



**O CED**  
Office of Clean Energy Demonstrations

# THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



**Office of Clean Energy Demonstrations Overview**  
Suzy Baker, Stakeholder Engagement Specialist  
Office of Clean Energy Demonstrations  
U.S. Department of Energy  
February 7, 2024

# Disclaimer

**As DOE is actively engaged in financial assistance planning, we are subject to constraints during this period to ensure fairness of the process:**

- **DOE can only communicate public and non-privileged information during this meeting or event.**
- **DOE cannot discuss the details of active or planned financial assistance matters [e.g., Requests for Information (RFI), Notices of Intent (NOI), Funding Opportunity Announcements (FOA)] or entertain requests for a specific outcome or benefit related to a financial assistance activity.**

# Background

- The International Energy Agency says we need global public investments of at least \$90 billion this decade for large-scale clean energy demonstration projects to achieve net zero emissions by 2050
- Two recent historical climate laws enacted—the Bipartisan Infrastructure Law and Inflation Reduction Act—appropriated \$25+ billion to the Office of Clean Energy Demonstrations (OCED) to deliver large-scale clean energy demonstration projects
- OCED will accelerate clean energy technologies from the lab to market and fill a critical innovation gap on the path to achieving our nation's climate goals while mitigating risks that allow private sector investors and developers to act



# 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 & 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



## PROVIDE PROJECT OVERSIGHT

Serve as primary DOE office to deliver full scale clean energy demonstration projects and project management oversight excellence

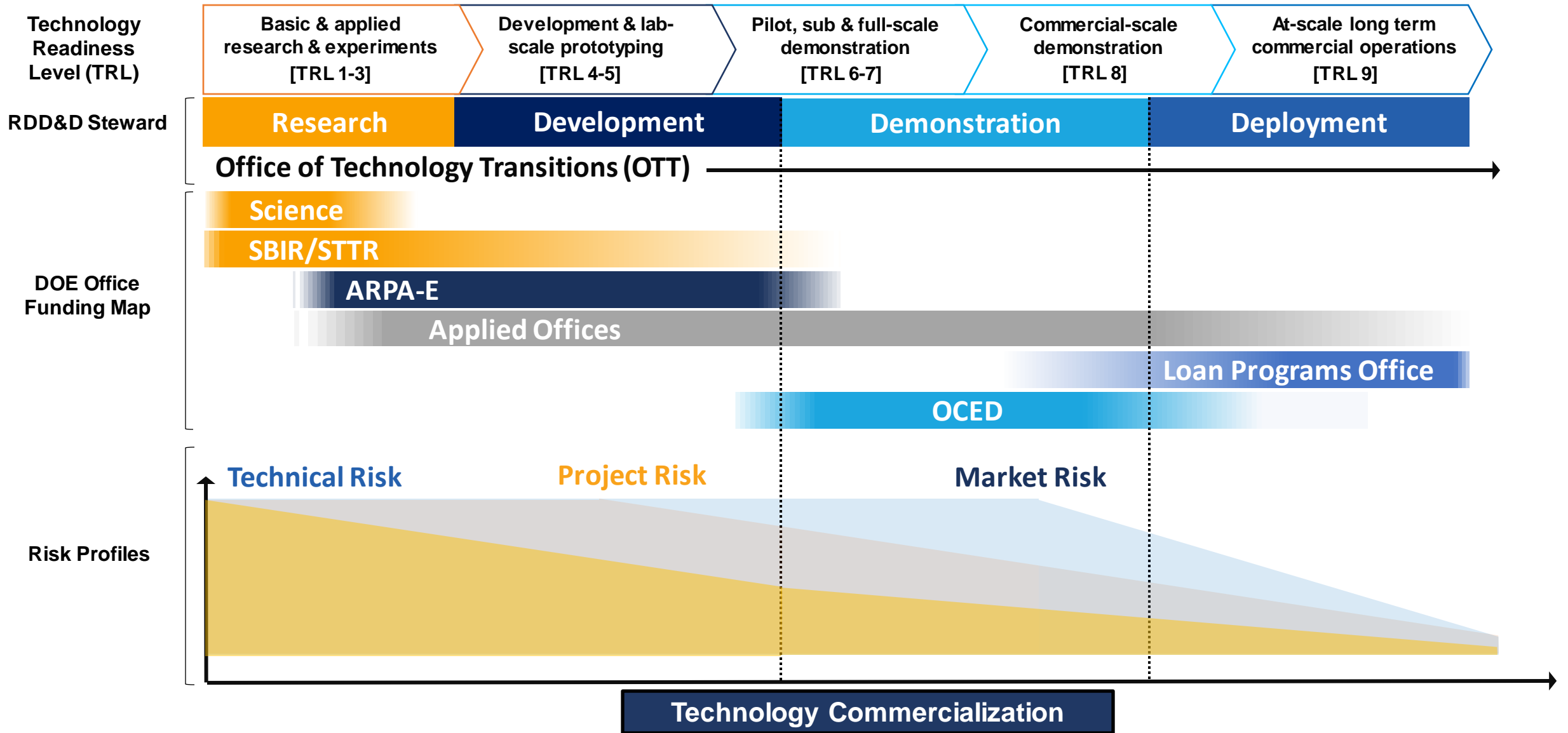


## ENGAGE & COLLABORATE

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



# Role Across Research, Development, Demonstration & Deployment (RDD&D) Continuum



# Prioritizing Community Benefits in OCED Projects

OCED **requires** applicants to include a Community Benefits Plan 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.

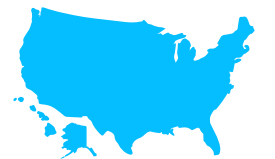
**Community & Labor Engagement**



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



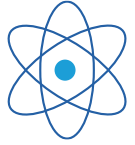
**Investing in the American Workforce**



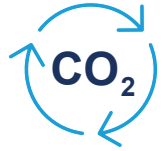
**Justice40 Initiative**



# OCED Scope



**Advanced Reactor  
Demonstrations (\$2.5 billion)**



**Carbon Management  
(\$7 billion)**



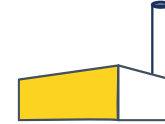
**Clean Energy Demonstrations  
on Mine Land (\$500 million)**



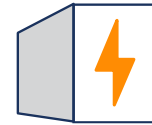
**Distributed Energy Systems  
Demonstrations (\$50 million)**



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



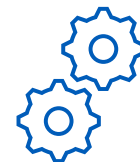
**Industrial Demonstrations  
(\$6.3 billion)**



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



**Regional Clean Hydrogen Hubs  
(\$8 billion)**



**Liftoff Enabling Programs  
(\$133 million)**





## Advanced Reactor Demonstrations

### Support domestic nuclear industry in design, licensing, construction, and operation of two advanced nuclear reactors

#### ***Current Status***

- November 2022: Awarded \$2.5B in funding through the Bipartisan Infrastructure Law

#### **TerraPower Sodium Reactor**

- 2022: Completed independent project review
- November 2021: Selected Kemmerer, WY as preferred site

