

# Appalachian Regional Clean Hydrogen Hub

## *Overview and Update*

KCA & KOGA  
June 26, 2024



# Overview of Today's Presentation

- Introduction
- What is hydrogen and what are the "Colors of Hydrogen?"
- Clean Hydrogen Hubs
- OCED Sample Hydrogen Blueprint
- Summary of the Hydrogen Hub FOA
- Other Hydrogen Hubs
- ARCH 2 overview
- "Communities First" Approach
- Jobs impact
- Regional outreach

# Hydrogen 101

- Hydrogen is abundant
- Clean-burning alternative to other fuels
- Hydrogen versus oil
- Sources of hydrogen
- Large scale deployment opportunities

# The Spectrum of Hydrogen



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# Clean Hydrogen Hubs

- What is a clean hydrogen hub?
- Department of Energy definition
- Why promote clean hydrogen hubs?
- Why locate in Appalachia?

# Regional Clean Hydrogen Hubs Sample Blueprint



**OCED**  
Office of Clean Energy Demonstrations

- ENERGY
- CONSUMERS
- COMMUNITY
- HYDROGEN PRODUCTION STORAGE



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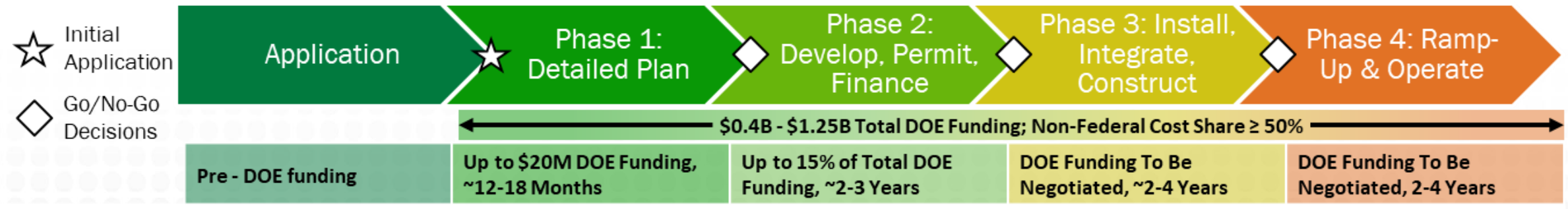


# Hydrogen Hub FOA Overview

## Four Goals of the H2Hubs Funding Opportunity Announcement ("FOA"):

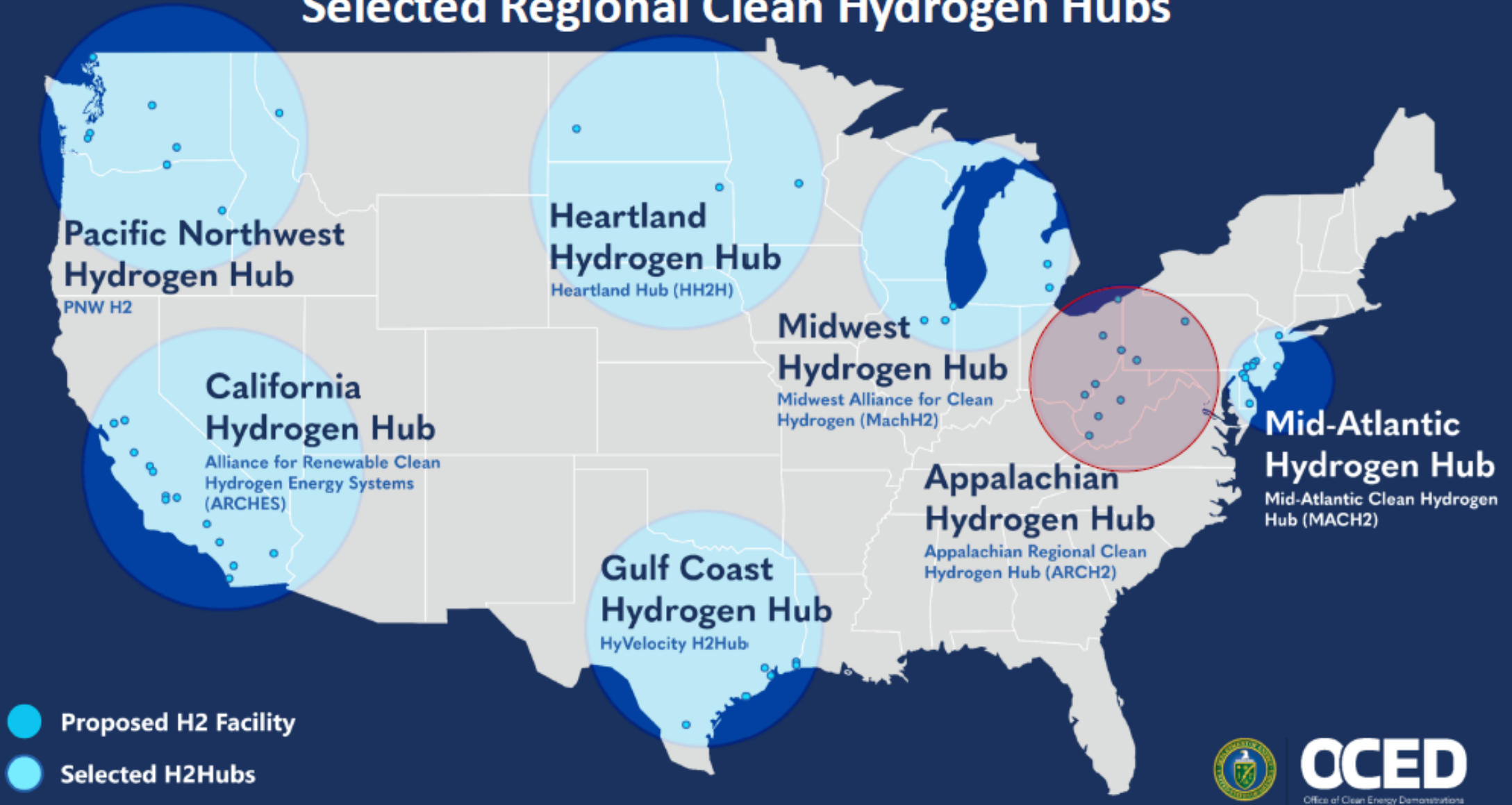
- Meet clean hydrogen production standards
- Demonstrate "proof of concept"
- The clean hydrogen economy network
- Evaluation criteria

