



*Airport Planning and Design*

January 4, 2024

Ted Millar  
TLM Holdings  
4379 Keil Rd NE  
Echo Hangar  
Aurora, Or 97002

RE: PGE ELECTRICAL SERVICE

Dear Mr. Millar:

This letter is written in response to your inquiry concerning the feasibility of providing electrical power for the proposed vertiport at 22515 Airport RD NE, Aurora, OR, near the Aurora State Airport. Your inquiry is specifically to understand the feasibility of adequate electrical power to support electric verticraft, electric ground support vehicles, and electric passenger vehicles that park at the proposed vertiport. An electrical load of 2.5 MW is the presumed needed electrical load. This firm has significant expertise in airport planning and the electric and other utility needs at airports. We have studied the needs of emerging eVTOL aircraft as that is a type of aircraft on the industry's short term horizon that airports will need to be prepared to plan for. Therefore, we are pleased to respond to your request. After evaluating the proposal and existing area PGE infrastructure as well as hydrogen options, we conclude that the provision of adequate electrical power for the proposed vertiport is feasible and that 2.5 MW is an adequate load to plan for

Regarding PGE, we have had meetings with their staff, and learned that it has major electrical switches at the intersection of Airport Road and Arndt Road in the north and at the intersection of Airport Road and Keil Road in the south. These switches are served by PGE's Canby substation. It is feasible to provide electricity to serve the proposal using that PGE system with the following upgrades to it.

- Replace Canby BR1 substation transformer with a new transformer, which would serve Canby-Filbert feeder.
- Add a 57 kV circuit switcher and remove the high-side fuse that currently exists.
- Replace one voltage regulator.
- Use Canby-Filbert feeder to build out a feeder extension going from the substation through the Airport Road switches to the proposed facility.

There are several PGE options to help cover capital costs, which include:

PGE Electrical Service  
January 4, 2024  
Page 2

- A Line Extension Allowance, which is based on projected annual use and standard labor and materials.
- A Minimum Load Agreement where, instead of an allowance, the customer agrees to meet set electrical demand goals for an agreed upon term, only paying a fee if goals are not met.
- Cost sharing options for back-up power, renewable sources, demand response and electric vehicle charging.

The cost-of-service pathway, underground infrastructure (if there is any, as opposed to overhead lines), reserved capacity, or construction of redundant feeders are typically costs that are borne by the customer. However, there are several federal and state grants that may be available to absorb some or all of the upgrade costs. This federal and/or state support can reasonably be expected as electrical system upgrades are happening and must happen throughout the west with the advent of electric vehicles and state targets (like Oregon and California's) to require that all new vehicles sold in both states must be electrical only by 2035.

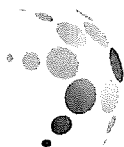
Another feasible source of electrical power that could provide emergency backup or wholly replace the above noted PGE electrical sources for the vertiport, is hydrogen. Hydrogen can be stored onsite and refilled via truck in sufficient amounts to serve the proposed vertiport. We understand that you are in contact with a provider of hydrogen to serve the needs of the proposed vertiport. The costs for hydrogen as the primary or a supplemental energy source for the proposed vertiport would be far less than using PGE's system because hydrogen requires only onsite infrastructure consisting of underground piping and storage. Hydrogen could serve the anticipated electrical needs of the vertiport of up to 2.5 MW. As noted, hydrogen can be used alone or as a supplement to PGE electrical power.

Please let me know if you have any questions.

Respectfully,



Aron Faegre, AIA, PE



# SRS H2

St. Regis Solar Hydrogen  
226 Mullan Gulch Road  
St. Regis, MT 59866

January 4, 2024

Ted Millar  
4379 Keil Rd NE  
Echo Hangar  
Aurora, Or 97002

RE: Electrification of Proposed Vertiport Using Hydrogen

Thank you for your interest in St. Regis Solar H2 potentially providing hydrogen as a source of electricity for the proposed vertiport at 22515 Airport RD NE, Aurora, OR, near the Aurora State Airport. St Regis Solar H2 has significant expertise in the development and provision of hydrogen as a source of electricity. We attach information concerning St. Regis and a summary of the approach we would use to electrifying the proposed vertiport using hydrogen.

To summarize. St Regis Solar H2 LLC has been selected as one of eight nodes in the Pacific Northwest Hydrogen Alliance by the Department of Energy (DOE). The eight nodes will receive and share in \$1B in matching funds from the DOE as laid out in the Inflation Reduction Act (IRA). The purpose of this funding is to create hydrogen (H2) production infrastructure. These nodes are spread out across the PNW. The attachment gives an overview of the entire scope of the H2 infrastructure effort. The IRA also provides for a H2 production tax credit of \$3/kg of Green H2 coming solely from renewable energy. The IRA also provides for a \$3000/KW investment tax credit for additive sources of renewable power such as solar and hydrogen. In summary, the IRA provides the funding and tools to jumpstart H2 production and provide a renewable, off the grid source of energy at competitive prices.

The approach to electrifying the proposed vertiport (that would as a side benefit potentially have capacity to provide a source of backup power for the surrounding community) would be as follows...

1. Assume minimum needed load capacity of 2.5 MW.
2. Provide a comprehensive build out plan with funding requirements in a phased approach provide up to 2.5MW of energy for the proposed vertiport. This would be a public/private effort while taking advantage of the IRA provisions.
3. Present the approach to stakeholders.

