

DOCKETED

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CA's Clean Hydrogen Market Development

IEPR Workshop

September 8, 2023

California Governor's Office of Business & Economic Development (GO-Biz)





**H2 Market
Development
Strategy**





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



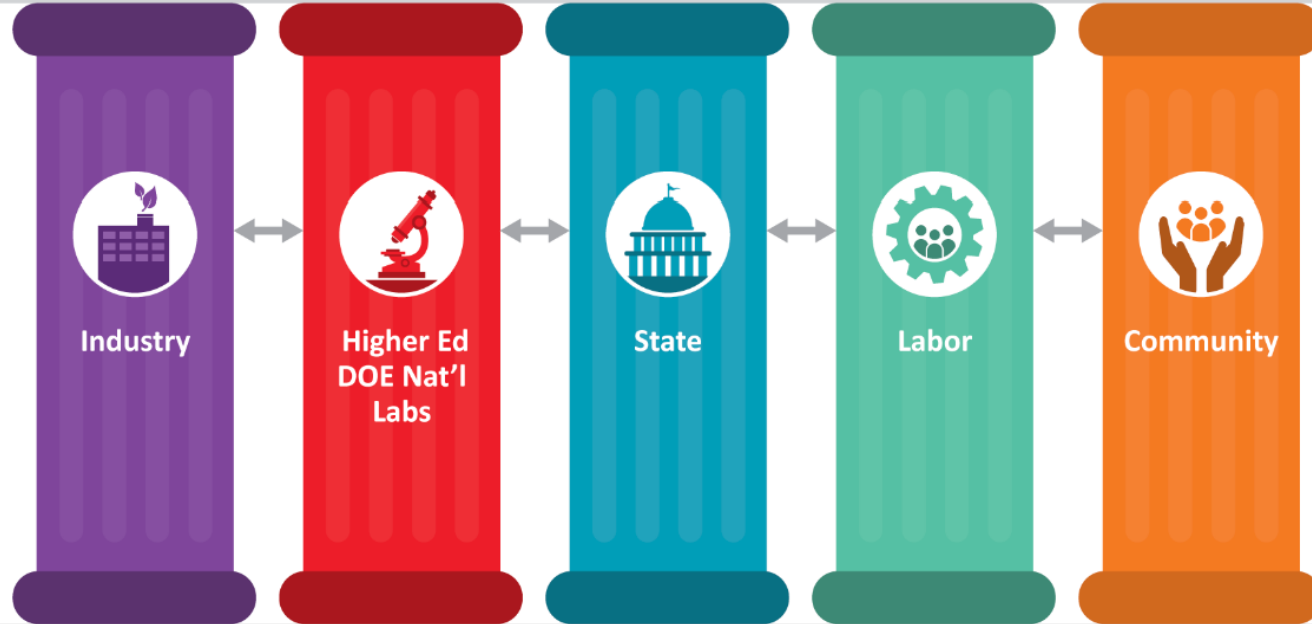
ARCHES Goals

- Establish an exemplary **renewable, clean H₂ Hub in California region by 2030**
- Kickstart **commercial viability of H₂**
 - ❑ Focus on hard-to-decarbonize sectors: **Ports, Power, HD Transportation**
 - ❑ Initiate expansion to: **Heavy Industry, Aviation, Maritime, Agriculture, and others**
- Ramp production/offtake of renewable, clean H₂ from **30 tonnes per day (TPD) to 500+ TPD** by 2030
- Produce **measurable benefits** for California communities, with **robust monitoring**, and **strong accountability**
- Develop a **H₂ workforce** for California, and a **H₂ workforce development model** for the nation
- **Meet CA and National carbon neutrality goals**

