

Renewable Hydrogen Alliance (RHA) (Rebecca Smith)

October 31, 2025

Attn: Joshua Grandbouche
Zero-Emissions Vehicle Specialist
Washington Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503

Submitted electronically

RE: RHA Public Comments on ZEvergreen State Dialogue Sessions

Dear Mr. Grandbouche:

The Renewable Hydrogen Alliance (RHA) appreciates the opportunity to comment on the information presented during the Washington Department of Ecology's (the Department) ZEvergreen state dialogue session on October 27, 2025. RHA is a regional non-profit trade association enabling access to safe, affordable, and renewable hydrogen for communities across the Pacific Northwest. Our 80+ members represent the full value chain of the hydrogen ecosystem – hydrogen technology and service providers, equipment manufacturers, project developers, public transit agencies, labor unions, utilities, and many others with an interest in the clean and renewable hydrogen sector.

Renewable and clean hydrogen are expected to play a critical role in the supply of clean fuels across the economy. Hydrogen fuel cell electric vehicles (FCEVs) are an alternative to battery electric vehicles (BEVs) that achieve the same zero-emission performance at the tailpipe, while allowing for the performance and range flexibility enabled by a stored clean fuel. Moreover, hydrogen remains an essential input for the production of clean derivative fuels, including renewable diesel, alternative jet fuel, methanol, and ammonia. Total demand across these direct and derivative end uses is expected to account for a significant share of overall transportation sector fuel use. A recent report¹ by the Washington Department of Commerce estimated that to meet state climate goals, over 25 percent of all energy consumed in the state of Washington will be provided by hydrogen. Establishing a viable market for clean and renewable hydrogen will be an essential component of achieving the state's clean energy goals.

¹ Washington State Department of Commerce. (January 2024). "Green Electrolytic Hydrogen and Renewable Fuels: Recommendations for Deployment in Washington."

<https://deptofcommerce.app.box.com/s/widfnmxbo8ijt3uozpog91jzapu4dhae>

Barriers to FCEV Adoption

Much of the early deployment of ZEVs and fueling infrastructure has focused on BEVs. For this reason, many of the barriers to further deployment of BEVs have already been identified – getting more and more reliable chargers installed across the state, providing consumers with support to address the higher up-front costs of BEVs, further education efforts, and a need for new ZEV vehicles for specific medium- and heavy-duty use cases.

While FCEVs face some of the same barriers to adoption as BEVs, they also face unique issues that the Department should consider when developing its recommendations for its public report to the Legislature.

Regulatory framework for hydrogen fueling infrastructure

Neither Washington nor Oregon has regulations for certifying hydrogen fueling stations to meet industry standards designed to protect customers and their vehicles. However, Douglas County Public Utility District developed the first hydrogen fueling station in Washington state, in Wenatchee, earlier this summer, with additional stations expected next year for Lewis County Transit and Intercity Transit. The state of Washington, in coordination with OR and CA, has also received funds to develop a public fueling station, and a number of other private entities are planning fleet and public fueling stations in OR and WA in the near future. California has over twenty years of experience in developing and improving regulations for hydrogen fueling stations that draw upon international standards for building and fire codes, fueling protocols, fuel quality, fuel measurement, OEM requirements, and station reliability and reporting. The regulatory framework established by California, while not perfectly fit-for-purpose for the smaller economies of Washington and Oregon, provides an important data point for how Washington can establish a similar station certification framework.

While both Oregon and Washington should develop state regulations for hydrogen fueling stations that meet their individual needs, coordinating these regulations across the West and up to British Columbia will help ensure that regulatory oversight of hydrogen fueling infrastructure draws on the best international standards, accounts for lessons learned from early adopters, and prepares for industry growth and scaling across the West Coast. To support this regional collaboration, RHA has hosted four hydrogen fueling roundtables in 2025 for policymakers and industry stakeholders, including representatives from state agencies in WA, OR, CA, and British Columbia. These convenings have surfaced several opportunities for collaboration and next steps, but Washington would benefit from explicit direction from the Legislature on developing such regulations.

