



# AGENDA REPORT



**TO:** Honorable Mayor & City Council

**FROM:** Councilmember Kaplan,  
At-Large & President Pro Tem  
Kalb, District 1

**SUBJECT:** Oakland Hydrogen Hub

**DATE:** 1/26/23

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## **RECOMMENDATION**

**Councilmembers Kaplan and Kalb Recommend That The City Council Adopt a Resolution:**

- 1. Supporting The Alliance For Renewable Clean Hydrogen Energy Systems (ARCHES) And Its Mission To Accelerate Green Hydrogen's Contribution To Decarbonizing The Economy In California;**
- 2. Highlighting Oakland's Leadership In Hydrogen Adoption And Requesting That Oakland Be Considered As A Location For A Potential Statewide Green Hydrogen Hub To Accelerate Hydrogen's Contribution To Decarbonizing The Economy Using Electrolysis Powered By Renewable Energy;**
- 3. Declaring The City's Intent To Enter Into A Memorandum Of Commitment (MOC) (Attached Hereto As Exhibit A) To Join ARCHES; And**
- 4. Authorizing The City Administrator To Execute The MOC And To Negotiate And Execute A More Formal Agreement With ARCHES H2 LLC On The City's Behalf**

## **EXECUTIVE SUMMARY**

In fall 2022, the Governor's Office of Business and Economic Development (GO-Biz) announced the formation of the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES), a shared not-for-profit LLC public-private partnership designed to accelerate hydrogen's contribution to decarbonizing the economy in California. To ensure the City of Oakland is an active collaborator in the State's effort to expand the use of clean hydrogen and stem the effects of climate change, this resolution highlights Oakland's leadership in hydrogen adoption, requests that Oakland be considered as a location for a potential statewide green hydrogen hub, and declares the City's intent to enter into a memorandum of commitment to join ARCHES. Participation in ARCHES would allow Oakland to build a healthier future, create local green jobs while reducing pollution, and transition to clean locally produced energy.

## **REASON FOR URGENCY**

This resolution bypassed the Community and Economic Development committee, as it is in the City's best interest to become a partner in the ARCHES network as soon as possible. This will open the City up to being eligible for Bipartisan Infrastructure Law: Additional Clean Hydrogen Programs: Regional Clean Hydrogen Hubs Funding, which is a time-sensitive matter due to federal application deadlines.

City Council  
February 7, 2023

## **BACKGROUND / LEGISLATIVE HISTORY**

On October 6, 2022, the Governor's Office of Business and Economic Development (GO-Biz) announced the formation of the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES), a shared not-for-profit LLC public-private partnership designed to accelerate hydrogen's contribution to decarbonizing the economy in California. ARCHES aims to establish a federally co-funded renewable hydrogen hub in California, and create an economically sustainable and expanding, renewable hydrogen market. As part of this effort, ARCHES will submit California's state-wide application for federal hydrogen hub funding administered by the U.S. Department of Energy (DOE) through the Bipartisan Infrastructure Bill (BIL), which made available \$8 billion for six to ten hubs nationally.

Oakland wishes to be considered as a potential location for a statewide green hydrogen hub to accelerate hydrogen's contribution to decarbonizing the economy. Oakland clearly exemplifies the priorities guiding ARCHES, leading the State in hydrogen adoption, collaborating across sectors and industries for hydrogen delivery, storage, and end-uses, developing and implementing policies that scale up early markets, and centering the voices from communities directly impacted by the harmful effects of mobile source emissions.

The City has a proven track record in utilizing public-private partnerships to leverage funding for important projects in hydrogen technology development. In 2021, the Center for Transportation and the Environment, in partnership with the City of Oakland and 15 other public and private organizations secured \$54 million to build and deploy 30 fuel cell electric trucks and a supporting hydrogen fueling station at the East Bay Municipal Utility treatment plant, adjacent to the Port of Oakland (Port). In addition, for more than 20 years, Alameda-Contra Costa Transit District (AC Transit) has been a leader in adopting and advancing zero-emission technology, mandating its entire bus fleet's transition to zero-emission by 2040.

## **REQUIRED LEGISLATIVE FOLLOW-UP**

If passed, this resolution would authorize the City Administrator to execute a Memorandum of Commitment (MOC) to negotiate and execute a more formal agreement to join the ARCHES network with ARCHES H2 LLC.

## **ANALYSIS AND POLICY ALTERNATIVES**

Hydrogen plays and will play a key role in decarbonizing hard-to-electrify sectors. However, not all hydrogen is produced from a renewable source, and currently, most hydrogen is produced from fossil fuels that create significant greenhouse gas emissions (GHGs). The City's mission in adopting hydrogen technology, therefore, focuses our efforts on producing, delivering, storing, and using 'green hydrogen.'

Colloquially, 'green hydrogen' is hydrogen gas produced through electrolysis powered solely by renewable electricity and does not include hydrogen gas manufactured using steam reforming or any other conversion technology that produces hydrogen from a fossil fuel feedstock. Oakland residents - specifically in West Oakland and the Flatlands - disproportionately feel the effects of air pollution caused by heavy-duty trucks throughout the Port and the East Bay. Part of the City's goal in joining ARCHES is to ensure the network takes clear action to promote and fund green hydrogen projects. This advocacy will

happen alongside environmental justice organizations that are led by Oakland residents in neighborhoods most directly affected by climate change.

