



City of Arts & Innovation

City Council Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL **DATE: NOVEMBER 15, 2022**

FROM: CITY MANAGER'S OFFICE / OFFICE OF SUSTAINABILITY **WARDS: ALL**
PUBLIC UTILITIES DEPARTMENT
PUBLIC WORKS DEPARTMENT

SUBJECT: MEMORANDUM OF COMMITMENT WITH ALLIANCE FOR RENEWABLE CLEAN HYDROGEN ENERGY SYSTEMS FOR 24 MONTHS

ISSUE:

Approve participation in the Memorandum of Commitment with Alliance for Renewable Clean Hydrogen Energy Systems for 24 months.

RECOMMENDATIONS:

That the City Council:

1. Approve participation in the Memorandum of Commitment with Alliance for Renewable Clean Hydrogen Energy Systems for 24 months; and
2. Authorize the City Manager, or designee, to execute the Memorandum of Commitment and all documents necessary to participate, including the ability to make non-substantive changes, as well as to execute future extensions and amendments under substantially similar terms and conditions.

LEGISLATIVE HISTORY:

In 2006, the California legislature adopted Assembly Bill (AB) 32, which requires utilities in California to reduce their greenhouse (GHG) emissions to 1990 levels by the year 2020. The California Air Resources Board (CARB) would be required to prepare and approve a Scoping Plan that would address how the GHG reductions would be achieved and to update the Scoping Plan at least once every five years. In 2016, the Governor of California expanded on AB 32 by approving Senate Bill (SB) 32, which requires CARB to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 levels by 2030.

In 2011, the California Legislature adopted SB X1-2, which officially created the first set of tiered renewable portfolio standard (RPS) targets of 20% by 2013, 25% by 2016, and 33% by 2020. In 2015, the California Legislature adopted SB 350, also known as the Clean Energy and Pollution

Reduction Act of 2015, which further increased the RPS goal to 50% by 2030.

On January 26, 2018, the Governor issued Executive Order (EO) B-48-18 to increase the number of zero-emission vehicles in the state as part of CARB's Scoping Plan path for meeting the State's greenhouse gas emissions, air quality goals, and increasing zero-emission vehicles on the roads. In order to accomplish this, the EO mandated an increase in installation of zero-emission vehicle chargers and direct current fast chargers along with 200 hydrogen fueling stations by 2025. As part of the efforts, collaboration between the private sector, all appropriate levels of government, partnering with regional and local governments, and the Governor's Office of Business and Economic Development (GO-Biz) was seen as essential.

On September 10, 2018, the California Legislature adopted SB 100, which maintained the target of 33% RPS by 2020 and set compliance period targets of 44% by 2024, 52% by 2027, and 60% by 2030. SB 100 is also known as "The 100 Percent Clean Energy Act of 2018" because it created the policy of planning to meet all the State's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045.

On that same day, September 10, 2018, the Governor issued EO B-55-18 establishing a new statewide goal to achieve carbon neutrality by 2045 inclusive of the existing statewide targets of reducing greenhouse gas emissions. The initial starting point for this effort would be through CARB via future Scoping Plan updates to identify and recommend measures to achieve the carbon neutrality goal.

In 2020, EO N-79-20 was issued specific to the transportation sector. The EO established the goals that 1) 100% of in-state sales of new passenger cars and trucks be zero-emission by 2035; 2) 100 % of medium- and heavy-duty vehicles be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks; and 3) 100% zero-emission off-road vehicles and equipment by 2035, where feasible.

In 2022, AB 1279 and SB 1020, were adopted clearly establishing the state goal for carbon neutrality and targets for retail sales of eligible renewable energy resources and zero-carbon resources, respectively. AB 1279 establishes for the state to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045. SB 1020 incorporates evaluations of grid reliability, transmission planning, and energy affordability, as well as setting clean energy targets of eligible renewable energy resources and zero-carbon resources supply of retail sales of electricity to be 90% by 2035, 95% by 2040, 100% by 2045, and 100% of electricity procured to serve all state agencies by December 31, 2035.