In summary, we believe the SRS H2 team has the expertise, and hydrogen source to conclude that providing up to 2.5 MW of electricity from hydrogen to the proposed vertiport is feasible..

We are pleased to set up a call to discuss next steps at your earliest opportunity.

Sincerely,

Arne Thompson

St Regis Solar H2  
Associate Managing Partner  
206.369.3049

# 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



**OCED**

Office of Clean Energy Demonstrations



# Opening Remarks

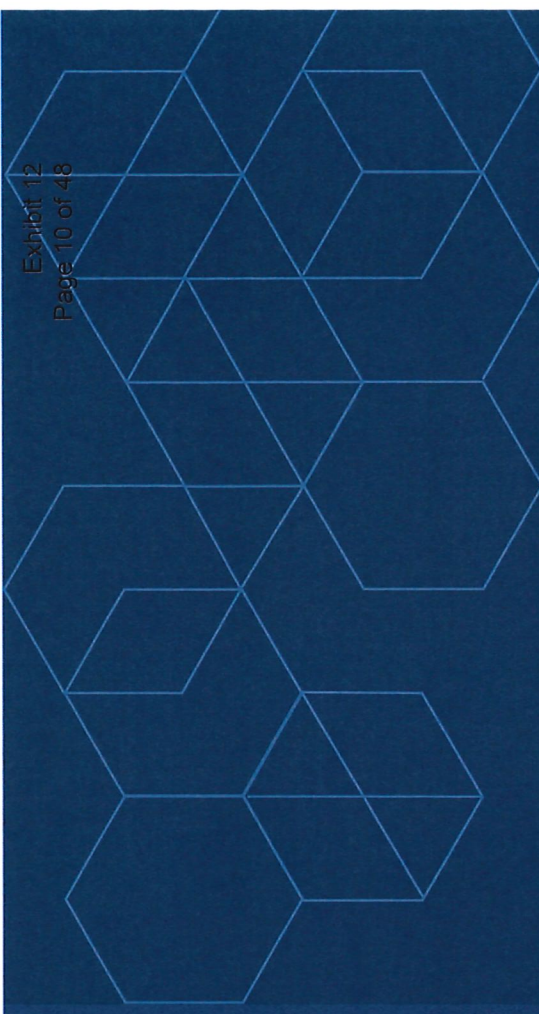


- Welcome
- Opening Remarks
- OCED Overview
- H2Hubs Overview
- Community Benefits and Engagement
- Pacific Northwest Regional H2Hub Project Overview
- Next Steps & Resources
- Feedback Session
- Wrap-up & Close

# Agenda



# 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**  
Office of Clean Energy Demonstrations



# OCED Scope



Regional Clean Hydrogen Hubs (\$8 billion)



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



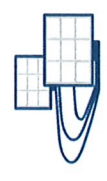
Advanced Reactor Demonstrations (\$2.5 billion)



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



Carbon Management (\$7 billion)



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



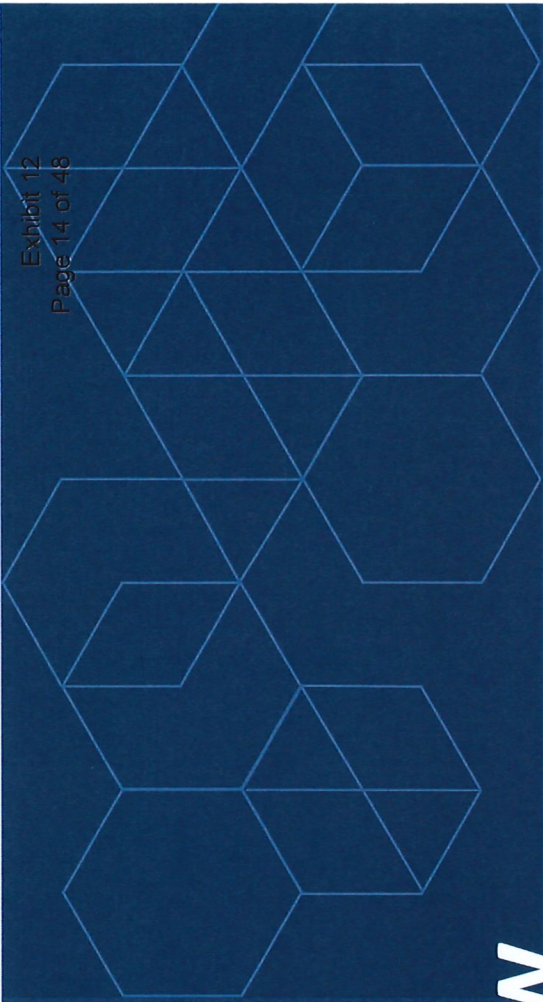
Industrial Demonstrations (\$6.3 billion)



Other Initiatives (\$133 million)



