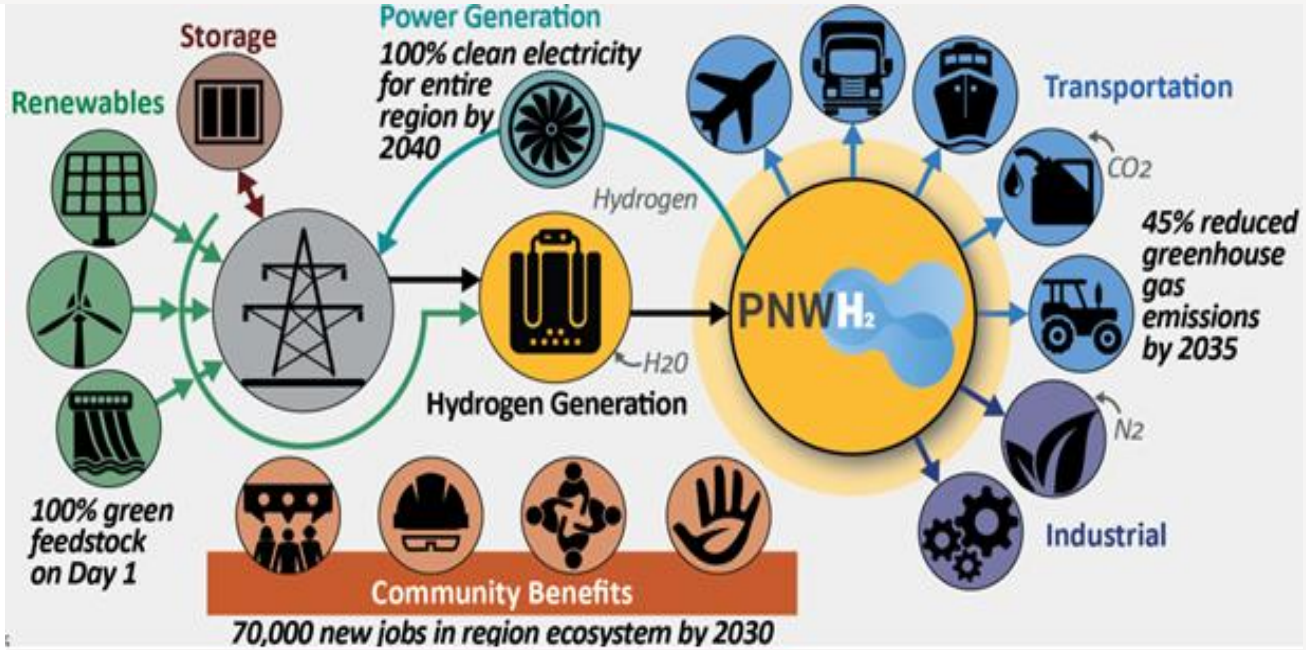
- Gov. Jay Inslee directed the Washington State Department of Commerce to form a single entity to respond to the U.S. Department of Energy's Hydrogen Hub funding opportunity.
- State legislature passed SB 5910 to support the production and storage of hydrogen to meet state and federal clean energy goals.
- Created the Pacific Northwest Hydrogen Association (PNWH2) to build on the region's history of collaboration and innovation, providing a policy and energy landscape critical to the success of an H2Hub.
- Prioritizes projects that lead to deep decarbonization, green jobs, social justice and living wages for historically underserved communities.

Gov. Jay Inslee talks about the future of Washington state noting the importance of hydrogen power while pointing to 4-year-old Tamika Starr during a meeting at the Chehalis Tribe Community Center
JARED WENZELBURGER/ JARED@CHRONLINE.COM

PNWH2

# Highlights of PNWH2 Hub




Consistent with DOE's vision and themes…

…tailored to reflect the Pacific Northwest region's unique strengths and resources

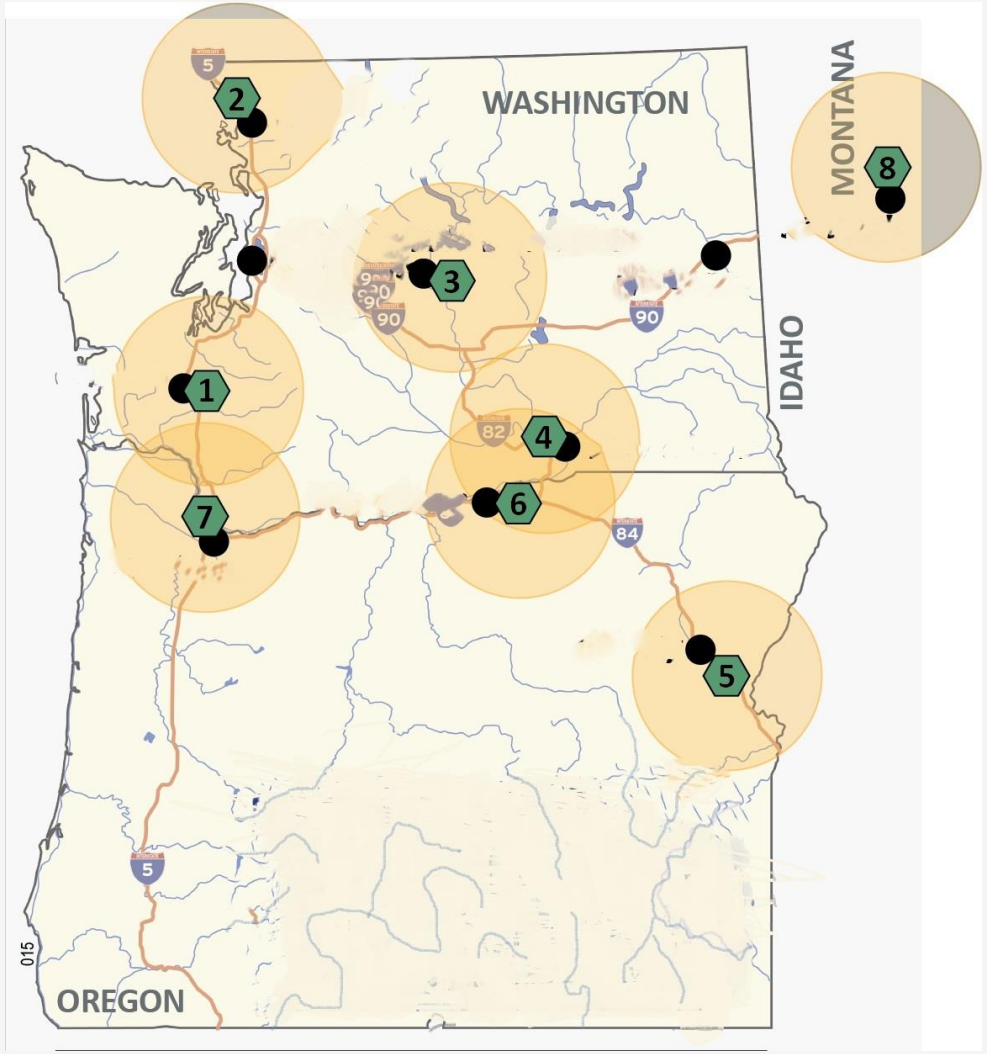
This graphic was originally created and published by the U.S. Department of Energy.

