



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)

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**C-14**

**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;

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.



Subsequently, on January 5, 2021, the City approved its Climate Action and Adaptation Plan (City CAAP), which is committed to help reduce greenhouse gas (GHG) emissions, prepare the community for the impacts of climate change, improve the quality of life, and enhance economic vitality in Long Beach. The Environmental Impact Report for the City CAAP has been publicly reviewed and is coincidentally returning to the City Council for final approval contemporary with this ARCHES initiative resolution.

To reach the vision of a carbon free economy we understand that we will need a wide array of renewable resources, storage, and carbon free fuels such as green hydrogen, and that many processes and sectors cannot currently be decarbonized using existing battery electric technology.

Clean renewable (or 'green') hydrogen" is produced from 100% renewable resources, such as electricity from the sun, wind and water, to split hydrogen from water molecules. Green hydrogen is a key ingredient in a global response to the unexpectedly rapid rate of climate change caused by fossil fuels which impacts California and the world.

Green hydrogen can lessen the impacts on public health and environment of short-lived climate pollutants from fossil fuel production, consumption, and transport activities. With proper guardrails, green hydrogen can alleviate the disproportionate safety and pollution burdens experienced by frontline workers and communities surrounding transit corridors and ports, which have disproportionately borne adverse health impacts from industrial pollutants, toxicity and emissions. The goods movement industry disproportionately impacts people of color and Long Beach residents.

Green hydrogen offers enormous promise in advancing zero-carbon solutions and a replacement to diesel and natural gas, particularly for the most difficult-to-decarbonize industrial sectors, such as long-haul goods movement through trucking, shipping and aviation, heavy industry, long duration energy storage, and more.

In advancing carbon-free energy to produce green hydrogen, we can see gains in system reliability and resilience, create local jobs, secure our energy independence, and minimize supply chain disruptions, all while curbing climate change and growing the economy. Green hydrogen is also a promising source of next-generation workforce opportunities and high-skilled, high-paid jobs and careers.

However, similar to other renewable energy solutions in their infancy, such as solar and wind generation, along with battery storage, green hydrogen currently faces technical and social obstacles to broad adoption ranging from cost-competitiveness to capacity and



storage challenges, as well as lack of public awareness, acceptance and support, requiring additional government support and incentives.

The federal Bipartisan Infrastructure Law (BIL), enacted in 2021, mandates that starting in 2022 through 2027, \$8B will be made available to establish at least 4 regional public private partnership clean hydrogen hubs across the United States, with at least one focused on the use of renewable sources (solar, wind, etc.) to produce, store, and use clean (green) hydrogen. These private public partnership hubs will have to meet the goal of producing hydrogen for \$2/kg in the first 5 years and position the industry to reach the Hydrogen Earth-Shot Challenge (\$1/kg H<sub>2</sub> in 1 decade).

Clusters will prioritize significant renewable resources, availability of large scale H<sub>2</sub> off-takers, H<sub>2</sub> storage possibilities, key H<sub>2</sub> and clean energy transportation corridors, and coastal/port systems and other hard to decarbonize industries with a need for clean energy and reduced pollution.

To realize the goal of a green hydrogen hub in California, a consortium of key California institutional, private, community, labor and civic sponsors have come together to accelerate societal transition to a carbon free economy by charting a path to a viable green hydrogen solution based on renewable energy under the umbrella of the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) in response to the Federal Infrastructure Bill. This green hydrogen hub, ARCHES, would have deployment centers clustered in Southern California and the Bay Area, along with viable projects that also extend into the Central Valley and possibly neighboring states.

ARCHES is committed to addressing these challenges through an impactful statewide network, with broad stakeholder and community engagement. The ARCHES team aims to bring together public and private sectors, connecting State and local government, research institutions, organized labor, along with workforce education and development, private business, and nonprofit organizations through the strong lenses of environmental, social, and economic justice.

To realize this vision, ARCHES will ultimately bring together and engage different industries, academia, utilities, regional and state governments, unions, municipalities including Long Beach and Los Angeles, trade organizations, non-profits, and others. Only by bringing together all relevant parties can a unified large scale hydrogen vision and efficient, rapid deployment be realized, thereby allowing validation and quick promulgation of discoveries, experience, learnings and know-how.

The management and organization of ARCHES is by nature of a broad and complex scope, thereby requiring the establishment of a new public private partnership



organization familiar and experienced with large, complex governance structures, one which can also be agile, adaptable and holistic in its approaches.

Recently, on May 17, the Los Angeles City Council voted unanimously to direct “the Department of Water and Power and the Port of Los Angeles, in collaboration with other partners, to coordinate a local effort to create and submit a proposal to the Department of Energy proposing the Greater Los Angeles Metropolitan area for consideration to be a regional Green Hydrogen Hub to power hard-to-electrify industries, made from electrolysis of renewable energy.” The Council also directed that “the Department of Water and Power and the Port of Los Angeles should engage with potential collaborators in the public, private and academic sectors to further this regional effort to establish a local Green Hydrogen Hub, including the County of Los Angeles, the City of Long Beach, Los Angeles World Airports, the University of California, Green Hydrogen advocates, Labor, Investor Owned and Public Utilities, Environmental and Environmental Justice organizations, and other producers, end users, and potential collaborators.”

The City of Los Angeles’ motion addressed some environmental concerns surrounding NOx and water use by directing staff to “ensure the representation and input of frontline communities most and potentially impacted by any use of green hydrogen in any project(s) resulting from a successful federal grant application” and that their Bureau of Sanitation explore the use of reclaimed water to supply the necessary water for electrolysis with renewable energy.

As of the time of writing, the stakeholders committed to ARCHES as the State clean hydrogen proposal include the following:

- The University of California System
- LA and Orange County Building Trades
- IBEW-NECA
- Renewables 100 Policy Institute
- AES Corporation
- Berkshire Hathaway Energy

The Port of Long Beach has been engaging with the ARCHES coalition as well as other entities considering applying for the DOE funding.

In short, the City of Long Beach should be an integral part of the ARCHES discussions and development as this diverse and experienced public private partnership is built out and governance is designed. The City, and especially the Port of Long Beach, will be key stakeholders in the clean hydrogen hub development for production, storage, distribution, and use. Being a part of the planning process in its early stages could also help ensure that the development and deployment of new zero-emission hydrogen technologies addresses the concerns and needs of frontline environmental justice communities, and



that the City and Port of Long Beach help shape a regional hydrogen hub and are beneficiaries of funding.

This matter was reviewed by Budget Manager Grace H. Yoon on June 29, 2022.

**FISCAL IMPACT:**

For the City of Long Beach, except the Harbor Department, the requested action is anticipated to require a minimal level of staff hours beyond the budgeted scope of duties and a minimal impact on meeting other City Council priorities. For the Harbor Department, preliminary review by the Department indicate that engagement with any hydrogen hub proposal would likely involve a significant level of staff hours beyond the budgeted scope of duties and could reasonably be expected to have up to a moderate impact on existing City Council priorities. The Harbor Commission would ultimately be the approver of the Harbor Department's depth of involvement, and a full fiscal impact analysis would be conducted by their staff for their review. There is no local job impact associated with the recommendation.

**EQUITY LENS STATEMENT:**

Staff will consider issues of equity and access with any program proposals brought forward to ensure the City's commitment for everyone reaching their highest level of health and potential for a successful life, regardless of background, neighborhood, or identity.