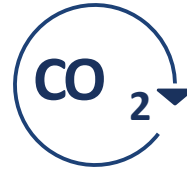
#### **X-energy Xe-100**

- Partnering with Dow Chemical Company
- May 2023: Selected Seadrift, TX as preferred site
- 2022: Completed independent project review



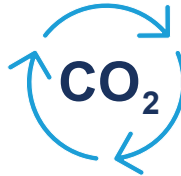
## Carbon Management

*Three programs*



### **Carbon Capture Demonstration**

**Projects:** Develop six carbon capture facilities to improve costs, emissions reductions, and environmental effects from coal and natural gas



### **Carbon Capture Large-Scale**

**Pilot Projects:** Establish and test innovative carbon capture pilot projects large enough to support new processes and technology improvements at scale



### **Regional Direct Air Capture**

**Hubs:** Develop four regional direct air capture hubs to capture and sequester, utilize, or sequester and utilize at least 1,000,000 metric tons of CO<sub>2</sub> annually from a single unit or multiple interconnected units



## **Carbon Management**

*Three programs*

### ***Current Status***

#### **Carbon Capture Demonstrations**

- Front-end engineering design (FEED) studies
  - January 2024: Awarded two FEED studies
  - Fall/Winter 2023: Awarded four FEED studies
  - May 2023: Selected nine FEED studies for award negotiation
  - September 2022: Announced \$189M funding for FEED studies
  
- Funding Opportunity Announcement
  - December 2023: Selected three projects for award negotiations in Texas, North Dakota, and California
  - February 2023: Issued \$1.7B funding announcement to demonstrate commercial-scale carbon capture technologies integrated with CO<sub>2</sub> transportation and geologic storage infrastructure



## **Carbon Management**

*Three programs*


### ***Current Status***

#### **Carbon Capture Large-Scale Pilot Projects**

- July 2023: Received full applications
- February 2023: Issued \$820M funding announcement

#### **Regional Direct Air Capture Hubs**

- August 2023: Selected two projects for award negotiations in Texas and Louisiana
- December 2022: Issued \$1.2B funding announcement



## Clean Energy Demonstrations on Mine Land

### Carry out up to five clean energy projects on current and former mine land to show technical and economic feasibility

- Eligible technologies: solar (at least two projects); micro-grids; geothermal; direct air capture; fossil generation with CCUS; energy storage; advanced nuclear
- Focus on local economic development and environmental justice

#### ***Current Status***

- August 2023: Received full applications
- April 2023: Issued \$450M funding announcement
- September/October 2022: Hosted regional workshops
- August 2022: Closed RFI



## Distributed Energy Systems

**Develop reliable, resilient and cost-effective energy systems to better support our rapidly changing electric grid and the growth of electric vehicles, energy storage, and the electrification of buildings and industry**

- Projects will demonstrate aggregated approaches that integrate utility planning, sensors, communications and control infrastructure, and solutions to long-term operations.

### ***Current Status***

- April 2024: Deadline for full applications
- December 2023: Deadline for concept papers
- September 2023: Issued \$50M funding announcement
- July 2023: Issued NOI & RFI for anticipated \$50M funding announcement



## Energy Improvements in Rural or Remote Areas

*\*Rural or remote areas are defined as cities, towns, or unincorporated areas with fewer than 10,000 inhabitants*

**Improve resilience, safety, reliability, and availability of energy in rural or remote areas and increase environmental protection from adverse impacts of energy use**

### ***Current Status***

Developing focused Technical Assistance through national labs and EPA TCTACs

- **Grant**
  - October 2023: Received full applications
  - May 2023: Announced \$50M in grant funding
- **Energizing Rural Communities Prize**
  - July 2023: Selected 67 winners
  - March 2023: Announced \$15M prize
- **Funding Opportunity Announcement**
  - August 2023: Received full applications
  - March 2023: Issued \$300M funding announcement
  - December 2022: Closed RFI



## Industrial Demonstrations

### Demonstrate transformational technologies to decarbonize energy-intensive industries

- Drive a U.S. competitive edge in low- and net-zero carbon manufacturing
- Help build a market for green products through high-impact, replicable solutions

#### ***Current Status***

- August 2023: Received full applications
- March 2023: Issued \$6B funding announcement

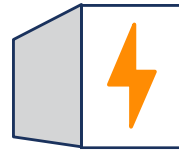




# Long-Duration Energy Storage Demonstrations

*Three programs*

Lithium ion batteries  
C 2008058816



**Long-Duration Energy Storage (LDES) Demonstrations:** Develop energy storage technology to supply energy at peak periods of demand on electric grid and improve energy efficiency, reduce peak loads of homes and businesses, provide ancillary services for grid stability, and increase the feasibility of microgrids.



**DOE/DOD Long-Duration Energy Storage Joint Program:** Collaboration between DOE and Department of Defense (DOD) for long-duration demonstrations on government facilities.



**Long-Duration Energy Storage Pilot Grant Program:** Program that aims to bring a range of benefits provided by storage to targeted recipients including states, tribes, and utilities.



# Long-Duration Energy Storage Demonstrations

## ***Current Status***

### **LDES Demonstrations**

- September 2023: Selected nine projects for award negotiations
- November 2022: Issued \$349M funding announcement
- June 2022: Closed RFI

### **LDES Lab Call**

- September 2023: Selected six projects for award negotiations
- March 2023: Received scoping study

A large blue energy storage container is shown from a low angle, looking up. The container has a yellow and black hazard stripe near the top. On its side, there is a logo with a lightning bolt and the word 'ENERGY' in large blue letters. Above 'ENERGY', it says 'LI-ION BATTERY'. Below the main branding, there is smaller text: 'Lithium ion batteries' and 'C 2008058816'. The background is a clear blue sky with some light clouds.

# Long-Duration Energy Storage Demonstrations

## ***Current Status***

### **DOE/DOD LDES Joint Program**

Collaboration between DOE and DOD for LDES at government facilities

- May 2023: DOE and DOD signed a Memorandum of Understanding and continue to develop requirements and scope for potential projects

## **Pilot Grant Program**

Program aims to bring benefits provided by storage to targeted recipients including states, tribes, and utilities



# Regional Clean Hydrogen Hubs

**Build 6-10 regional clean H2Hubs across the country to create networks of clean hydrogen producers, consumers, and local connective infrastructure to accelerate use of clean hydrogen.**

- Feedstock diversity
- End use diversity
- Geographic diversity
- Employment and training

### ***Current Status***

- October 2023: Selected seven projects for award negotiations
- July 2023: Announced \$1B NOI and RFI for demand-side hydrogen initiative
- September 2022: Issued \$7B funding announcement