BACKGROUND:

In 2021, the United States, Department of Energy (DOE) developed an initiative called Energy Earthshots. Per DOE, the initiative *"aims to accelerate breakthroughs of more abundant, affordable, and reliable clean energy solutions within the decade. Achieving the Energy Earthshots will help America tackle the toughest remaining barriers to addressing the climate crisis, and more quickly reach the Biden–Harris Administration's goal of net-zero carbon emissions by 2050 while creating good-paying union jobs and growing the economy."* The first Energy Earthshot is the Hydrogen Shot that seeks to reduce the cost of clean hydrogen by 80% to \$1 per 1 kilogram in 1 decade ("1-1-1" goal).

To support and accomplish this goal, initial funding is being offered by the DOE for regional clean hydrogen hubs (H2Hubs) in accordance with the Infrastructure Investment and Jobs Act, also

known as the Bipartisan Infrastructure Law. The DOE is making available \$7 billion to “*catalyze investment in the development of hydrogen hubs that demonstrate the production, processing, delivery, storage, and end-use of clean hydrogen*” to support the nationwide goal of a carbon-free electric grid by 2035 and a net zero emissions economy by 2050. The expectation is that the federal funding will be able to generate up to 10 regional hydrogen hubs throughout the United States.

The State of California is seeking to be a recipient of funding under the H2Hubs program as it aligns with and supports the carbon neutrality, equity, and economic goals of the State. The Governor’s Office of Business and Economic Development (GO-Biz), which “serves as the State of California’s leader for job growth, economic development, and business assistance efforts” created the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES). ARCHES will serve as “a public-private partnership to create a sustainable clean hydrogen hub in California and beyond” that would prioritize environmental justice, equity, economic leadership and workforce development. GO-Biz also engaged the University of California, Office of the President (UCOP) to support ARCHES and prepare the H2Hub grant application.

ARCHES, via GO-Biz, is leading the statewide effort to unite key public and private stakeholders to build the framework for regional California hubs to ensure that an individual entity does not monopolize the funding. The Mission and Principles of the ARCHES consortium are as follows:

- **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.
- **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

At this time, the State is seeking partner organizations to sign onto a Memorandum of Commitment to support the ARCHES mission and principles as well as the ARCHES application for funding from the H2Hubs program.

DISCUSSION:

The mission and goals of the ARCHES consortium closely align with the City's values, priorities, and goals embodied in the Envision Riverside 2025 Strategic Plan. Not only does Riverside have a goal to achieve carbon neutrality by 2025, but it seeks to equitably support neighborhoods, provide workforce development, and support innovative businesses that will take Riverside into the future. Hydrogen, as a clean energy resource, is one of the many options that will take Riverside into a sustainable future.

The use of hydrogen as an energy resource is considered necessary for the State and Riverside to meet its carbon neutrality goals by 2045 and 2040, respectively. As such, staff is recommending that the City join the ARCHES consortium. Participating in ARCHES will enable Riverside to be at the forefront of the hydrogen efforts and to be eligible to participate in available funding offerings where appropriate. ARCHES will provide the groundwork to ensure that hydrogen is a clean energy resource in California, and Riverside's participation will ensure the opportunities associated with hydrogen are brought into the City for the benefit of residents and businesses from an environmental, equity, and workforce development perspective. These projects may include, but are not limited to, hydrogen production for use and/or sale or to support the formation of a hydrogen utility providing benefits to the community; energy storage using hydrogen; use of hydrogen as a transportation fuel for city fleets or to support private fleet vehicles; and the use of hydrogen for electricity generation as Riverside Public Utilities power plants reach end of life.

ARCHES asks interested parties to sign a Memorandum of Commitment to participate in the statewide public-private hydrogen hub consortium for the development and deployment of hydrogen projects and infrastructure for the initial funding being offered under the DOE. As noted above, ARCHES will be the applicant for the statewide funding and is the best avenue for the City to partake in the initial funding from the start of the effort. ARCHES is intended to be the only California entity applying for the DOE's H2Hub funding in the state. It is also expected additional incentives and grants will be coming from the state and federal agencies in the future which may or may not be handled by ARCHES. ARCHES will provide the City with readily available networks and potential partners.