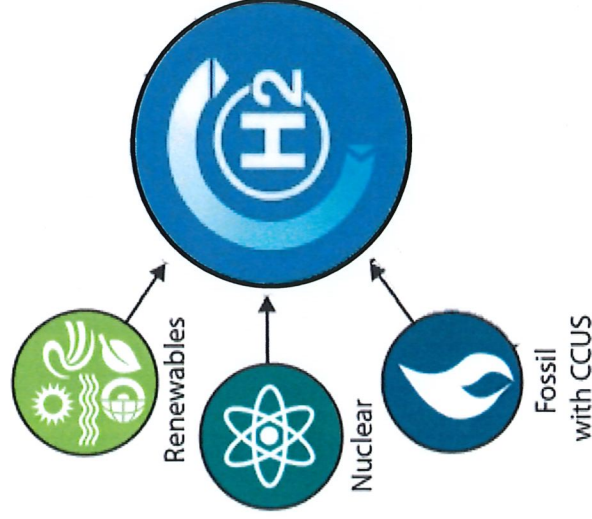
# H2Hubs Overview





## What is Hydrogen?

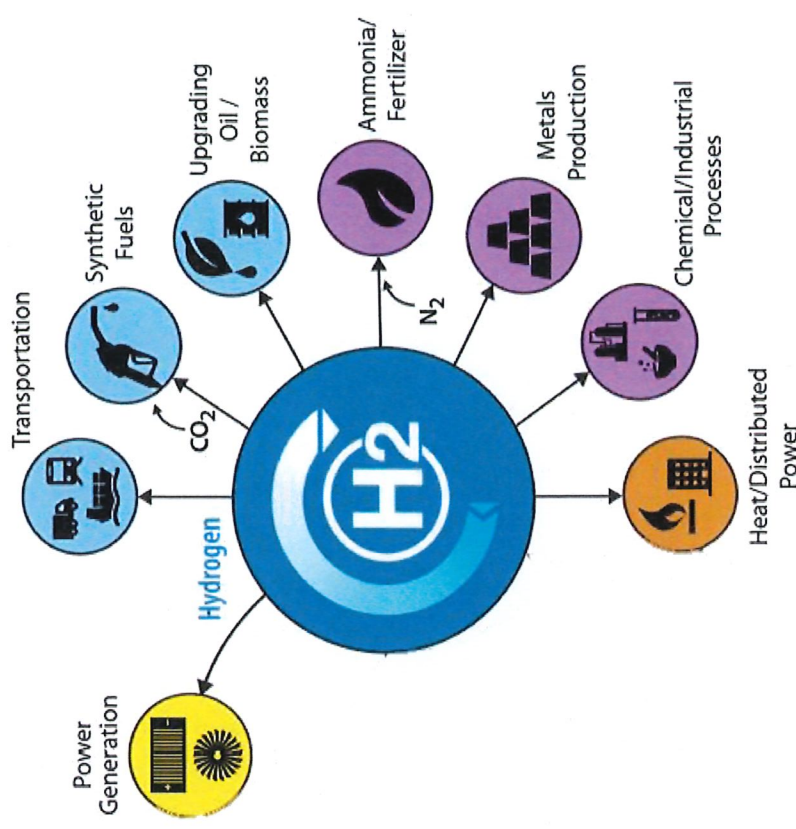
- **Hydrogen (H<sub>2</sub>)** is the simplest and most abundant element known.
- You might recognize it from the chemical formula for water – **H<sub>2</sub>O!**



