

Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)

Board of Water Commissioners
September 29, 2022



What is ARCHES?

ARCHES



Renewables 100
Policy Institute



- Formed to organize California's:
 - Hydrogen producers
 - Consumers
 - Local connective infrastructure
- Develop clean energy
- Compete for \$8 billion investment by the United States Department of Energy

Alignment with LBWD Mission



- LBWD delivers high quality and safe drinking water to the City of Long Beach and manages wastewater collection in an environmentally responsible manner while continually providing exceptional customer service

Federal Investment

- The US. Department of Energy **\$8 billion** announcement
- Most hydrogen produced in the U.S. comes from natural gas
- The DOE's forthcoming investment intends to encourage hydrogen production from renewable energy sources including solar and wind

DOE Launches Bipartisan Infrastructure Law's \$8 Billion Program for Clean Hydrogen Hubs Across U.S.

JUNE 6, 2022



[Energy.gov](#) > DOE Launches Bipartisan Infrastructure Law's \$8 Billion Program for Clean Hydrogen Hubs Across U.S.

Nationwide Network of Regional Hydrogen Hubs Will Create Good-Paying Jobs and Jumpstart America's Clean Hydrogen Economy

WASHINGTON, D.C. — The U.S. Department of Energy (DOE) today released a Notice of Intent (NOI) to fund the Bipartisan Infrastructure Law's \$8 billion program to develop regional clean hydrogen hubs (H2Hubs) across America. H2Hubs will create networks of hydrogen producers, consumers, and local connective infrastructure to accelerate the use of hydrogen as a clean energy carrier. The production, processing, delivery, storage, and end-use of clean hydrogen, including innovative uses in the industrial sector, is crucial to DOE's strategy for achieving President Biden's goal of a 100% clean electrical grid by 2035 and net-zero carbon emissions by 2050.

State Investment

- The Governor signed the California's FY 23 budget, and included **\$5 million** for ARCHES

[Approved by Governor September 6, 2022. Filed with Secretary of State September 6, 2022.]

LEGISLATIVE COUNSEL'S DIGEST

AB 179, Ting. Budget Act of 2022.

The Budget Act of 2022 made appropriations for the support of state government for the 2022–23 fiscal year.

This bill would amend the Budget Act of 2022 by amending, adding, and repealing items of appropriation and making other changes.

This bill would declare that it is to take effect immediately as a Budget Bill.

Appropriation: yes.

The people of the State of California do enact as follows:

SECTION 1. Item 0250-001-0001 of Section 2.00 of the Budget Act of 2022 is amended to read:

0250-001-0001—F

Schedule:

(1) 0130-Sup

(2) 0135-Cou

(3) 0140-Judi

(4) 0155-Hab

ter.....

(5) Reimburs

Council...

(6) Reimburs

neal

fiscal year.

7. Of the amount provided in Schedule (1), \$5,000,000 shall be available for a grant to the **Alliance for Renewable Clean Hydrogen Energy Systems** for activities related to establishing a federally-funded hydrogen hub in California.

SECTION 2. Item 0500-102-2308 of Section 2.00 of the

Local Support

- The Long Beach City Council unanimously requested the City and Port of Long Beach to join ARCHES



Date: July 12, 2022

To: Honorable Mayor and Council

From: Councilwoman Cindy Allen, Second District
Vice Mayor Rex Richardson, Ninth District
Councilwoman Mary Zendejas, First District

Subject: Resolution of support for the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)

RECOMMENDED ACTION:

Request the City Attorney to draft a resolution expressing the City of Long Beach's support for the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) initiative as it applies for federal Hydrogen Hub designation and funding, and;

Direct the City Manager to coordinate with all relevant City Departments to join the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) public private partnership initiative with the objective of creating a winning Hydrogen Hub proposal for California, and;

Request the Port of Long Beach's Harbor Commission, within 60 days, to review and formally consider joining the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) public private partnership initiative with the objective of creating a winning Hydrogen Hub proposal for California.