The Oregon Department of Energy's recent draft energy strategy included the following recommended policy action:

Establish a multi-agency working group to develop regulations and minimum standards for public heavy-duty hydrogen refueling infrastructure in Oregon. This group should address key elements such as technical specifications, safety protocols, fuel quality standards, consumer protection measures, and streamlined permitting processes to ensure that stations are safe, reliable, and accessible.²

RHA would recommend a similar policy action for Washington state, with the proviso that it would be counterproductive to limit the working group's focus to only heavy-duty refueling infrastructure, as the elements of station oversight will apply to all types of hydrogen refueling infrastructure. The regulatory framework developed for hydrogen fueling stations should not exclude oversight of fueling stations based on the size or weight of the vehicles serviced by the stations, as the state will need the ability to regulate all fueling stations.

State-level incentives to enable initial infrastructure investments and market launch

RHA appreciates the budgetary difficulties in Washington related to funding new programs and thus recommends that the Department first support the best possible use of *existing* incentive programs for clean transportation. In the Department's recent Clean Fuels Program rulemaking ([CR-103P](#)), the capacity crediting rules for hydrogen fueling stations were diminished to only allow eligibility for stations "built to primarily service heavy-duty FCEVs." Hydrogen fueling station capacity crediting is already in place in California and has been an essential tool to support station owners and operators as the hydrogen fuel market reaches commercial scale.

The Department should recommend to the Legislature that all hydrogen fueling stations, not just heavy-duty ones, be eligible for capacity crediting. Exclusive focus on heavy-duty trucks creates implementation challenges, stifles market development, and encourages customer discrimination. The proposed rule language, "built to primarily service heavy-duty FCEVs," is vague and does not align with the reality of hydrogen refueling station development. Many developers of hydrogen refueling stations are focusing on the ability to fuel multiple vehicle classes by installing separate islands and fueling infrastructure for light-, medium-, and heavy-duty vehicles. Medium- and heavy-duty vehicles may be able to fuel at the same station islands using the same infrastructure, so for station owners offering fueling for different vehicle classes, excluding light- and medium-duty crediting will create unnecessary complexities in accounting and reporting for station capacity and the vehicle types served.

The Hydrogen Fuel Cell Partnership (H2FCP), in their soon-to-be-released *California Hydrogen Mobility Vision & Roadmap*,³ has consensus deployment targets to accelerate hydrogen mobility in four distinct market development phases for all vehicle classes (light-, medium-, and

² Oregon Department of Energy. (August 2025). "Oregon Energy Strategy: Draft for Public Comment," pg. 85. <https://www.oregon.gov/energy/Data-and-Reports/Documents/DRAFT-Oregon-Energy-Strategy.pdf>

³ RHA is attaching this white paper to the comments they are submitting to the Department.

heavy-duty): Demonstration, Launch, Scale, and ZEV Success. This document is the result of decades of real-world experience and is a valuable resource for Washington policymakers.

Finally, as has been seen in the California ZEV market, different vehicle classes as well as different vehicle technologies (i.e., BEV, FCEV, etc.) have interdependent synergies and will play complementary roles in the transportation sector, and all are necessary to build the market needed to meet Washington's GHG emissions reduction goals.

Program design elements that support fueling access for all communities

BEV adoption rates in rural communities in the United States have been much lower than in urban areas, due in part to the longer distances many must drive and the lack of public charging infrastructure, especially fast-charging stations. Range anxieties can be further stoked during colder weather, which reduces a BEV's range.

The longer usage cycle offered by FCEVs can support a variety of use cases, including heavy-duty vehicles, longer operational duty cycles, long routes, or light-duty vehicles whose duty cycles require higher resilience and uptime (e.g., police cars), all of which should be considered valid applications for hydrogen to reduce transportation sector emissions. By focusing on GHG emissions reduction outcomes rather than specific vehicle classes and use cases, Washingtonians are free to choose the solutions that best meet their needs. Recent examples of deployed hydrogen vehicles that showcase the diverse applications for hydrogen FCEVs include: a Toyota Mirai used as a police vehicle in rural Washington; hydrogen fuel cell buses for long routes and rural service; hydrogen forklifts for long-duty-cycle applications; and hydrogen ferries.