Per the Memorandum of Commitment, ARCHES intends to be the sole proposal manager for the State of California and through the University of California Office of the President, will be the lead entity for the development and submission of the State of California's hydrogen hub concept paper, proposal, and related materials to the DOE. As a signee, the City will also acknowledge the mission and principles of the ARCHES consortium, described above. While the memorandum does restrict entities who join this consortium from working with or on another grant application for a California hydrogen hub in the State of California, including restricting alternative concept papers, websites, or other hydrogen hub proposal related materials, no other entity has proposed a viable option for the City to participate in this grant funding for the projects listed above or others that may be identified over the next few years.

The Memorandum of Commitment will be effective for 24 months from the date of signature. By joining, Riverside will be able to participate in a range of hydrogen-focused working groups related to transportation, power, clean hydrogen, environmental justice, equity, workforce development and training, and community benefits. By leveraging ARCHES, it will assist City work towards its carbon neutrality goal by 2040 by enabling partnerships and collaboration across entities locally and regionally for in-house and external projects. Staff have already begun preliminary discussions with the University of California, Riverside, who is already a participant in ARCHES and is interested in partnering with Riverside for potential projects to the local and regional area.

DOE is on a fast track to distribute the funding and has set up a schedule of requiring a concept paper to be submitted by November 7, 2022, with the submittal of a full phase 1 proposal due on April 7, 2023. It is expected that DOE will be providing two years of funding spread out over four phases, but initial funding has only been initially authorized for phase 1. Per the DOE's funding opportunity announcement: Phase 1 will encompass initial planning and analysis activities to ensure that the overall hydrogen hub concept is technologically and financially viable, with input from relevant local stakeholders. Phase 2 will finalize engineering designs and business development, site access, labor agreements, permitting, offtake agreements, and community engagement activities necessary to begin installation, integration, and constructions activities in Phase 3. Phase 4 will ramp up the hydrogen hub to full operations including data collection to analyze the hydrogen hub's operations, performance, and financial viability.

STRATEGIC PLAN ALIGNMENT:

This item directly contributes to all of the following Strategic priorities and goals:

- **Strategic Priority 2 – Community Well-Being** and **Goal 2.4:** Support programs and innovations that enhance community safety, encourage neighborhood engagement and build public trust.
- **Strategic Priority 3 – Economic Opportunity** and **Goal 3.4:** Collaborate with key partners to implement policies and programs that promote local business growth and ensure equitable opportunities for all.
- **Strategic Priority 4 – Environmental Stewardship** and **Goal 4.6:** Implement the requisite measures to achieve citywide carbon neutrality no later than 2040.
- **Strategic Priority 5 – High Performing Government** and **Goal 5.2:** Utilize technology, data and process improvement strategies to increase efficiencies, guide decision making and ensure services are accessible and distributed equitably throughout all geographic areas of the City.
- **Strategic Priority 6 – Infrastructure, Mobility, and Connectivity** and **Goal 6.3:** Identify and pursue new and unique funding opportunities to develop, operate, maintain, and renew infrastructure and programs that meet the community's needs.

This item aligns with each of the five Cross Cutting Threads as follows:

1. **Community Trust** – Riverside routinely brings forth agreements for adoption and approval in a public process to ensure the services or commitments being requested are transparent and serve the public interest.
2. **Equity** – Riverside is committed to ensuring that every member of the community has equal access to review the commitment being requested in joining ARCHES. Riverside strives to participate in organizations that result in the greater public good by creating partnerships with others, such as ARCHES, that also seeks to provide equity in a community.
3. **Fiscal Responsibility** – Riverside's participation in the ARCHES organization will have

zero cost to become a member. All relevant paperwork will be assembled, reviewed, and submitted by internal staff to reduce costs and ensure fiscal responsibility.

4. **Innovation** – Staff is keeping up to date on the changing regulations and requirements, upcoming funding opportunities, and potential availability of partnerships to ensure appropriate resources are allocated to affect change for the benefit of the community.
5. **Sustainability & Resiliency** – The participation in the ARCHES organization will provide Riverside a stepping stone and resource to meet its goal to achieve carbon neutrality by 2040.

FISCAL IMPACT:

There is no fiscal impact associated with the recommended actions of this report.

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Attachments:

1. Memorandum of Commitment – ARCHES
2. Reference – ARCHES website
3. Presentation