# What is a Regional Clean Hydrogen Hub?



- ENERGY
- CONSUMERS
- COMMUNITY
- HYDROGEN PRODUCTION STORAGE



# 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**

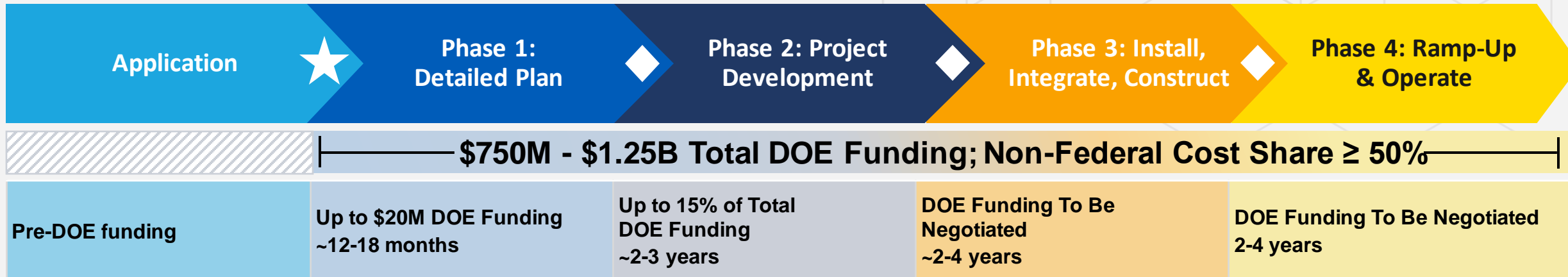
**Dedicated Dollars for  
Community Benefits**

**Tens of Thousands of  
Jobs**

**Greenhouse Gas  
Reduction of 25 million  
Metric Tons Per Year**

# Phased Approach to Project Management

-  Initial Application
-  Go/No-Go Decisions





# Prioritizing Community Benefits in OCED Projects

OCED **requires** applicants to include a Community Benefits Plan 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.

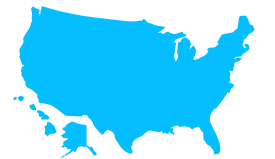
**Community & Labor Engagement**



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



**Investing in the American Workforce**



**Justice40 Initiative**



# 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**



**Hydrogen Interagency Task Force (HIT)**

a collaboration among 11+ U.S. federal agencies to further advance a whole-of-government approach to executing the national clean hydrogen strategy



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

# Key messages of the Clean Hydrogen Liftoff Report



**Production Tax Credit (PTC) reduces production costs** to kick-start the transition from high carbon intensity (CI) to low CI hydrogen for existing uses.

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**DOE H2Hubs and open access infrastructure** will unlock use cases for hydrogen where production/offtake are not co-located, connecting new offtakers to regional hydrogen network.

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**In addition to industrial/chemicals use cases, heavy-duty transportation** will be critical for market lift-off.

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**Without sustained long-term offtake or merchant markets,** domestic market acceleration could be slowed.





# Next Steps & Resources

# Get Involved

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

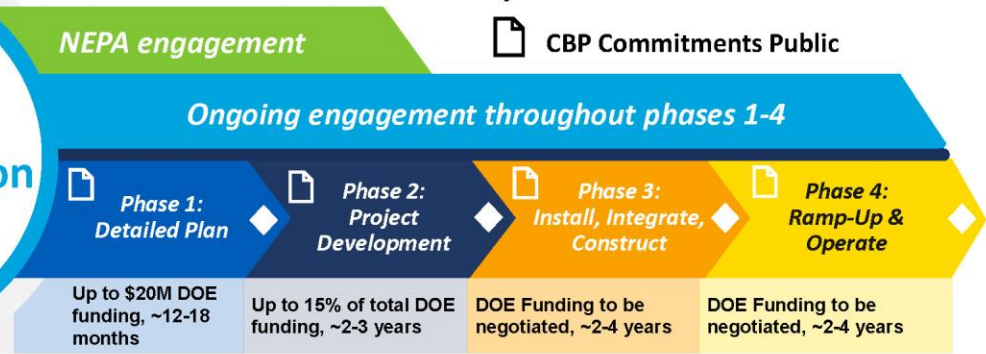
Project of interest selected (Oct 2023)



Project awarded



Implementation Phases 1-4



◇ Go/No-Go Decisions  
 📄 CBP Commitments Public

Project not selected



## 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

Project not awarded



## 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

## Next Steps – Negotiations

**Award Negotiations:** OCED has commenced 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



# 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](#)
- [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](#)





## Stay Connected

- **OCED Website & Newsletter Sign-up**  
[energy.gov/oced](https://energy.gov/oced)
- **OCED Exchange (RFIs, NOIs, and FOAs)**  
[oced-exchange.energy.gov](https://oced-exchange.energy.gov)
- **Self-nominate to be a FOA reviewer**  
[oced-exchange.energy.gov/Registration](https://oced-exchange.energy.gov/Registration)
- **Apply to the Clean Energy Corps**  
[energy.gov/CleanEnergyCorps](https://energy.gov/CleanEnergyCorps)
- **Get in touch via email**  
[OCED@hq.doe.gov](mailto:OCED@hq.doe.gov)
- **Follow us on LinkedIn**  
[linkedin.com/company/doe-oced/](https://linkedin.com/company/doe-oced/)

# Thank you!

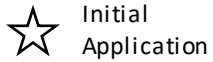


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Office of Clean Energy Demonstrations