ARCHES

ARCHES Key Differentiators

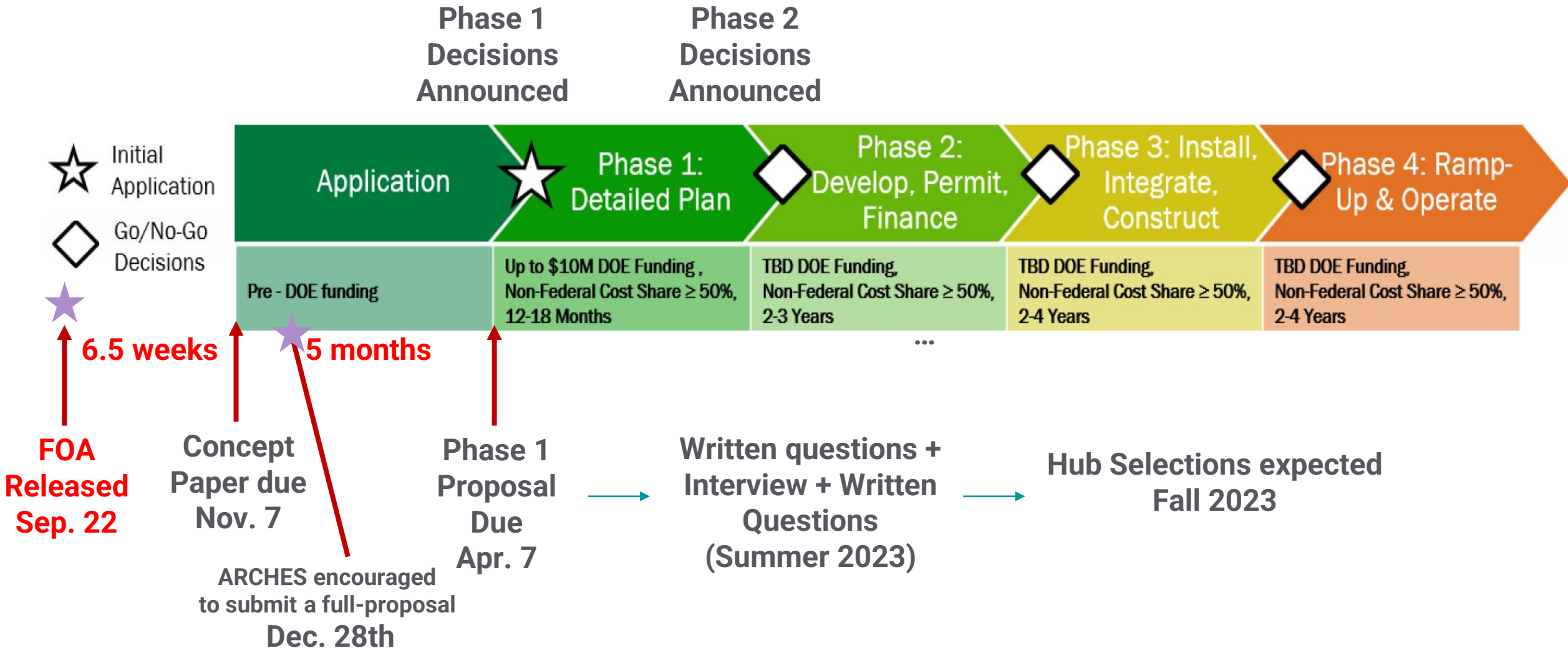
- Infrastructure Availability
- Industry Readiness
- Offtake Resilience
- Market Catalyst
- Community Connectivity
- Delivery Certainty