- **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



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...**



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

***H2Hubs Current Status***

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

**Regional Clean  
Hydrogen Hubs**



# What is a Regional Clean Hydrogen Hub?

- ENERGY
- CONSUMERS
- COMMUNITY
- HYDROGEN PRODUCTION STORAGE

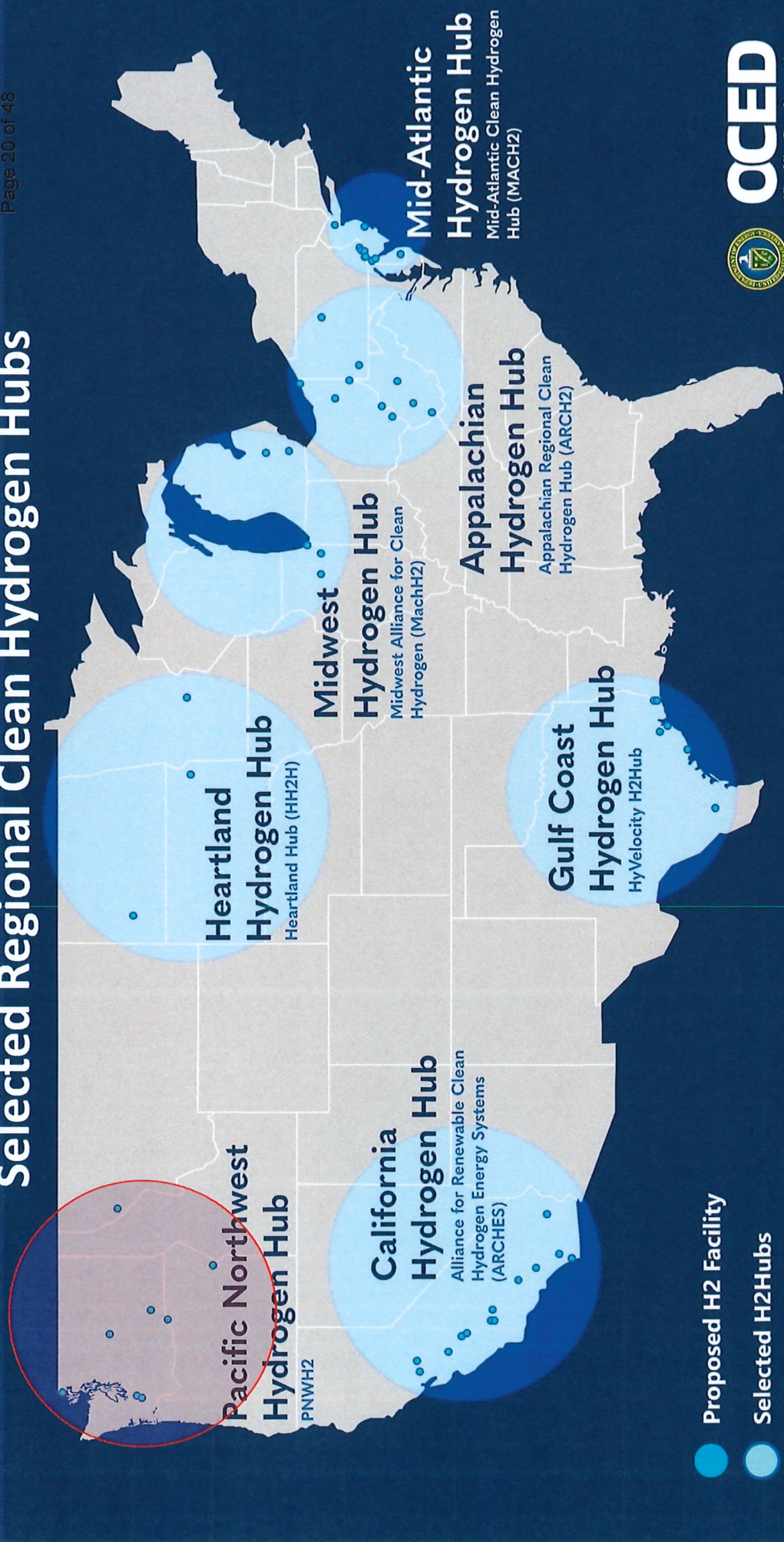


Images are not drawn to scale





# 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



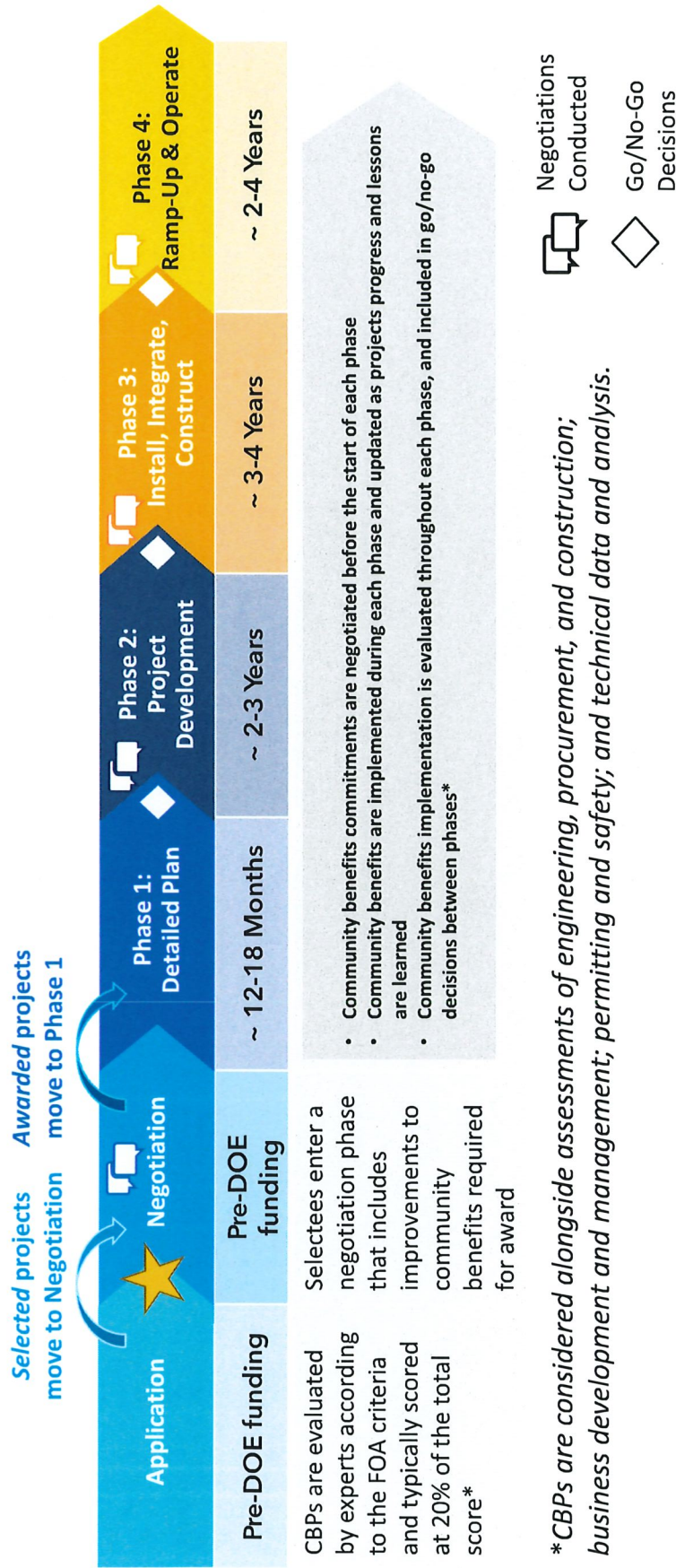
Justice40 Initiative



**OCED**

Office of Clean Energy Demonstrations

# Community Benefit Commitments - Implementation Requirements per Phase

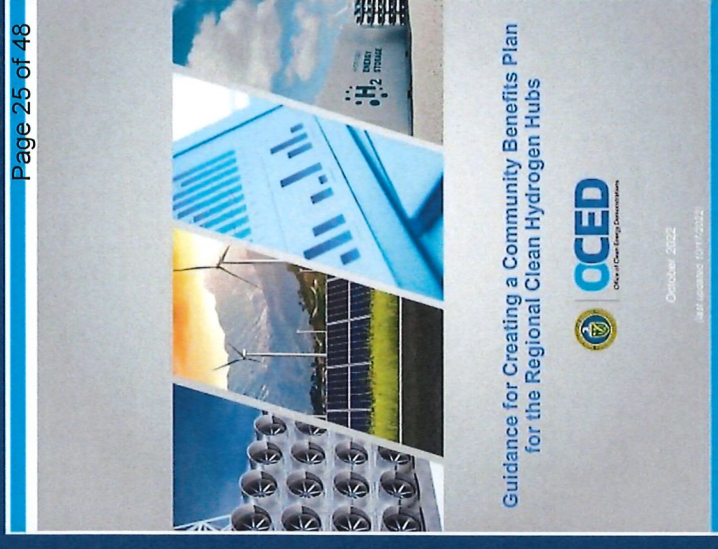


*\*CBPs are considered alongside assessments of engineering, procurement, and construction; business development and management; permitting and safety; and technical data and analysis.*