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

# Backup Slides





Initial Application



Go/No-Go Decisions

	Application	Phase 1: Detailed Plan	Phase 2: Project Development	Phase 3: Install, Integrate, Construct	Phase 4: Ramp-Up & Operate
	Pre-DOE funding Up to 50%	TBD DOE funding Up to 50% 12-18 months	TBD DOE funding Up to 50% 2-3 years	TBD DOE funding Up to 50% 2-4 years	TBD DOE funding Up to 50% 2-4 years
Engineering, Procurement, Construction, Operations	<ul style="list-style-type: none"> <li>Engineering concept (~5%)</li> <li>Tech. readiness descriptions</li> <li>Project L1 Integrated Project Schedule (IPS), Phase 1 L2 IPS</li> <li>Class 4/5 Total Project Cost (TPC) estimate</li> </ul>	<ul style="list-style-type: none"> <li>Engineering &amp; design (~30%)</li> <li>Tech readiness analysis, including uncertainties, risk</li> <li>Project L2 IPS, Phase 2 L3 IPS</li> <li>Class 3 TPC estimate</li> </ul>	<ul style="list-style-type: none"> <li>Engineering &amp; design (~90%)</li> <li>Tech updates</li> <li>Project L3 IPS, Phase 3 L4 IPS</li> <li>Class 1 TPC estimate</li> <li>Standard project management (PM) tool in use</li> <li>Operations plan</li> </ul>	<ul style="list-style-type: none"> <li>Tech risk updates, tracking</li> <li>Progress execution reports</li> <li>Interim Go/No-Go reviews</li> </ul>	<ul style="list-style-type: none"> <li>Regular operations status reporting</li> <li>Tech risk updates, tracking</li> <li>Final TPC accounting</li> </ul>
Business Development & Management	<ul style="list-style-type: none"> <li>Business strategy</li> <li>Team description</li> <li>Workforce plan (SKAs)</li> <li>Finance plan</li> <li>Market potential analysis</li> </ul>	<ul style="list-style-type: none"> <li>Project Management Plan (PMP)</li> <li>Risk Management Plan (RMP)</li> <li>Financial model</li> <li>Updated workforce plans</li> <li>Market &amp; off-take commitments</li> <li>Site selection</li> </ul>	<ul style="list-style-type: none"> <li>Teaming, offtake, &amp; feedstock agreements</li> <li>Sites access secured</li> <li>Integrated RMP updated</li> <li>Confirmed project financing</li> <li>Labor agreements</li> </ul>	<ul style="list-style-type: none"> <li>Regular progress/status reporting for all agreements</li> <li>Regular financial status reports</li> <li>Other reporting per T/Cs</li> <li>Updated RMP covering Phases 3 &amp; 4</li> </ul>	<ul style="list-style-type: none"> <li>Financial models updated with offtake &amp; production data</li> <li>Revised growth plans &amp; projections</li> <li>Updated RMP covering ramp &amp; steady state operations</li> </ul>
Permitting & Safety	<ul style="list-style-type: none"> <li>Safety history/culture description</li> <li>Permitting timeline overview</li> <li>Environmental approval overview (State &amp; Federal)</li> </ul>	<ul style="list-style-type: none"> <li>Site Safety Plans (SSP)</li> <li>Physical, Information, Cyber Security Plans (including PCII)</li> <li>Environmental data package</li> <li>Initial NEPA documentation</li> </ul>	<ul style="list-style-type: none"> <li>Execution-ready SSP</li> <li>Final physical, information &amp; cybersecurity plans</li> <li>Permits for construction</li> <li>Environmental reviews / assessments</li> </ul>	<ul style="list-style-type: none"> <li>Status reporting on required permits &amp; environmental</li> <li>Safety &amp; security incident reporting &amp; audits</li> <li>Permits for operations</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing permit, safety, &amp; security reporting</li> </ul>
Community Benefits	<ul style="list-style-type: none"> <li>Community Benefits Plan (CBP), including community &amp; labor engagement; quality jobs and workforce development; DEIA; J40 Initiative</li> </ul>	<ul style="list-style-type: none"> <li>Implement CBP Phase 1 Scope</li> <li>Update CBP for Phases 2 – 4 based on Phase 1 activities</li> </ul>	<ul style="list-style-type: none"> <li>Implement CBP Phase 2 scope</li> <li>Update CBP Phase 3-4 based on Phase 2 activities</li> </ul>	<ul style="list-style-type: none"> <li>Implement CBP Phase 3 Scope</li> <li>Update CBP for Phase 4 based on Phase 3 activities</li> </ul>	<ul style="list-style-type: none"> <li>Implement CBP Phase 4 scope</li> <li>Update CBP based on activities &amp; findings from ramp-up to commercial scale operation</li> </ul>
Technical Data & Analysis	<ul style="list-style-type: none"> <li>LCA Analysis (i.e., GREET)</li> <li>TEA Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Performance model</li> <li>Updated LCA</li> <li>Updated TEA</li> </ul>	<ul style="list-style-type: none"> <li>Mature LCA, V&amp;V plans</li> <li>Mature TEA w/ risk analysis</li> <li>Technical V&amp;V data &amp; plans</li> <li>Project completion testing</li> </ul>	<ul style="list-style-type: none"> <li>Periodic TEA &amp; LCA updates</li> <li>V&amp;V data collection &amp; analysis</li> <li>Project completion testing &amp; performance</li> </ul>	<ul style="list-style-type: none"> <li>Validated performance model</li> <li>LCA &amp; TEA incorporating operational data</li> <li>Ongoing data collection &amp; dissemination</li> </ul>

# Phased Approach to Project Management

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



# Build America, Buy America (BABA)

- The BIL's BABA provisions provide a new Made in America requirement for financial assistance awards, whether funded through the BIL or appropriations:
  - “None of the funds made available for a Federal financial assistance program for infrastructure may be obligated for a project unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States”
- DOE may waive the application of a Buy America preference on a project if:
  - It is in the public interest
  - Items are not available in sufficient quantities or satisfactory quality
  - Costs are unreasonable (>25%)
  - An urgent need in an unforeseen and exigent circumstance (waiver of public notice and the OMB review process)



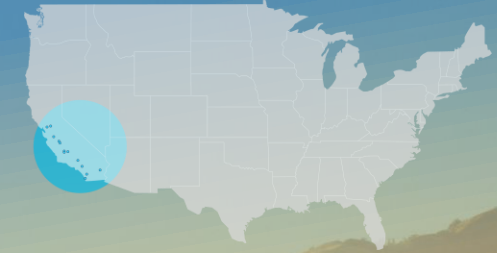


# California Hydrogen Hub



# California Hydrogen Hub

Selectee: 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**

## Midstream

- **Freight network between California & Pacific Northwest Hub**
- **Hydrogen fueling stations**

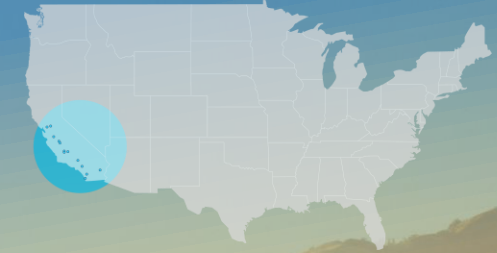
## End Uses

- **Backup power generation**
- **Heavy duty vehicles**
- **Port equipment**
- **Public transit**



# California Hydrogen Hub

Selectee: Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)



## Community Benefits - Highlights



Creation of 220,000 jobs, including 130,000 construction jobs, and 90,000 permanent jobs.



Inclusion of independent monitoring and a CBP scorecard with monetary penalties for noncompliance.