## Schedule:



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# Selected Regional Clean Hydrogen Hubs



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# Why ARCH2?

## RESOURCES

- Largest natural gas-producing formation in the United States (EIA, 2022)
- Natural gas spot prices consistently discounted to Henry Hub
- Renewable electricity sources for H<sub>2</sub> production
- Subsurface CO<sub>2</sub> and H<sub>2</sub> storage



## COMMUNITIES

- Long history of energy production vital to US economic growth
- Disadvantaged by energy transition from coal
- Designated ENERGY COMMUNITY by IWG



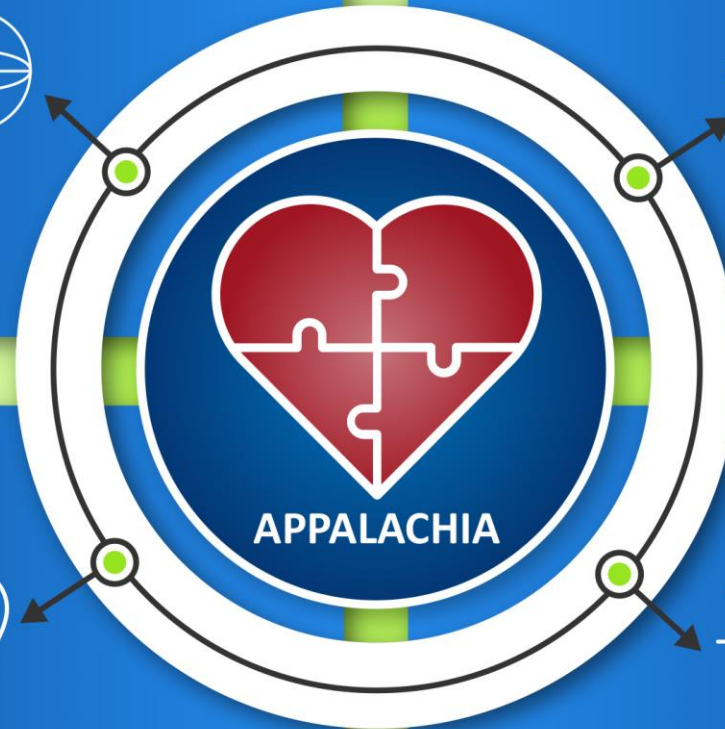
## LOCATION

- Close to major demand centers in all directions key for interhub connectivity
- Includes eight of the top 25 priority communities as designated by the Interagency Working Group (IWG) on Coal and Power Plant Communities and Economic Revitalization



## Project Development Partners

- Decades of expertise in the region
- Strong financial commitment to ARCH2
- Leadership in ESG and Climate initiatives



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# ARCH2 Partnership

PROGRAM MANAGEMENT AND TECHNICAL SUPPORT	
PROJECT DEVELOPERS	
ARCH2 ECOSYSTEM	
Executive Board	
Advisory Board	
Educational Alliance	
Transit Authorities	
Connective Infrastructure	
Community/Business Groups	