## 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/>**



**OCED**  
Office of Clean Energy Demonstration



# Pacific Northwest Regional Clean Hydrogen Hub



# Pacific Northwest Hydrogen Hub

## An Overview



## A Statewide Commitment to Hydrogen

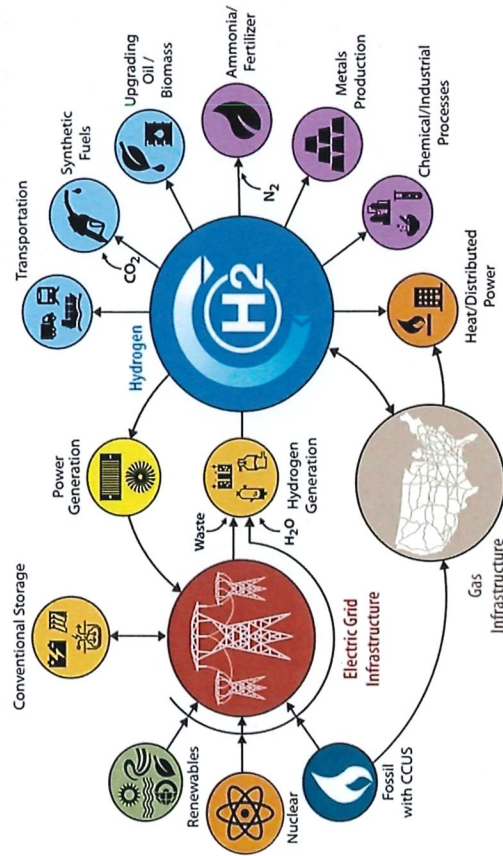
- Gov. Jay Inslee directed the Washington State Department of Commerce to form a single entity to respond to the U.S. Department of Energy's Hydrogen Hub funding opportunity.
- State legislature passed SB 5910 to support the production and storage of hydrogen to meet state and federal clean energy goals.
- 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

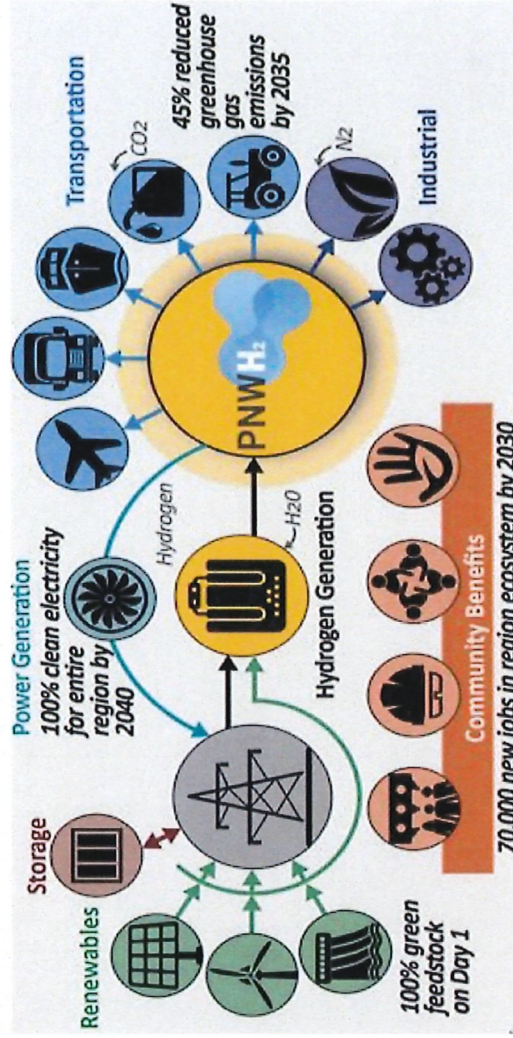


# Highlights of PNWH2 Hub



Consistent with DOE's vision and themes...