ARCHES Principles

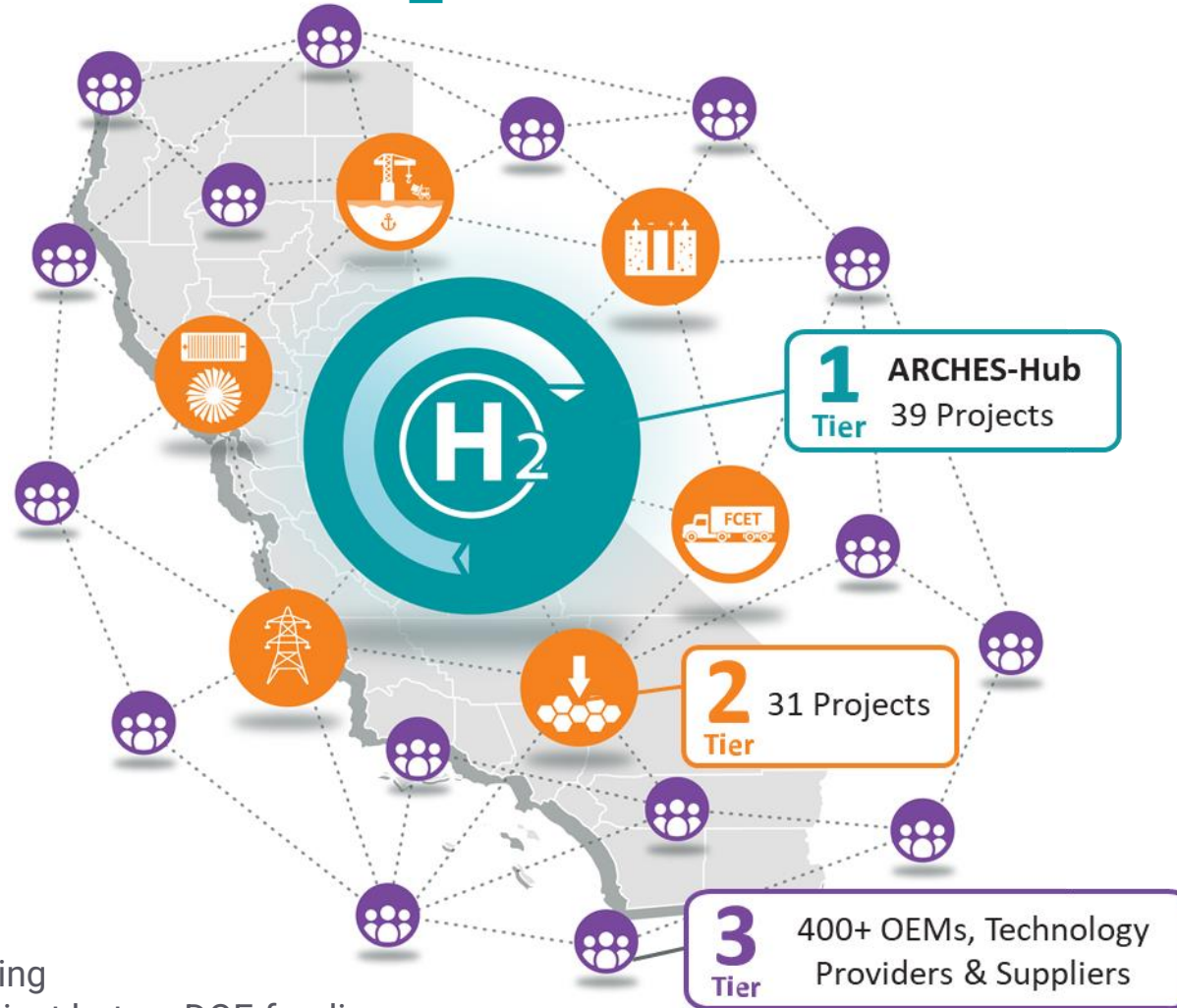
- Statewide
- Green/Clean
- Stakeholder & Community Engaged
- Equity & Justice Centered
- Aligned with State Interests
- Solution-Oriented
- Objective & Unbiased
- Multi-dimensional
- Connected
- Delivery Certainty