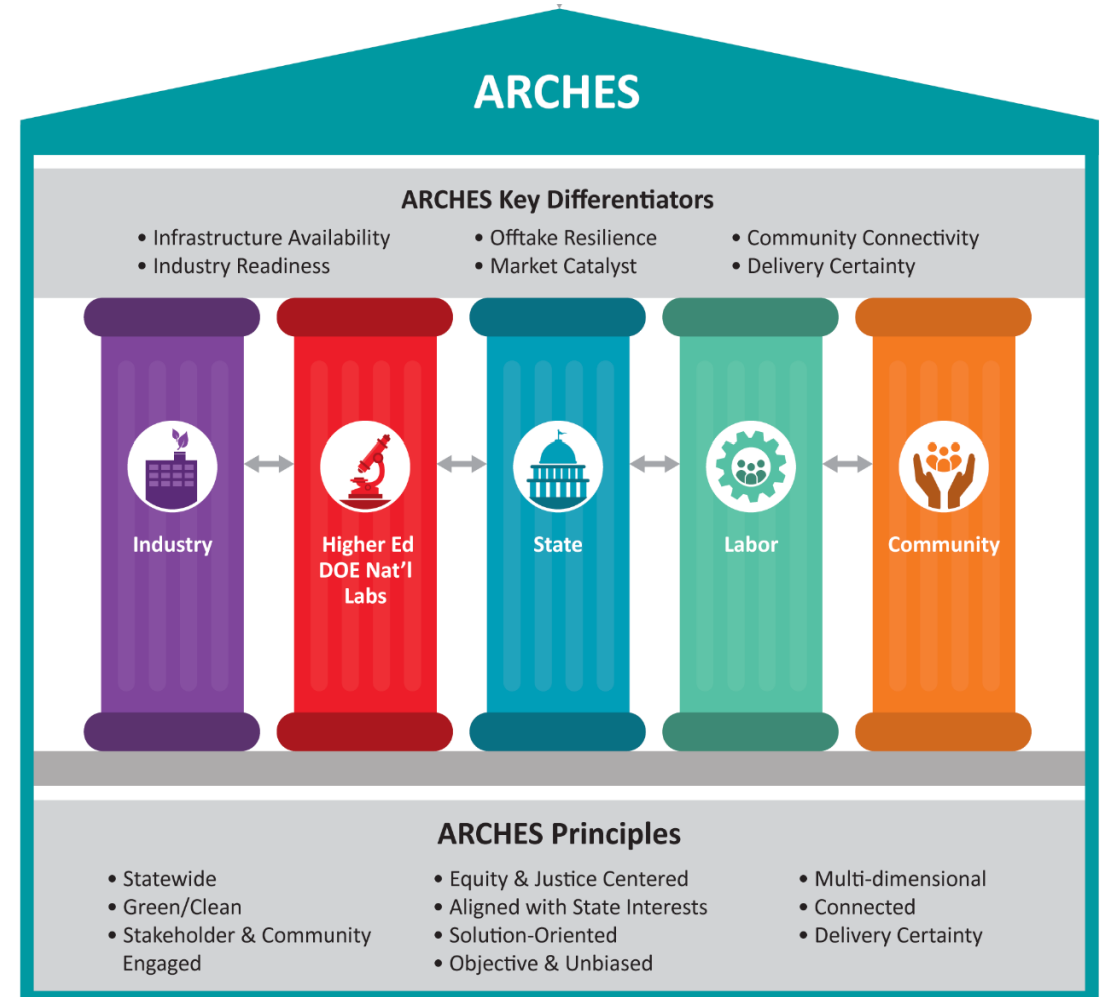


Committed to requiring Project Labor Agreements (PLAs) for all projects connected to the Hub.

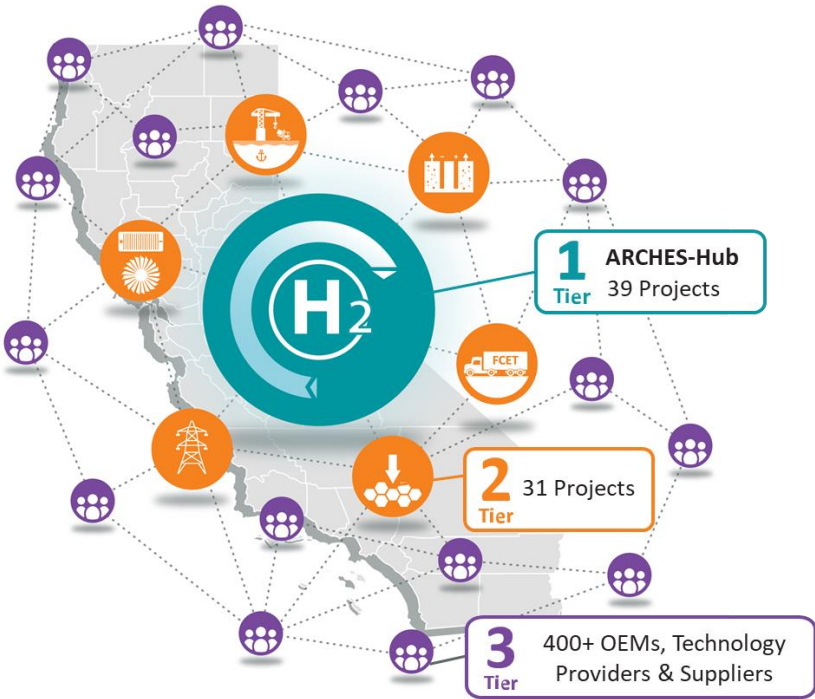
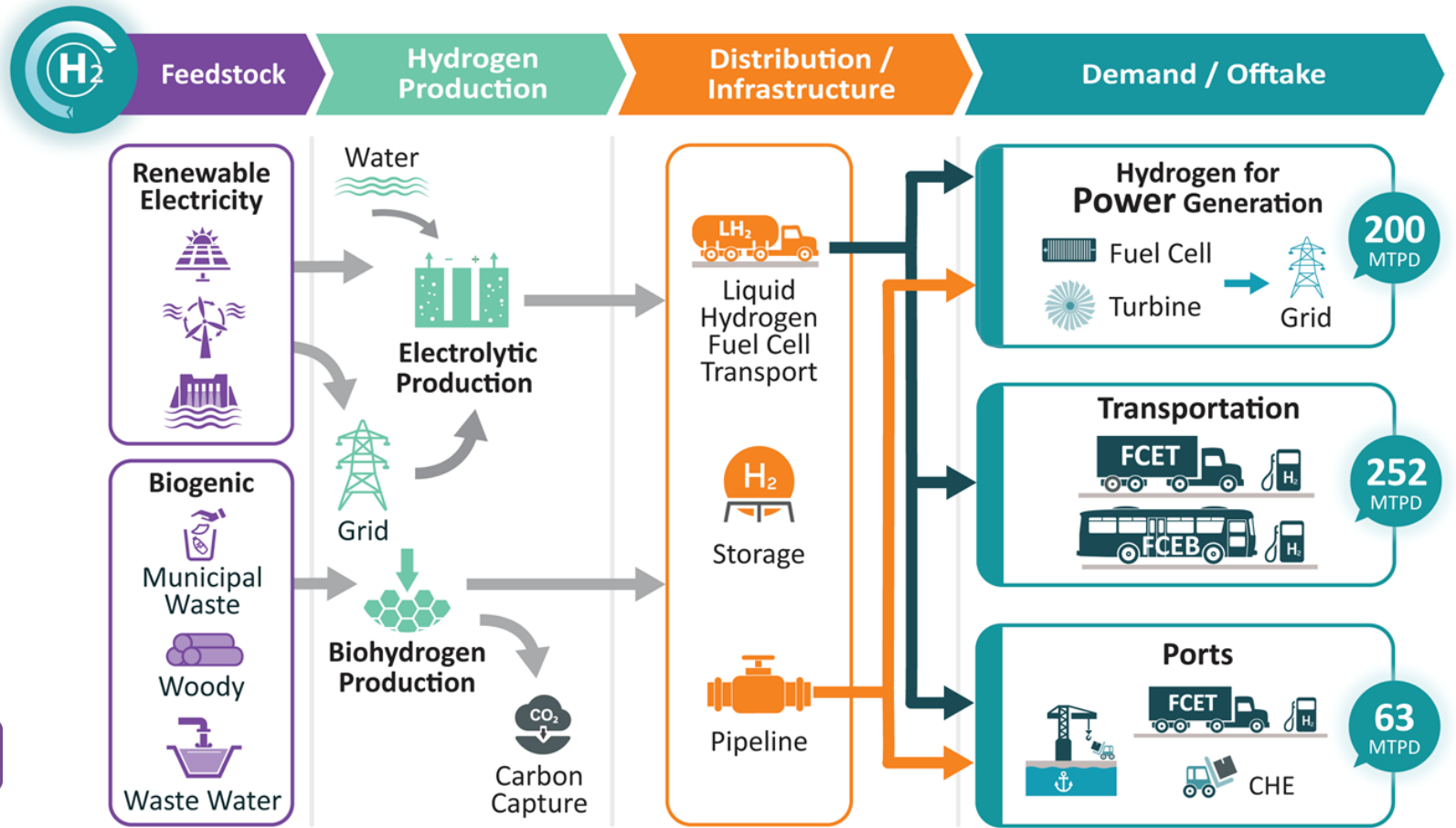
# ARCHES Mission