ARCH2-01

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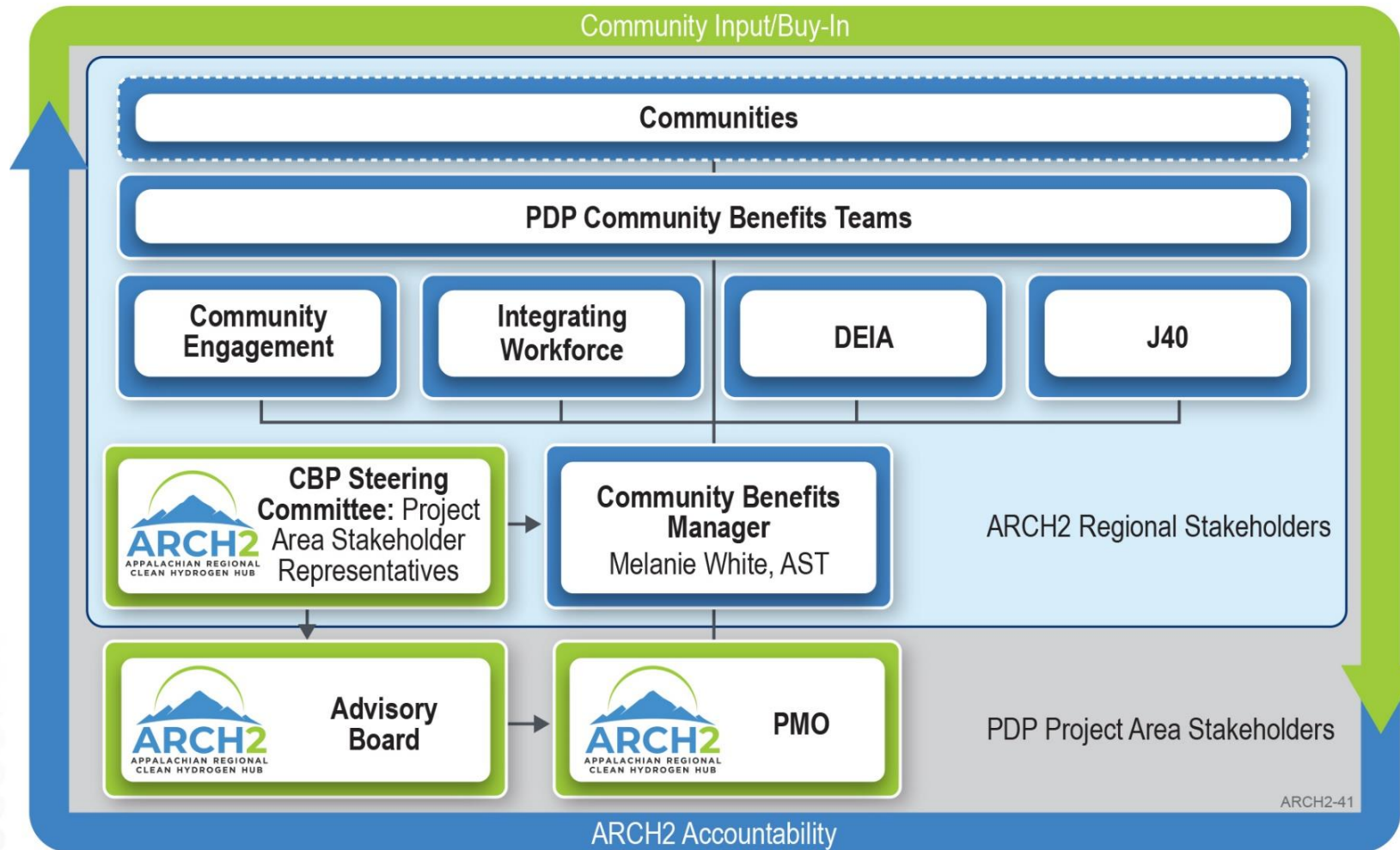
# ARCH2 Project Summaries (1/2)

- **CNX Resources:** Ammonia production
- **TC Energy / Chemours:** H<sub>2</sub> production
- **Fidelis New Energy / Mountaineer GigaSystem:** NatGas + biomass to produce LCI H<sub>2</sub>
- **Hog Lick Aggregates:** Fuel source for equipment
- **Hope Gas / WATT Fuel Cell Corp / EQT:** Produce clean H<sub>2</sub> from NatGas
- **Empire Diversified Energy:** Anaerobically-digested food waste-based H<sub>2</sub> production
- **KeyState:** Produce H<sub>2</sub> and other related products