Limiting support for FCEVs, especially in more rural areas of the state, limits these community members' ability to realize the benefits of switching to a ZEV. The Department should recommend that state policies allow consumers to choose among various zero-emissions technologies.

To better understand and address these equity and adoption challenges, Washington state should continue to collect and disseminate information on ZEV, BEV, and FCEV adoption across the state to better understand regions and communities that are either leading or lagging adoption. This understanding of adoption trends can help the state to understand and remove pinch points and barriers.

Piloting and data collection

Given the nascent state of the hydrogen transportation sector in Washington state, but its importance for reducing emissions in the MHD transportation sector, Washington should focus on vehicle piloting and data collection to help inform future state strategies for ZEV.

Specifically, Washington should support early adopters and pilot projects – especially the three station owners and operators who are already planning infrastructure. Washington should also pursue opportunities to begin piloting heavy-duty trucks and other vehicles in areas like ports that are expected to rely on hydrogen vehicles to meet their clean transportation needs.

Findings and lessons learned from these early pilots can help inform and shape future-scaled investments in hydrogen transportation.

RHA appreciates the Department’s work to develop actionable policy recommendations to advance further the adoption of clean fuels and zero-emission vehicles in Washington. While we have provided just a few suggestions here, we would also suggest that the Department consider new or improved data collection processes that ensure the state has the information it needs to continue to refine its clean transportation strategies; identify opportunities to support pilot projects for near-term deployments of FCEVs at ports, in transit fleets, and general private fleets; and to continue to build a regional market for clean and renewable hydrogen as a transportation fuel.

Sincerely,

A handwritten signature in black ink, appearing to read 'R Smith', with a stylized flourish at the end.

Rebecca Smith
Senior Director, Policy and Education



California Hydrogen Mobility Vision & Roadmap

July 2025

Prepared by the [Hydrogen Fuel Cell Partnership](#)

Purpose & Methodology

California continues to demonstrate global leadership in reducing air pollution while expanding economic prosperity, despite having fewer tools than ever before.

Hydrogen technologies represent one of the few scalable options for achieving near-term emission reductions, including delivering real-world NO_x and PM reductions to support California's SIP obligations, while simultaneously enabling the long-term success of a 100% zero-emission vehicle (ZEV) transition and fostering new economic growth.

This white paper builds upon [California ARCHES Hydrogen Hub](#) and other ZEV transition activities to provide a 'north star' vision and roadmap with clear deployment targets to accelerate hydrogen mobility, as identified in the [Hydrogen Market Development Strategy](#).

It was developed through decades of real-world experience, existing state agencies, and other publicly available analyses, and extensive discussions among public and private participants to 1) inform stakeholders, 2) guide future policy and investment decisions, and 3) support the achievement of California's ZEV and air quality regulations.

Why Hydrogen & Why Now?

Hydrogen and fuel cell electric vehicles (FCEVs) are essential for California's comprehensive decarbonization strategy.

Emissions benefits from the initial market launch for hydrogen cars and trucks can eliminate over 600,000 metric tons of GHG, nearly 1,500 metric tons of NO_x emissions, and over 730 million gallons of petroleum. The initial infrastructure launch can also provide nearly 4,000 new jobs in the California economy. These benefits grow exponentially as the market transitions to 100% ZEVs¹.

FCEVs provide rapid refueling, long range, and operational performance that meets the needs of both consumers and commercial fleets. With battery electric vehicles already advancing in many light-duty and last-mile applications, hydrogen technology offers a scalable, complementary path for light-, medium-, and heavy-duty transportation, where duty cycles demand high energy density and flexible refueling.

Hydrogen in mobility applications will also complement and enhance the state's energy sector by providing increased diversity, resilience, and expanded renewable integration. California's leadership is critical to transition the market from pilots to full commercialization and enable national and international market expansion. With SIP submittals due and federal funding windows closing, the next 18 months are make-or-break.