- ARCHES is a public-private partnership to create a sustainable statewide renewable, clean hydrogen (H2) market and ecosystem in California and beyond
- ARCHES utilizes renewable resources to produce hydrogen with the objective to fully decarbonize the regional economy
- ARCHES prioritizes:
  - Environmental Justice
  - Equity
  - Economic Leadership
  - Workforce Development
  - Hydrogen Market Viability

## US Department of Energy

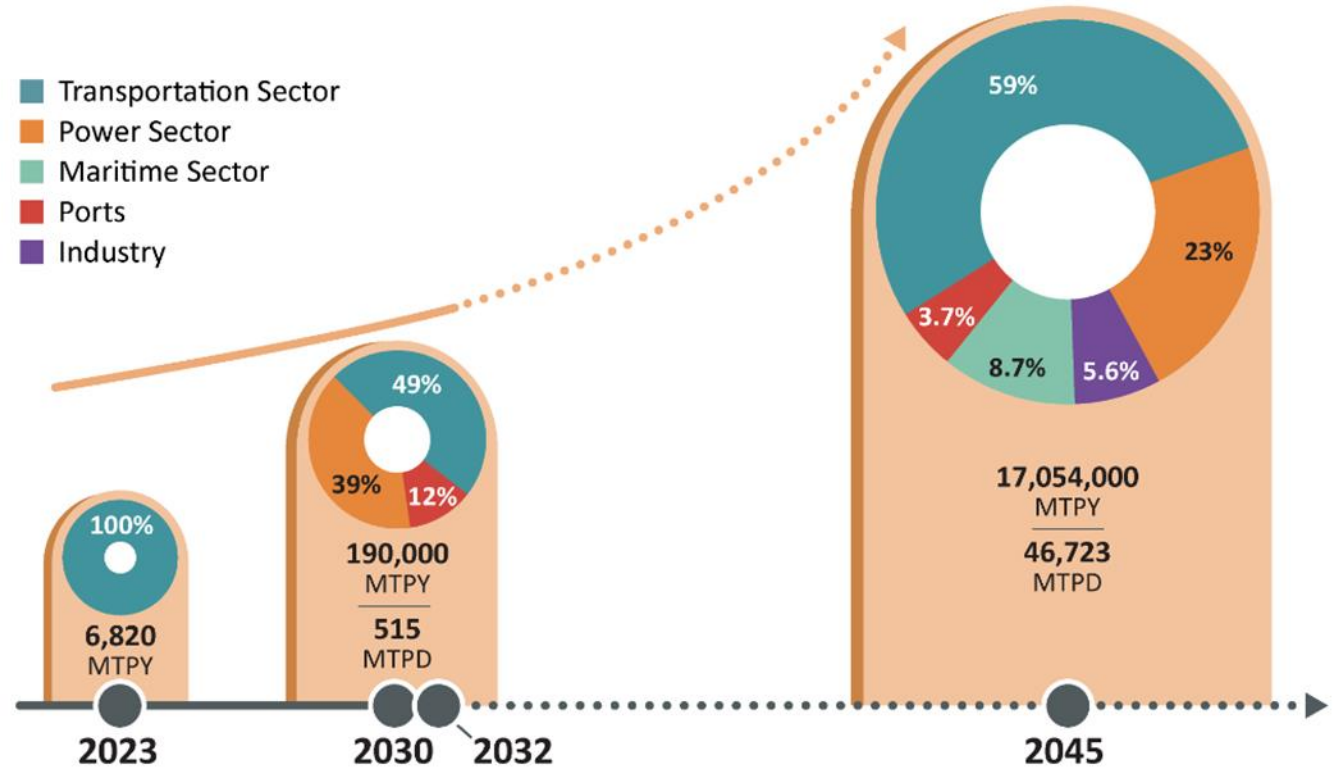
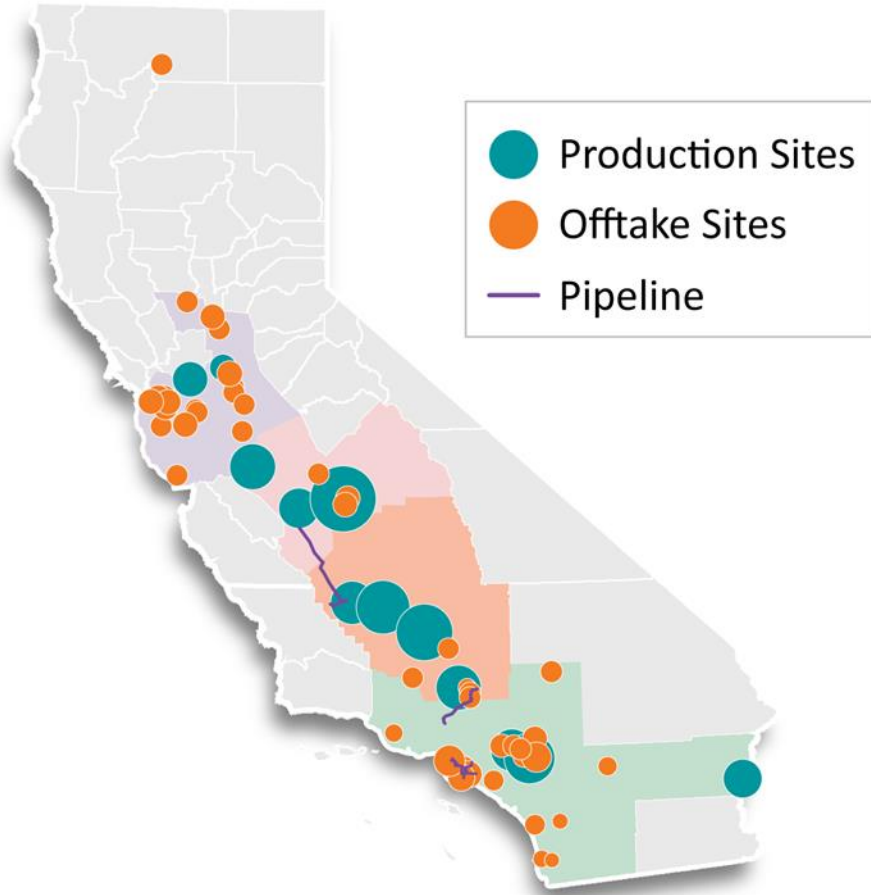