DISCUSSION:

The City of Long Beach (City), together with the Port of Long Beach, along with the numerous industry and utility partners operating within the territory of Long Beach, are committed to a long-term vision of deep decarbonization and pollution reduction in the City and especially along the 710-freeway corridor and the Port complex. In November 2017, the Port of Long Beach approved the updated San Pedro Bay Ports Clean Air Action Plan (Ports' CAAP) in partnership with the Port of Los Angeles. This plan provides guidance to help the region achieve its clean air goals and to support the statewide vision for more sustainable freight movement with the ultimate goal of zero emissions goods movement. The Ports' Clean Air Action Plan outlines near-term and long-term strategies, which are in part dependent on new and emerging technologies,

Local Support

- The City of Long Beach will be hosting ARCHES' formal announcement of intent to compete for federal funding



SAVE THE DATE

ARCHES



California Hydrogen Hub Launch
October 6, 2022

City of Long Beach Civic Center
411 W. Ocean Blvd, Long Beach, CA



CITY OF
**LONG
BEACH**



Long Beach Water

- Demonstrated commitment to energy efficiency
 - Battery backup generation at the Water Treatment Plant
 - 32nd Street Booster Station upgrades to more energy efficient equipment
 - New groundwater wells, more efficient at pumping water than legacy wells and therefore more energy efficient
 - LBWD water conservation programs reduce energy consumption in water across the board, both outdoors and indoors



Long Beach Water

- Unique opportunity to lead on clean energy in the water industry
- Engage with research institutions, regulators and industries as clean hydrogen is developed
- Invaluable learning opportunity to inform future decisions

Request

- Execute Memorandum of Cooperation with ARCHES for the purposes of informing future energy efficiency and clean energy work



Memorandum of Commitment

Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)

The purpose of this Memorandum of Cooperation ("MOC") is to establish a common framework for cooperation for organizations who wish to join the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES). Signatory organizations are individually referred to as "Participant" and collectively as "Participants".

In particular, this MOC discusses collaboration by interested organizations to engage with the Governor's Office of Business and Economic Development (GO-Biz), the University of California Office of the President (UCOP), and other cooperating organizations in ARCHES to build a collaborative ecosystem of technology, policy, community, and finance partners in California and develop a robust proposal for a United States Department of Energy ("DOE") co-funded Regional Clean Hydrogen Hub.¹

SECTION I: MISSION

ARCHES is a public-private partnership to create a sustainable statewide clean hydrogen (H₂) hub in California, utilizing local renewable resources to produce hydrogen with the objective of fully decarbonizing the regional economy, while prioritizing environmental justice, equity, economic leadership and workforce development.

SECTION II: PRINCIPLES

ARCHES is **Statewide**: Leveraging California's size and diverse geography and economy to produce, transport, store, and use H₂ at scale, providing an ideal H₂ test-bed for the nation;

ARCHES is **Green**: California has long led the nation and the world in environmental innovation and policy and will do so again with clean H₂;

ARCHES is **Stakeholder and Community-Engaged**: Built-in and ensured at all stages of the process;

ARCHES is **Equity and Justice Centered**: Prioritized in all decisions with a focus on California's impacted, disadvantaged, low-income, and tribal communities;

ARCHES is **Aligned with State Interests**: To move California toward a robust H₂ economy and marketplace, and a cleaner, greener future;

ARCHES is **Solution-Oriented**: Focused on implementation with targeted research and innovation to achieve the DOE's \$2/kg 5-year goal and the administration's \$1/kg 10-year goal;

ARCHES is **Objective and Unbiased**: Representing and ensuring the interests of all parties and stakeholders;

ARCHES is **Multi-Dimensional**: Considering all aspects of a successful H₂ economy;

ARCHES is **Connected**: Within and across California and other H₂ hubs.

¹ The Infrastructure Investment & Jobs Act (IIJA) appropriated \$8 billion for the five-year period encompassing fiscal years 2022 through 2026 for the development of Regional Clean Hydrogen Hubs. Basic information about this funding is available at: [Regional Clean Hydrogen Hubs | Department of Energy](#).



Agreements

ARCHES hereby acknowledges that: the hydrogen Hub lead for the State of California and is intended to be the only entity applying for a U.S. DOE-funded Hydrogen hub;

and principles shall guide all ARCHES activities;

the sole proposal manager for the State of California;

the University of California Office of the President, is the lead entity for the submission of the State of California's Hydrogen Hub concept paper, proposal to the US DOE;

ARCHES shall not work on any other Hydrogen Hub proposal for the State or with any other entity developing an alternative Hydrogen Hub proposal for the State, including preparing alternative concept papers, websites, or other social-related materials.

Signatures

_____ 1 month from the date of the signature.

_____ dated at any time by mutual written consent of the Participants. Any modification signed by Participants, and specify the date on which such modification is to

Participating ORGANIZATION)

Signature: _____

Date: _____



Long Beach Water

Exceptional Water • Exceptional Service