### **FISCAL IMPACT**

A total of \$8 billion will be split among six to ten hubs nationally. Should Oakland join the ARCHES network and be chosen as a hydrogen hub in California, we open ourselves up to receiving a portion of the \$8 billion in federal funding.

### **PUBLIC OUTREACH / INTEREST**

During the legislative process, Councilmembers Kaplan and Kalb have engaged with a number of outside stakeholders in crafting this resolution. The City continues to collaborate with the Port of Oakland on existing hydrogen projects. The Port has already joined the ARCHES network, and City staff communicated with the Port to share our intent to also join ARCHES. In addition, Councilmembers interfaced with AC Transit and East Bay Community Energy to receive feedback on this resolution.

A coalition of environmental justice organizations also played a key role in crafting this legislation. Sierra Club, Earthjustice, and Communities for a Better Environment provided important feedback and suggestions on the resolution in regard to engagement with frontline communities, and the unique function of green hydrogen versus hydrogen produced from non-renewable sources.

### **COORDINATION**

The City Administrator will coordinate with the City Attorney's office in executing the MOC and formal agreement to join ARCHES.

### **SUSTAINABLE OPPORTUNITIES**

***Economic:*** Joining ARCHES and becoming a hydrogen hub would accelerate an already existing market for green hydrogen in Oakland, in addition to bolstering opportunities for hydrogen production, delivery, and storage. Oakland has a proven track record of leveraging public dollars to create impactful public-private partnerships and an economically sustainable and expanding hydrogen market.

Oakland also has a clear market for green hydrogen and would benefit from building out hydrogen fueling infrastructure. Producing hydrogen near Oakland's end markets is also cost-saving, more efficient, and better for the environment because hydrogen will not need to be transported over long distances.

***Environmental:*** Green hydrogen must play a role in eliminating carbon emissions from mobile sources, particularly for hard-to-electrify sectors such as aviation, heavy-duty trucking, rail, and marine transportation. Mobile sources, including all light-, medium-, and heavy-duty vehicles and other non-road vehicles, are the largest contributors to the formation of ozone, GHG emissions, fine particulate matter, and toxic diesel particulate matter. ARCHES' mission to accelerate hydrogen's contribution to decarbonizing the economy in California aligns with Oakland's goals and efforts to reduce the effects of GHGs and other air pollution on frontline communities.

***Race & Equity:*** In joining ARCHES, the City is committed to prioritizing environmental justice and centering the voices of communities who bear the disproportionate impacts of climate change. Utilizing

green hydrogen in hard-to-electrify sectors could help eliminate GHGs and criteria pollutants associated with vehicle operations in West Oakland communities that are directly affected by heavy-duty trucks moving to and from the Port.

According to a 2008 report by the California Air Resources Board (CARB), West Oakland residents are exposed to air concentrations of diesel pollution that are almost three times higher than average levels in the Bay Area, and 71 percent of air pollution risk was attributable to truck traffic. Bay Area Air Quality Management District (BAAQMD) Community Air Risk Evaluation (CARE) data and mapping show particulate matter emitted from diesel engines contributed more than 85% of the total inventoried cancer risk<sup>1</sup> which concentrates around East and West Oakland. Furthermore, the Alameda County Public Health Department found West Oakland residents and Downtown Oakland neighborhoods have higher rates of asthma-related emergency room visits as well as stroke and congestive heart failure compared to the rest of Alameda County.

The health and environmental impacts of pollution from truck traffic have clear and disproportionate impacts on East and West Oakland communities. Decarbonizing trucking in Oakland using green hydrogen technology will improve the health and quality of life for Oaklanders, especially for those who have historically borne the brunt of environmental impacts.

#### **ACTION REQUESTED OF THE CITY COUNCIL**

Councilmembers Kaplan and Kalb Recommend That The City Council Adopt a Resolution:

5. Supporting The Alliance For Renewable Clean Hydrogen Energy Systems (ARCHES) And Its Mission To Accelerate Green Hydrogen's Contribution To Decarbonizing The Economy In California;
6. Highlighting Oakland's Leadership In Hydrogen Adoption And Requesting That Oakland Be Considered As A Location For A Potential Statewide Green Hydrogen Hub To Accelerate Hydrogen's Contribution To Decarbonizing The Economy Using Electrolysis Powered By Renewable Energy;
7. Declaring The City's Intent To Enter Into A Memorandum Of Commitment (MOC) (Attached Hereto As Exhibit A) To Join ARCHES; And
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<sup>1</sup> See Page 2 of the Bay Area Air Quality Management District's [Community Air Risk Evaluation \(CARE\) Program Retrospective & Path Forward](#) (2004-2013)

For questions regarding this report, please contact Christine Miyashiro, Policy Director for Councilmember Kaplan, at [Cmiyashiro@oaklandca.gov](mailto:Cmiyashiro@oaklandca.gov).

Respectfully submitted,

Councilmember Kaplan  
At-Large

Council Pro Tem Kalb  
District 1

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Office of Councilmember At-Large Rebecca Kaplan

Attachments (1): Exhibit A, Memorandum of Commitment