# Strategy Focus

- Shared principles
- Equity, environmental and energy justice
- Workforce development and training
- Tribal and community engagement
- Use of mapping and geospatial tools & data to advance equity
- Domestic, clean technology manufacturing
- Energy emergency management & planning
- Industry cluster development
- Justice40 (J40) compliance

# Potential Project Locations

- The PNWH2 Hub expects to have as many as eight project locations in the Pacific Northwest Region.
- Engagement with local communities, Tribal leaders, and other stakeholders are beginning.
- Once negotiations are concluded, we will be able to share more about the locations and work with local communities and regulators on project siting and permitting.



# Projected Environmental Outcomes

| End Use Application | GHG Expected Reductions (MT/yr) |
|---|---|
| Long Duration Energy Storage | 465,375 |
| Refineries | 419,750 |
| HD trucking – GH2 | 189,425 |
| HD trucking – LH2 | 120,085 |
| HD trucking – mining | 5,110 |
| MD transportation (transit buses) | 58,400 |
| Regional aviation | 3,285 |
| Ferries and maritime | 10,220 |
| Light industrial | 72,635 |
| Fertilizer production | 404,785 |
| Total | 1.649 MMT/yr |

# Tribal Engagement and Partnerships

- Tribes represented on PNWH2 Board (Cowlitz Indian Tribe and Chehalis Tribe)
- “Dear Tribal Leaders” letters sent April 2022 and April 2023
- Tribal leaders and Tribal-led organizations leading aspects of hub planning (Advisory committee: Shoalwater Bay Tribe, Lummi Nation)
- Meaningful engagement with Tribal leaders and organizations
- Presentations including Affiliated Tribes of Northwest Indians conventions, ATNI climate summit meetings (June 2023)

**Letters of project support from the Cowlitz Indian Tribe, the Chehalis Tribe and the Confederated Tribes of the Umatilla Indian Reservation**

# Meaningful Community Benefits

- 212 stakeholder groups, including 28 labor unions and 15 Tribal nations, identified during initial stakeholder analysis across the region
- > 100 community expressions of support
- Regional coalition of apprenticeship programs, colleges and universities to develop and sustain an enduring hydrogen workforce (>70,000 jobs)
- Additional Justice40 benefits include:
  - Reduced environmental/health disparities
  - Displaced worker training
  - Economic impact - tax incentives to support deferred acquisition costs, reduced energy costs, etc.

PNW$H_2$

# Pacific Northwest Hydrogen Hub

For information contact info@pnwh2.com

Thank you!

# Next Steps & Resources

# Get Involved


## How to engage during negotiation:

- Visit **Hub webpages**
- Attend **Hub-specific virtual briefing**
- **Email the H2Hub**
- **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**

## How to engage during Phases 1-4:

- **Attend facilitated sessions** with DOE and 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!**

## How NEPA will work:

- **DOE will comply** with the 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.

***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

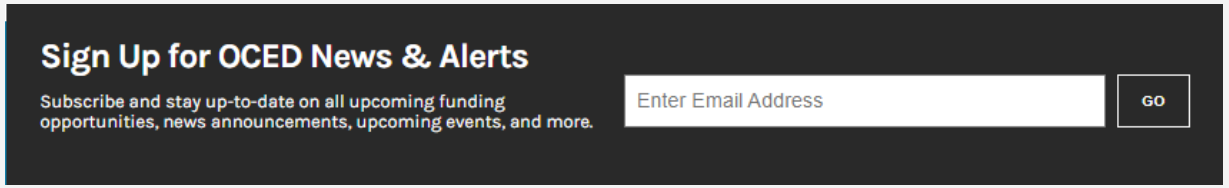
# Feedback Session

# 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**
  **PacificNWH2Hub@hq.doe.gov**
- **OCED Website & Newsletter Sign-up**
  **energy.gov/oced**
  *Scroll to bottom to sign up here:*




- **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