DOE Project Phases and Timeline





The Resilient H₂ Ecosystem for California



Tier 1 = DOE funding

Tier 2 = viable project but no DOE funding

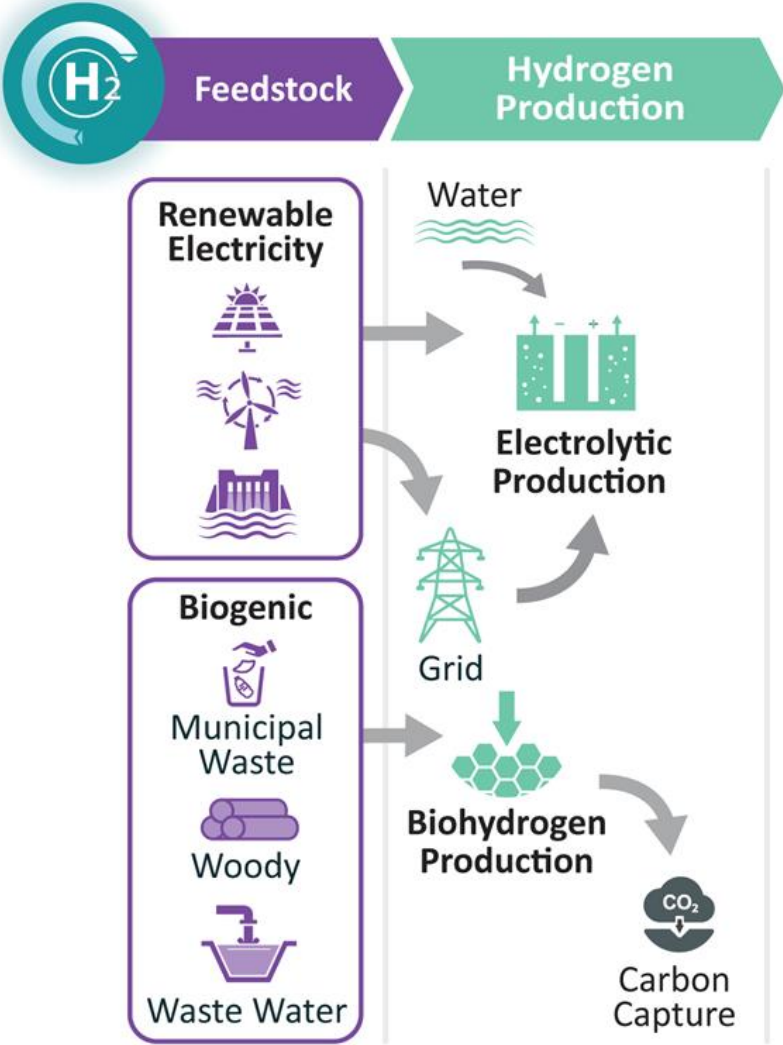


ARCHES Hydrogen Flow



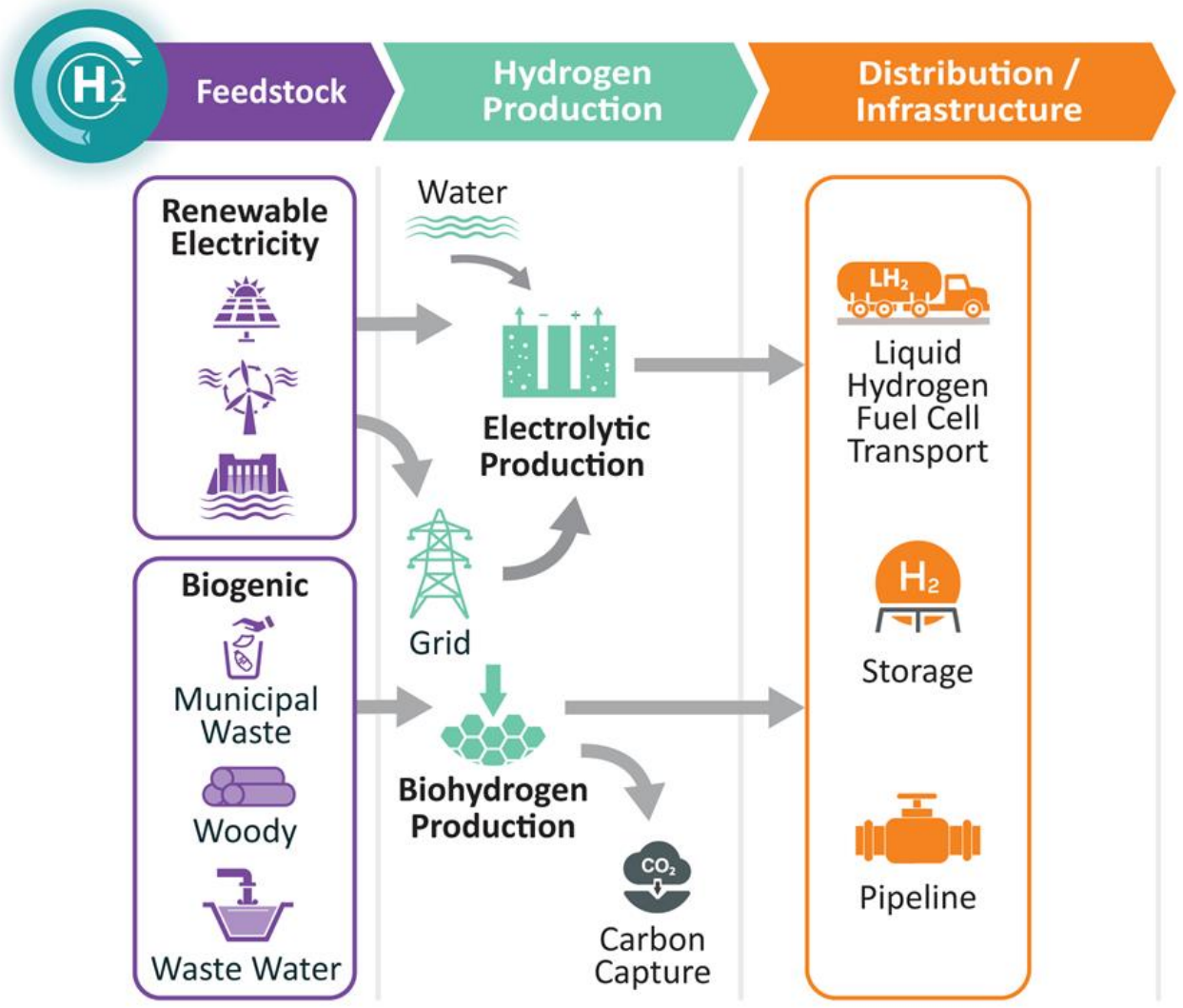


ARCHES Hydrogen Flow



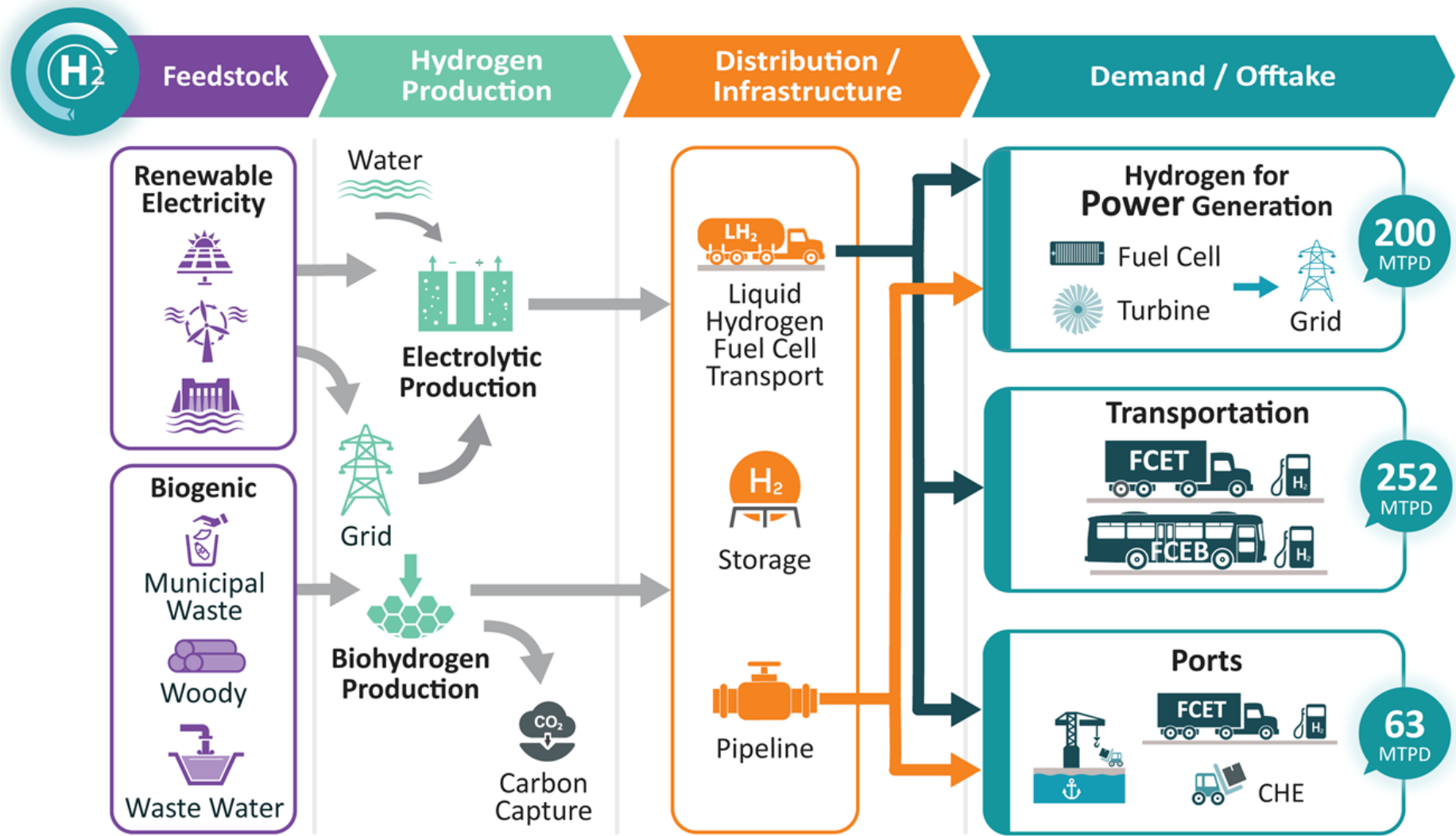


ARCHES Hydrogen Flow



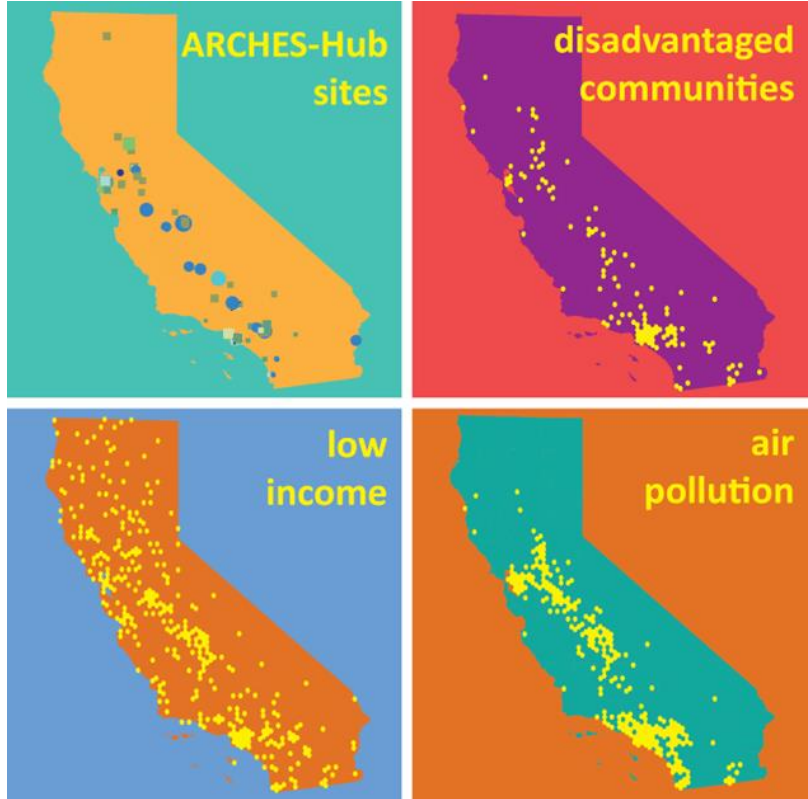


ARCHES Hydrogen Flow





Communities Will Benefit



*EJ40 database and CalEnviroScreen

COMMUNITY

- ▲ **\$2.95 billion** Economic value of increased health* and associated health costs savings per year
- ▲ **222,400** Number of jobs created per year
- ▼ **2,097** Fewer hospitalizations for respiratory & cardiac illness per year
- ▼ **13,292** Fewer work loss days per year
- ▼ **6,900** Nitrogen oxide net emissions avoided MTPY
- ▼ **239** Sulfur dioxide net emissions avoided MTPY
- ▼ **326** Particulate matter net emissions avoided MTPY
- ▼ **48** Fewer premature deaths per year
- ▲ **\$380 million** Invested in community benefits & workforce development

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

Governor Newsom Announces New Strategy to Develop a Hydrogen Economy of the Future

Published: Aug 08, 2023

SACRAMENTO – Governor Gavin Newsom has [directed](#) the Governor’s Office of Business and Economic Development (GO-Biz) to develop California’s Hydrogen Market Development Strategy, employing an all-of-government approach to building up California’s clean, renewable hydrogen market. It will closely resemble the [Zero-Emission Vehicle Market Development Strategy](#) to help California collectively move forward and deliver zero-emission benefits to all Californians.