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



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



## Strategy Focus

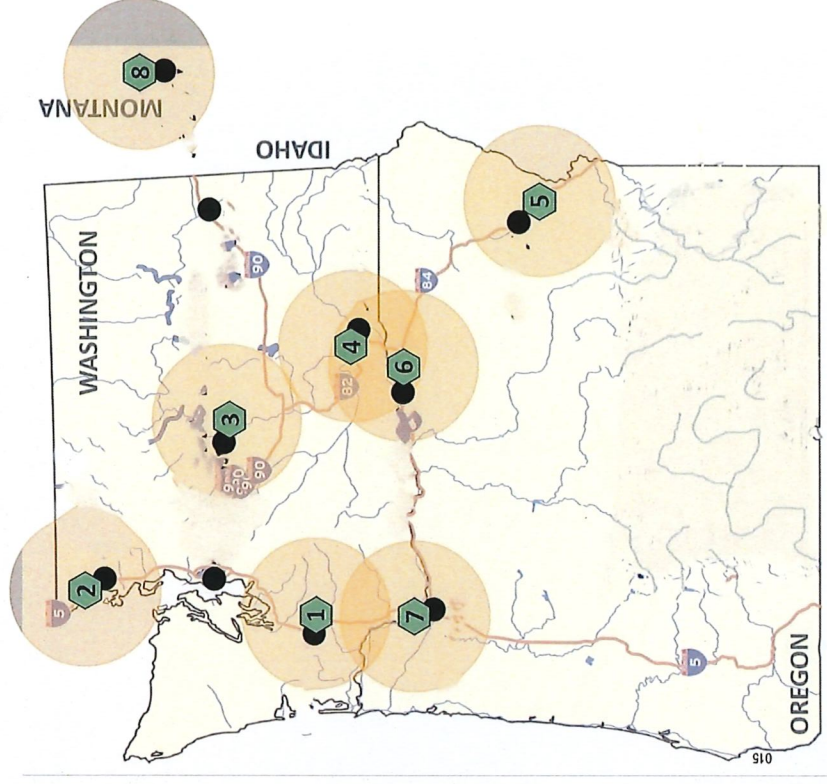
- Shared principles
- Equity, environmental and energy justice
- Workforce development and training
- Tribal and community engagement
- Use of mapping and geospatial tools & data to advance equity
- Domestic, clean technology manufacturing
- Energy emergency management & planning
- Industry cluster development
- 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
<b>Total</b>	<b>1.649 MMT/yr</b>





## Tribal Engagement and Partnerships

- Tribes represented on PNWH<sub>2</sub> 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.

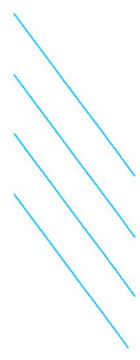
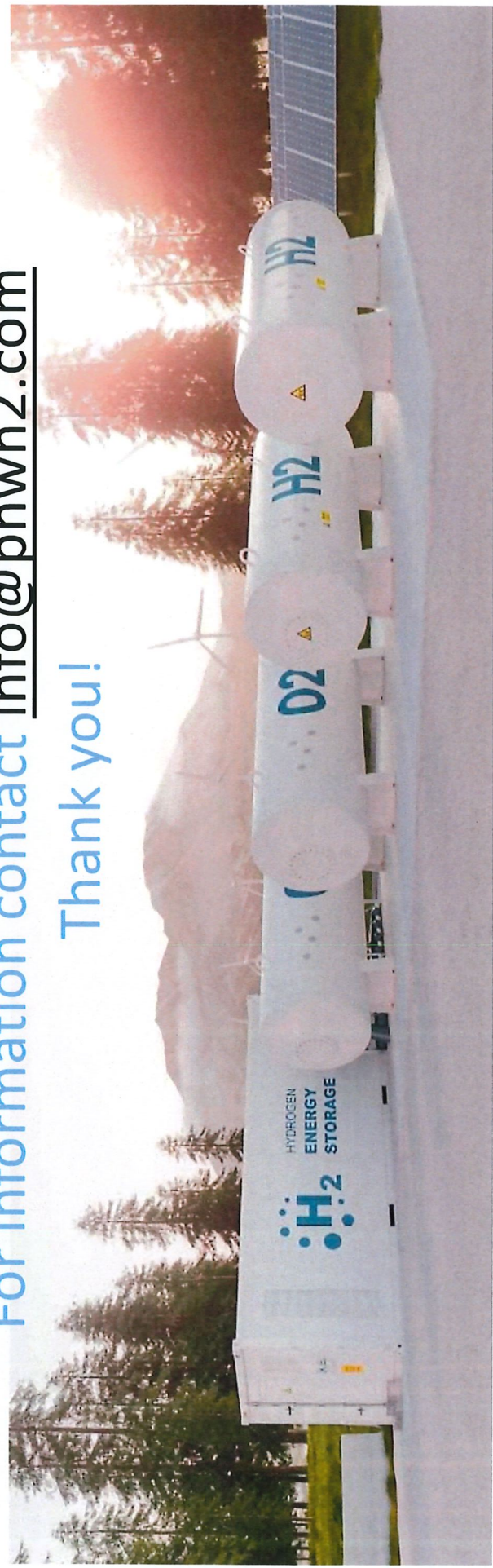




# Pacific Northwest Hydrogen Hub

For information contact [info@pnwh2.com](mailto:info@pnwh2.com)

Thank you!