# ARCHES Projects

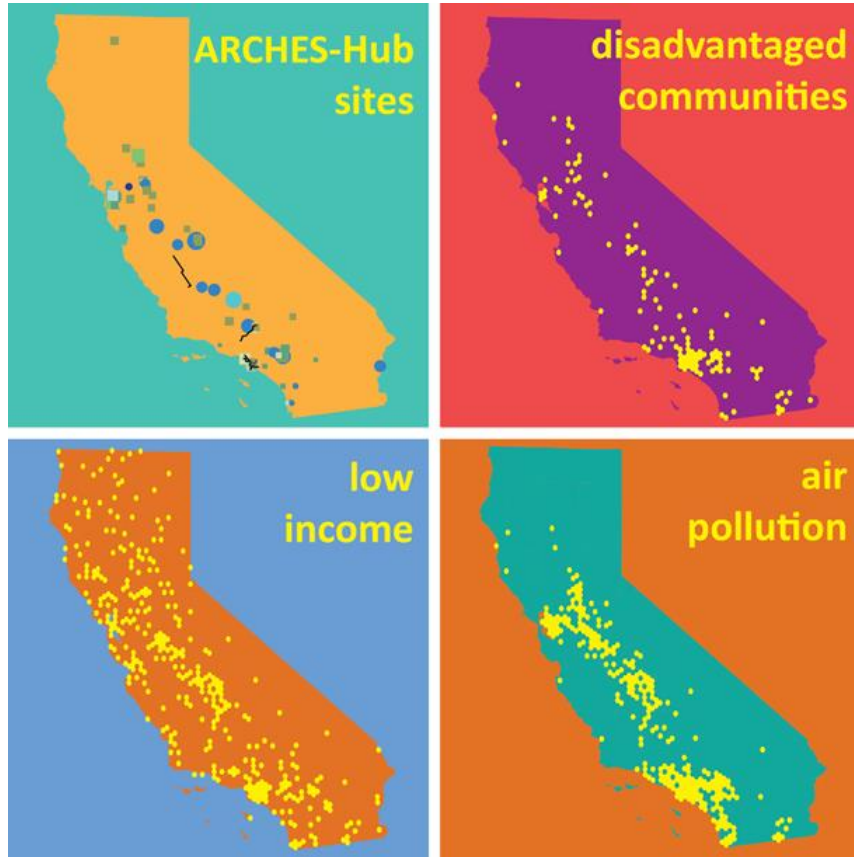


Tier 1 = w/DOE funding  
 Tier 2 = w/o DOE funding

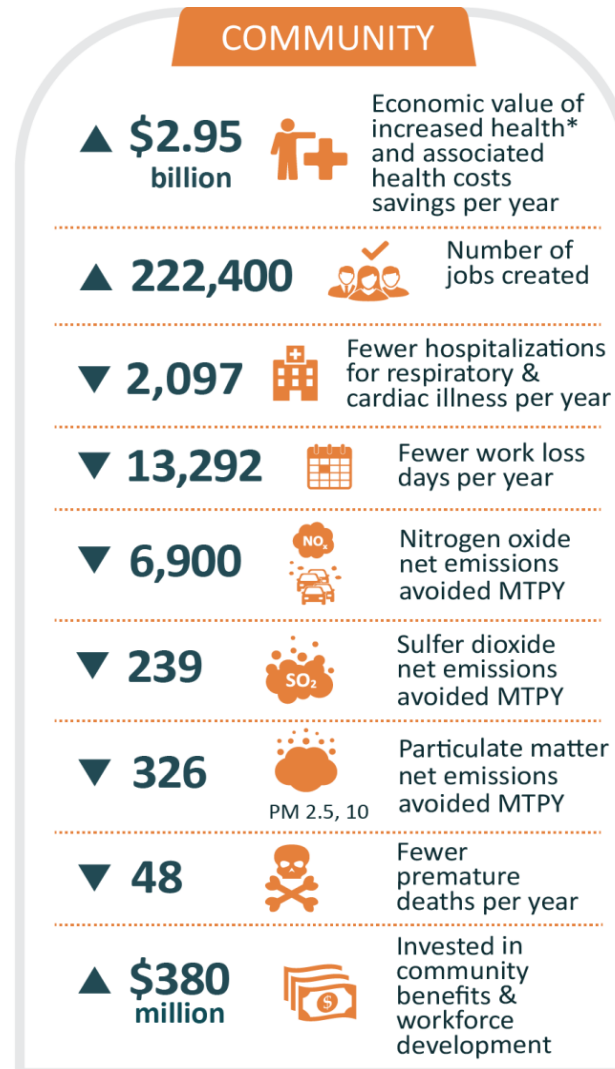
# ARCHES Systems Approach Initiates Large Future Growth and Opportunities