“California is all in on clean, renewable hydrogen – an essential aspect of how we’ll power our future and cut pollution,” **said Governor Newsom**. “This strategy will lay out the pathway for building a robust hydrogen market to help us fully embrace this source of clean energy.”

WHY IT’S NEEDED:

- Expanding the market for clean, renewable hydrogen is key to achieving California’s climate goals – especially for a clean electric grid, net-zero carbon emissions, and drastically cutting air pollution.
- California is currently competing to become a federally funded [Hydrogen Hub](#), a program that will leverage \$8 billion from the Bipartisan Infrastructure Law to establish at least four Hydrogen Hubs across the United States.

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H2 Strategy North Star:

Leverage hydrogen to accelerate clean energy deployment and decarbonize our transportation and industrial sectors

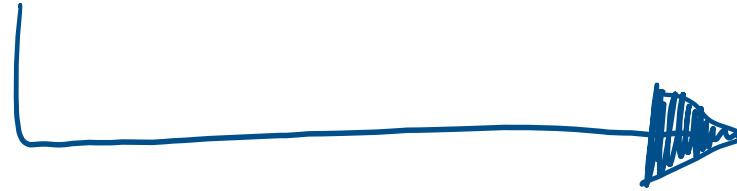


H₂ Market Development Strategy:

Why? When?	C-Neutral by 2045 (AB 1279)
What?	2022 Scoping Plan
How? Who?	H ₂ Market Development Strategy — SB 1075 — SB 643 — — IEPR — SB 671 — — ARCHES White Papers etc.
Model	ZEU Market Development Strategy

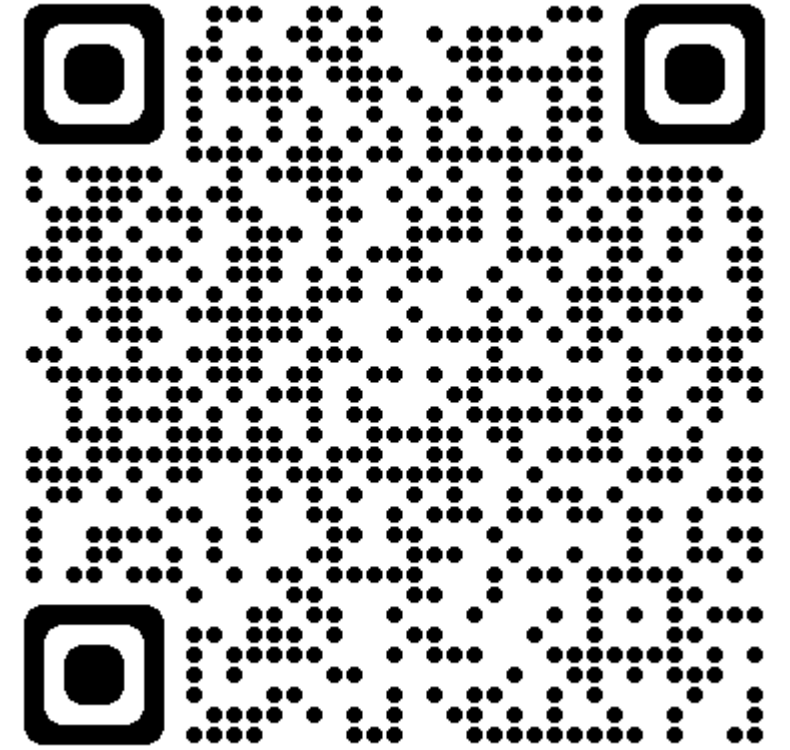
Agency Objectives; Stakeholder Roles, etc.

H2 Market Development Survey



For more information:

<https://business.ca.gov/industries/hydrogen/>



[GO-Biz Hydrogen Market Development Strategy Input Form \(smartsheet.com\)](https://business.ca.gov/industries/hydrogen/)

We need partnership to succeed...



The background features a light green gradient with several large, glossy green spheres. A clear glass tube connects two of these spheres, one positioned higher and to the left, and another lower and to the right. The overall aesthetic is clean and modern, suggesting a focus on technology or science.

Thank You!

Tyson Eckerle

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916-322-0563