# Next Steps & Resources



# Get Involved

- Project of Interest Selected/Awarded
- ..... Project of Interest not Selected/Awarded



## How to engage during negotiation:

- Visit Hub webpages
- Attend Hub-specific virtual briefing
- Email the H2Hub
- Email DOE at [engage\\_H2Hubs@hq.doe.gov](mailto: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](mailto: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



**OCED**

Office of Clean Energy Demonstrations



## 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.

**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

## Next Steps – Negotiations



**OCED**

Office of Clean Energy Demonstrations

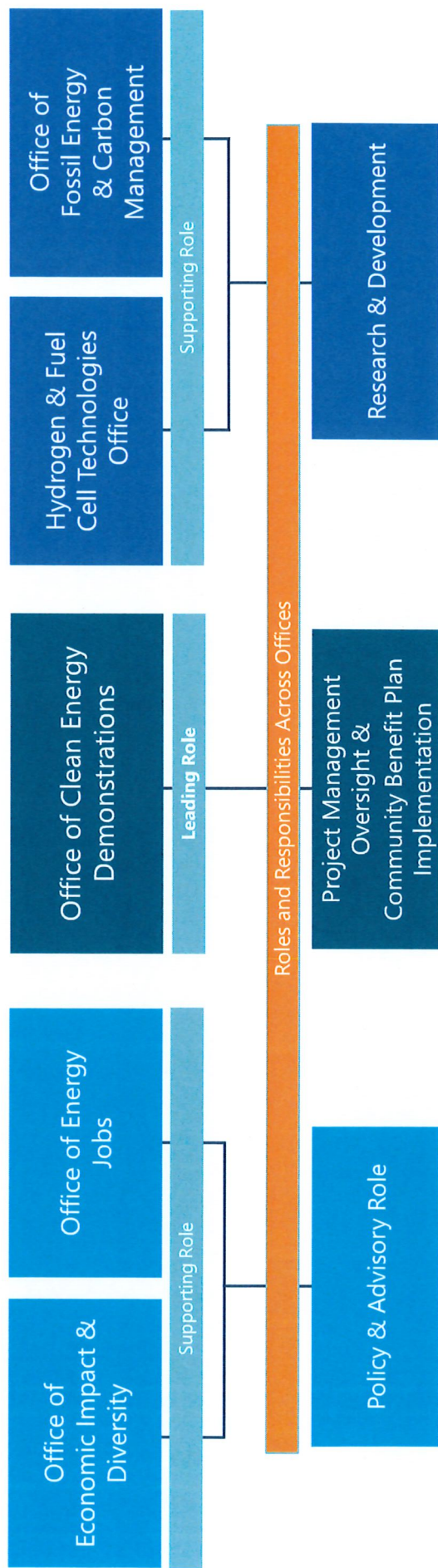


## Selectee Webpages

Appalachian Hydrogen Hub	<a href="https://www.arch2hub.com/">https://www.arch2hub.com/</a>
California Hydrogen Hub	<a href="https://archesh2.org/">https://archesh2.org/</a>
Heartland Hydrogen Hub	<a href="http://www.HeartlandH2Hub.com">www.HeartlandH2Hub.com</a>
Gulf Coast Hydrogen Hub	<a href="https://www.hyvelocityhub.com">https://www.hyvelocityhub.com</a>
Mid-Atlantic Hydrogen Hub	<a href="https://mach-2.com/">https://mach-2.com/</a>
Midwest Hydrogen Hub	<a href="https://machh2.com/">https://machh2.com/</a>
Pacific Northwest Hydrogen Hub	<a href="https://pnwh2.com/">https://pnwh2.com/</a>



# Key DOE Offices for H2Hubs



**OCED**  
Office of Clean Energy Demonstrations



## H2Hubs Resources

### Regional Clean Hydrogen Hubs

- [Program Page](#)
- [Press Release](#)
- [Overview of Selected Projects](#)
- [Local Engagement Opportunities](#)
- [OCED CBP fact sheet](#)

### Additional Clean Hydrogen Resources

- [U.S. National Clean Hydrogen Strategy and Roadmap](#)
- [Clean Hydrogen Pathways to Commercial Liftoff Report](#)
- [Hydrogen Shot](#)