# Community Benefits: Engagement



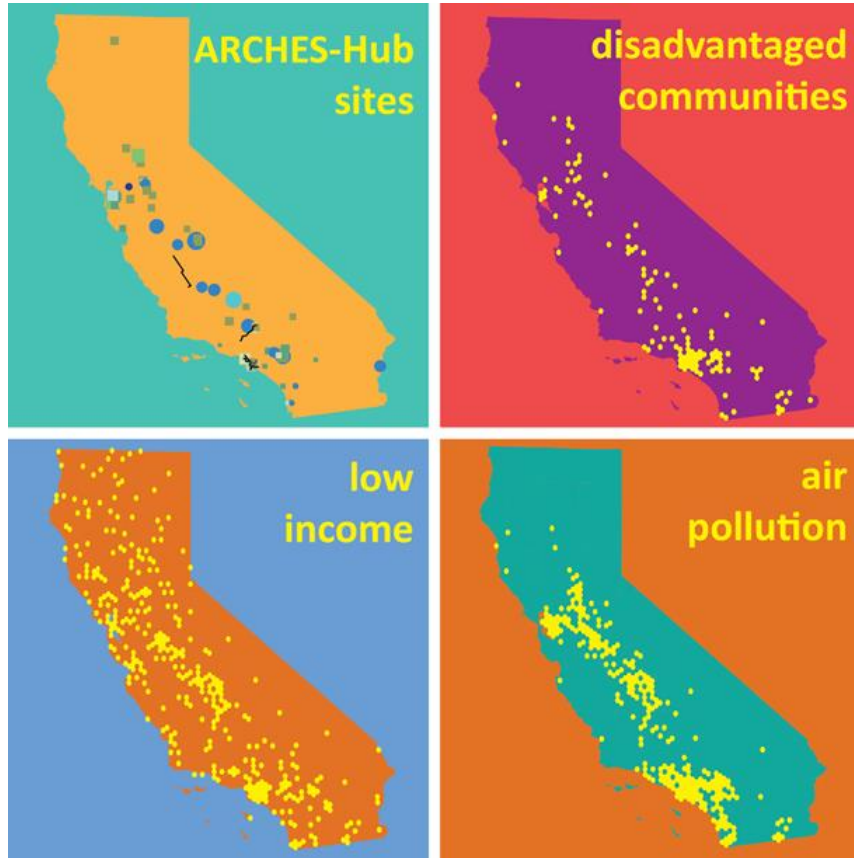
\*EJ40 database and CalEnviroScreen



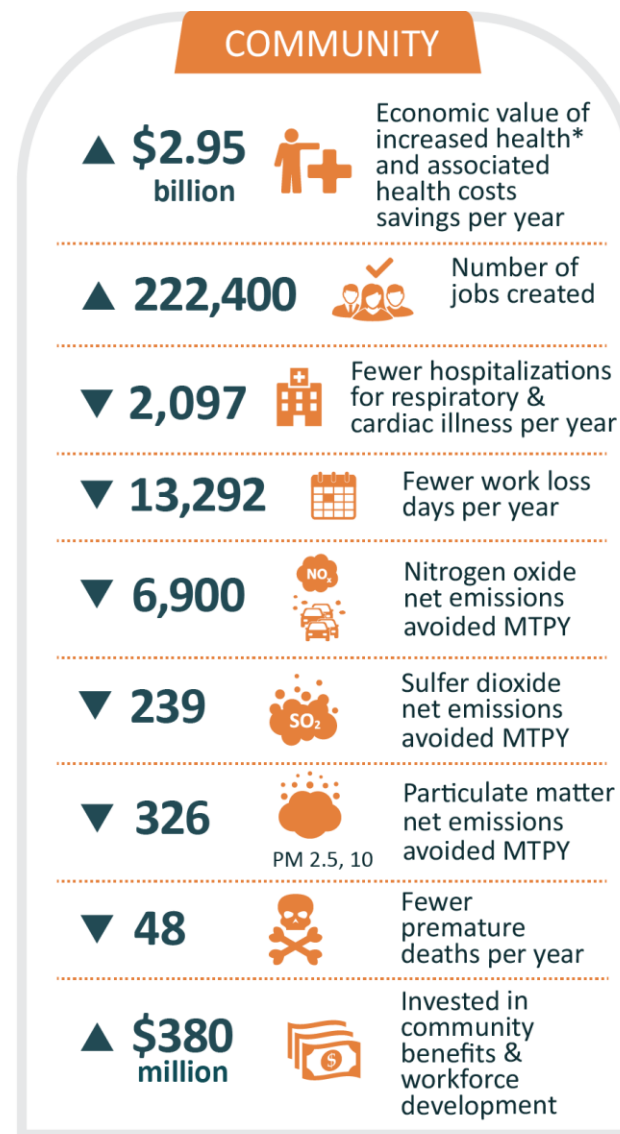
\*Reduced premature death, asthma, cancer risk, missed work days

- Community benefits plan for every project: 1% of project budget
- Independent Community Benefits Monitoring Team reporting to the Board w/accountability and enforcement mechanisms
- \$150M in direct community benefits
- Community benefits scorecard for assessing project success
- Tribal, Community, and Environmental/NGO representation on the board
- Weekly community engagement meetings

# Community Benefits: Workforce



\*EJ40 database and CalEnviroScreen



\*Reduced premature death, asthma, cancer risk, missed work days

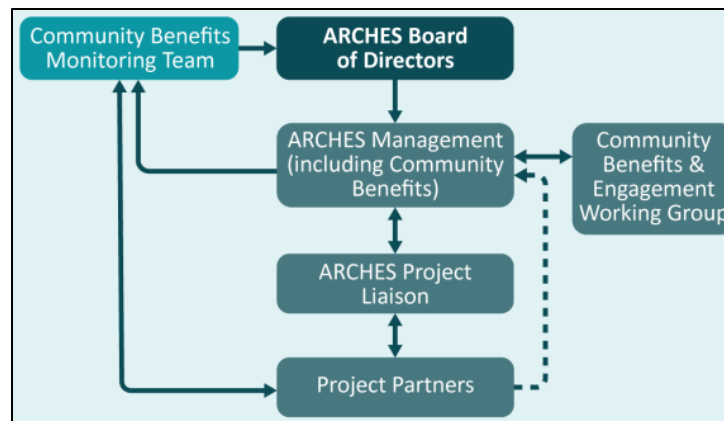
- Community benefits plan for every project: 1% of project budget
- Labor is a full partner in ARCHES and represented on the board
- \$229M for workforce development
- Project Labor Agreements required for every project
- Comprehensive workforce development plan with training at all levels: Higher Ed, Trades, High Schools
- Over 200,000 new clean, green family-supporting jobs created

# ARCHES Community Benefit Plan (CBP)

## Highlights of ARCHES' CBP

- Tribal, community, environmental, and NGO representation on the board
- Project Labor Agreements required for every project
- 1% of each project's total cost (\$150M for community benefits and \$229M for workforce/education)
- Independent Community Benefits Monitoring Team with clear enforcement mechanisms
- 300 active partners including civic, public/private utility, industry, transportation, aviation, and maritime)

## Major CBP Components and Roles



### ARCHES Projected Benefits:

- \$2.95B/yr health cost savings
- 6,900 tonnes less NOx/yr
- 326 tonnes less PM<sub>10</sub> and PM<sub>2.5</sub>/yr
- 222,400 new jobs
- 13,292 fewer days of work lost/yr
- 2,097 fewer hospitalization/yr
- 48 fewer premature deaths/yr

## Early Engagement Activities

- Numerous leadership meetings with ARCHES founding organizations and potential partners
- CA Senate Select Committee on Hydrogen
- City Council meetings, e.g., with Oakland, Long Beach, Carson: resolutions discussed and approved to join ARCHES
- Workshops on ARCHES at several UC Campuses
- Meetings with various coalitions and clusters of EJ groups specifically addressing concerns
- Interviews with over two dozen community-based orgs, EJ, CB, and DEI experts
- Meetings with numerous organizations, e.g., Move LA, Harbor CB Foundation, Green Hydrogen Coalition
- Open community forums on ARCHES with EJ groups, community advocates and members, every 2 weeks since Fall 2022
- Targeted workshops dedicated to business collaborations
- Workshops with segments dedicated to working with industry, partners, and community advocates and EJ groups.
- ARCHES Launch: 2-day meeting and workshop sessions on 10/6/22