



Tri-Valley San Joaquin Valley **REGIONAL RAIL AUTHORITY**

STAFF REPORT

SUBJECT: Valley Link Hydrogen Production and Energy Farm Feasibility Study

FROM: Wil Ridder, Deputy Director, Financial Planning and Programming

DATE: September 14, 2022

Action Requested

Staff requests that the Board of Directors approve the Valley Link Hydrogen Production and Energy Farm Feasibility Study including the recommendations to pursue the onsite electrolytic hydrogen production concept and move into the Planning and Preliminary Design stage for the first project phase.

Background/Discussion

The Tri-Valley – San Joaquin Valley Regional Rail Authority is leading the implementation of the Valley Link rail project as a model of sustainability – one that could operate on its own-created renewable energy, support transit-oriented land use development around station areas, and promote innovation in station access, while maximizing air quality, equity, health, and workforce benefits. To achieve this vision the staff have prepared the Valley Link Hydrogen Production and Energy Farm Feasibility Study. The goal of this study was to specifically assess the physical and financial feasibility of developing an on-site green hydrogen fuel production system at the planned Valley Link Operations and Maintenance Facility (OMF) site in the City of Tracy and compare it to purchasing hydrogen from a supplier and dispensing it at the OMF. This study included the evaluation of on-site renewable energy generation and battery electric storage to support the production of green hydrogen through the most cost-effective and sustainable means.

To date, the State of California has invested in a number of hydrogen bus and rail vehicle technologies and several bus transit agencies across the state are already producing their own hydrogen fuel. The sustainability vision of the Valley Link rail project seeks to explore significantly expanding on this model, connecting the Northern California megaregion with the first passenger rail system in California running on self-produced, green hydrogen and a hydrogen fuel production facility able to support the clean energy goals of other transit and heavy truck operators. This vision is also one of self-reliance whereby the cost of operating the new rail system could be offset by the production of hydrogen and sale of excess production to other users. This model of sustainability and self-sufficiency is important as it inherently connects the hydrogen fuel producer and user with the goal of reducing the cost of the overall transit operations for the public and offsetting state and federal transit subsidies. Public investments in developing hydrogen production can also serve as a catalyst for private investment, accelerating progress towards meeting climate goals and promoting the economy.

The feasibility study lays out a path forward to progress the implementation of a green hydrogen production facility in a manner that most appropriately promotes the Authority's public agency accountability and

manages risk. This includes the build out of the ultimate green hydrogen production facility in phases to leverage discretionary funding opportunities, the maturation of technology, and private sector partnerships. As a “proof of concept” demonstration project, the first phase of the project would allow the Authority to test the feasibility of producing green hydrogen in order to evaluate the potential use of hydrogen to power Valley Link trains. This is critical to inform the selection of the Valley Link rail vehicle technology as part of the ongoing environmental process as well as the development of the capital and operations financial plan. Before Valley Link service operations, the first phase would provide green energy to other local public transit modes and the freight industry, which are in the process of transitioning to zero emission vehicles. As part of managing risk and maximizing the outcomes of green hydrogen production, the feasibility study recognizes the opportunity to pursue some form of public private partnership with expertise from the hydrogen production industry. This partnership could include the design, construction, financing, operations, and maintenance of the hydrogen production facility. This business model is intended to serve as not only a catalyst for private investment, but a catalyst for a green energy economy within the Northern California megaregion companioned by workforce development to create and sustain living wage jobs.

The timing of the Board approval of the feasibility study and moving forward with the first phase hydrogen production concept is significant to other initiatives to advance the use of green hydrogen in transportation and the overall green hydrogen economy in California. As reported to the Board in July, the California State Transportation Agency (CalSTA) awarded nearly \$800 million in state funds under Cycle 5 of the Transit and Intercity Rail Capital Program (TIRCP) funds to 23 projects across the state. Included in these awards was a little over \$14 million to fund the six hydrogen fuel cell buses to support the I-680 Express Bus Program that Valley Link joined as part of the application with the Contra Costa Transportation Authority (CCTA), County Connection and Livermore Amador Valley Transit Authority (LAVTA), specifically for the first phase hydrogen production facility to provide fuel for the buses. While the TIRCP funding award was not high enough to fund the Valley Link hydrogen production facility scope, the funding of the hydrogen fuel cell buses now strengthens the need for a source of green hydrogen fuel. The implementation schedule for the first hydrogen production project phase identified in the feasibility study has been developed to meet the anticipated delivery schedule of these hydrogen fuel cell buses being procured by LAVTA and County Connection.

Last week the Governor signed AB 209, the energy trailer bill to the Fiscal Year 2022-23 State Budget. The legislation directs funding from the \$8 billion in energy investments in the state budget to programs focused on decarbonization of industry, strategic energy reliability resources, renewable energy generation, energy storage projects, and most importantly a new Hydrogen Program. The Hydrogen Program specifically provides the California Energy Commission (CEC) with \$100 million to provide financial incentives to in-state hydrogen projects for the demonstration or scale-up of the production, processing, delivery, storage, or end use of hydrogen. We are encouraged that the legislative language includes a specific emphasis on hydrogen derived from water using eligible renewable energy resources as well as demonstration projects. This program is a target for near-term funding for the first production phase proof of concept demonstration project.

Additionally, in late August a statewide meeting was held to launch the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) Initiative to coordinate the development of the state application for federal funding under the \$8 billion national US Department of Energy (USDOE) Regional Hydrogen Hub Program. The ARCHES initiative is proposed as a public-private partnership (P3) to develop a statewide application to secure a targeted \$1 billion in funding out of the \$8 billion national USDOE Regional Hydrogen Hub Program. The initiative is being led by the Governor’s Office of Business and Economic Development (GO-Biz) and UC Davis with the goal of establishing California as the Regional Green Hydrogen Hub within the USDOE program. Staff is participating in this process as a registered hydrogen

hub collaborator with GO-Biz and see this as a significant opportunity to engage with potential public and private sector partners to pursue higher amounts of funding for the larger scale hydrogen production project phases.

Fiscal Impact

There is no fiscal impact associated with the approval of the Valley Link Hydrogen Production and Energy Farm Feasibility Study at this time. As staff brings back to the Board specific actions, including consultant contracts, for the Planning and Preliminary Design stage of the first project phase, those fiscal impacts and sources of funds will be presented at that time.

Recommendation

Approve the Valley Link Hydrogen Production and Energy Farm Feasibility Study, including the recommendations to pursue the onsite electrolytic hydrogen production concept and move into the Planning and Preliminary Design stage for the first project phase as a proof-of-concept demonstration project.

Attachments

1. Valley Link Hydrogen Production and Energy Farm Feasibility Study