### Demand-Side Support Initiative for Clean Hydrogen

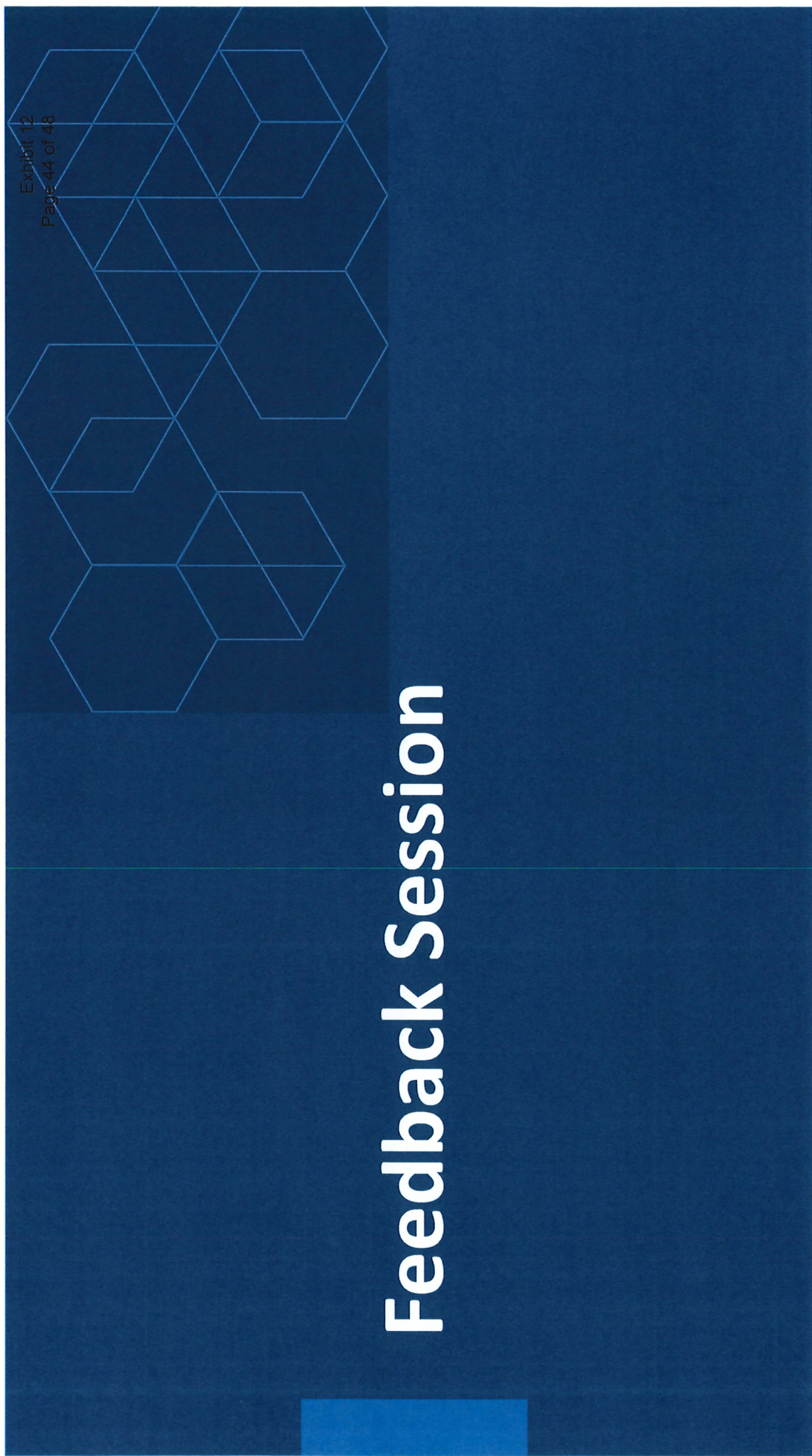
- [Request for Proposals \(RFP\)](#)
- [Video: OCED Update on Demand-Side Support Initiative](#)

### 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



- **Reach OCED about the H2Hubs [PacificNWH2Hub@hq.doe.gov](mailto:PacificNWH2Hub@hq.doe.gov)**

- **OCED Website & Newsletter Sign-up [energy.gov/oced](http://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.

Enter Email Address

- **OCED Exchange (RFIs, NOIs, and FOAs) [oced-exchange.energy.gov](http://oced-exchange.energy.gov)**

- **Follow us on LinkedIn [linkedin.com/company/doe-oced/](https://linkedin.com/company/doe-oced/)**



**For more information**



# Thank you!



**OCED**  
Office of Clean Energy Demonstrations

For more information, please visit [energy.gov/OCED](http://energy.gov/OCED)



**SRSH2**

St. Regis Solar Hydrogen

226 Mullan Gulch Road  
St. Regis, Montana 59866  
Ph: 406.240.3016

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## **Press Release: St. Regis Solar Hydrogen (SRSH2)**

*Contact:*

*Arne Thompson*

*George Bailey*

*SRSH2 Associate Managing Members*

## **St. Regis Solar Hydrogen Selected by U.S. Department of Energy to Develop Pacific Northwest Hydrogen Hub**

St. Regis Solar Hydrogen (SRSH2) has been selected to begin award negotiations as part of the U.S. Department of Energy Office of Clean Energy Demonstrations (OCED) development of the Pacific Northwest Hydrogen Hub, which in total is estimated to receive up to \$1 billion in Bipartisan Infrastructure Law funding.

The selection enables SRSH2 to enter award negotiations with OCED and work in partnership to establish the Pacific Northwest Hydrogen Hub. OCED funding will support SRSH2 participation in the Hydrogen Hub through the advancement of planning, detailed design, environmental permitting, and procurement of long-lead equipment.

SRSH2 is proud to represent our rural Justice40 community and will work with disadvantaged rural/tribal communities throughout Montana, the Pacific Northwest and Nation.

### **About DOE's H2Hubs Program:**

The Department of Energy's Regional Clean Hydrogen Hubs (H2Hubs) will kickstart a national network of clean hydrogen producers, consumers, and connective infrastructure while supporting the production, storage, delivery, and end-use of clean hydrogen. Funded by President Biden's Investing in America agenda, the H2Hubs will accelerate the commercial-scale deployment of clean hydrogen—helping generate clean, dispatchable power, create a new form of energy storage, and decarbonize heavy industry and transportation. Together, they will also reduce 25 million metric tons of carbon dioxide emissions from end-uses each year—an amount roughly equivalent to combined annual emissions of 5.5 million gasoline-powered cars—and create tens of thousands of good-paying jobs across the country while supporting healthier communities and strengthening America's energy security.