# ARCH2 Project Summaries (2/2)

- **MPLX:** H<sub>2</sub> storage facility development
- **Enbridge Energy Ohio:** H<sub>2</sub> production with CO<sub>2</sub> capture
- **Plug Power:** H<sub>2</sub> distribution center and fueling station
- **Independence Hydrogen:** H<sub>2</sub> production facility in Ashtabula, Ohio
- **EQT / GTL:** Aviation fuel production
- **Air Liquide:** Liquified H<sub>2</sub> facility in southwest PA

# ARCH2 Communities First Approach



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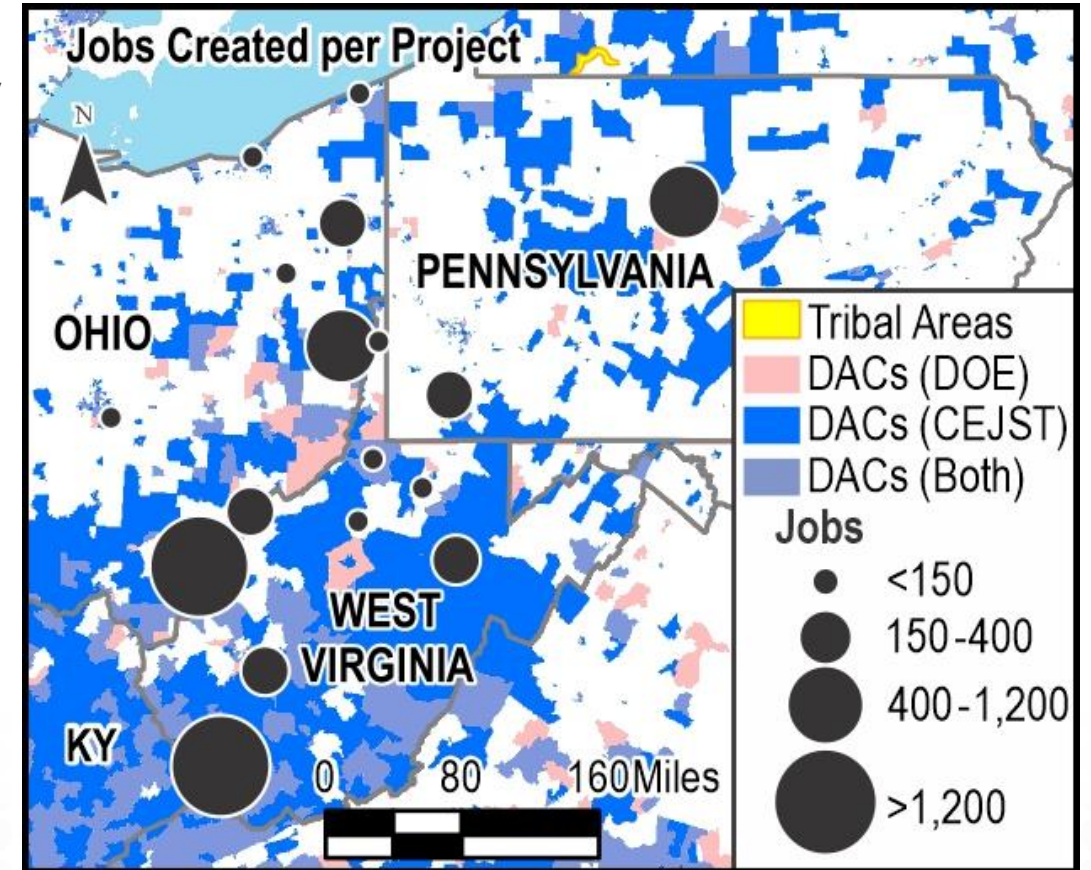
# ARCH2 Jobs Impact

ARCH2 will foster a just energy transition in a region disproportionately impacted by the loss of extraction industry jobs, such as oil/gas development and coal mining:

- *Environmental benefits*
- *Economic benefits*
- *Jobs creation*
- *Workforce development*

## Job Creation Estimates\*

- *Construction jobs building hub components*
- *Post-construction jobs operating hub components*



\*"Economic Benefits of the Hydrogen Hubs", Rhodium Group, May 2024

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# ARCH2 Regional Outreach

## Labor / Trades / Workforce Development



## Business Development / Industry Organizations



## Community / Environment / Non-Profits



## Academia



## Government



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# Presentation Review

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# More Information

- ARCH2 Website: <https://www.arch2hub.com/>
- DOE OCED Hydrogen Hubs Contact: [h2hubs@hq.doe.gov](mailto:h2hubs@hq.doe.gov)

**The End**

***Thank You!***