¹ Extrapolated from H2FCP's [Vision for Freight Movement in California-and Beyond](#), [California Fuel Cell Revolution](#) and [Workforce Projections to Support Hydrogen FCEV Fueling Infrastructure](#) documents

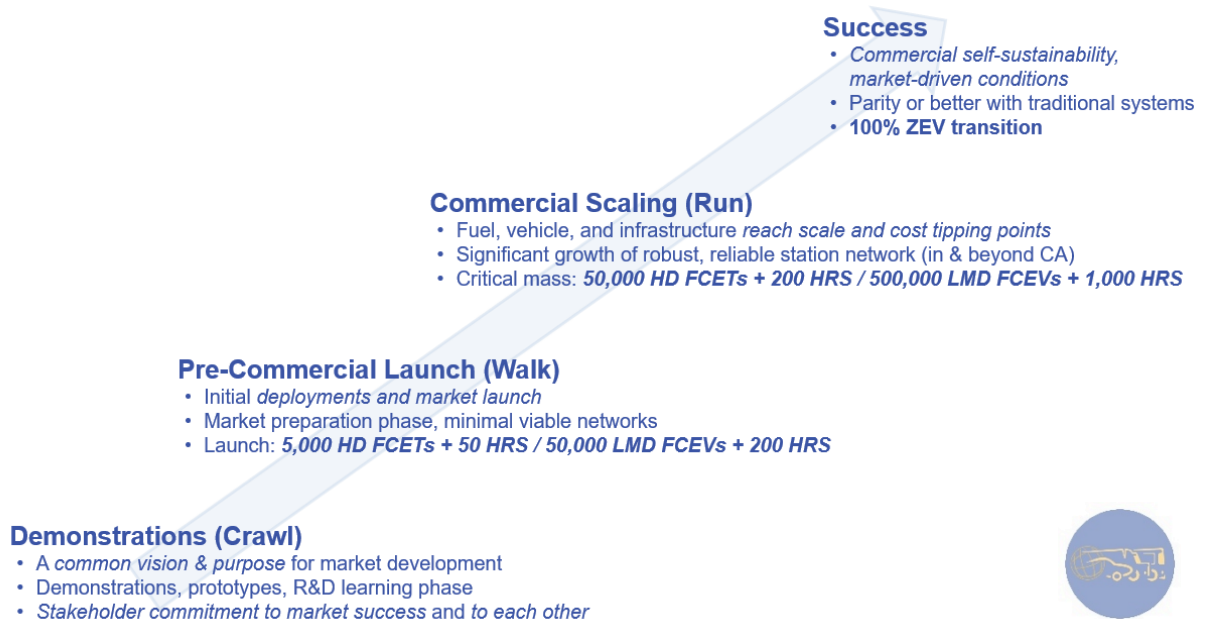


California must act decisively to scale hydrogen infrastructure before investment and regulatory cycles move on.

Vision & Market Development Phases

The California Hydrogen Mobility Vision and Roadmap charts a clear path through four distinct market development phases — **Demonstration, Launch, Scale, and ZEV Success** (i.e., Crawl, Walk, Run, and 100% ZEV Success) — ultimately achieving a self-sustaining, zero-emission transportation market supported by a reliable, widespread hydrogen refueling network.

Each phase has distinct characteristics, needs, and expectations, and is marked by specific FCV and hydrogen refueling station (HRS) deployment targets. These *deployment targets are essential* for market transparency and to align and enable coordinated stakeholder actions and investments from early market investments to a successful transition to 100% ZEVs. These targets also augment and expand on the roadmap elements identified in the Hydrogen Market Development Strategy and recent ZEV guidance request found in the Governor's Executive Order 27-25.



These vehicle and station targets are designed to:

- Support full ZEV compliance across light-, medium-, and heavy-duty vehicle categories
- Enable cost reductions through scale, including addressing near-term pump pricing to enable faster fleet adoption
- Drive private investment by providing certainty and confidence in California's hydrogen mobility direction
- Leverage the heavy-duty station network as a structured, systematic backbone to serve both freight and urban mobility needs
- Align with and accelerate California's environmental and economic priorities



Members of the Hydrogen Fuel Cell Partnership (Partnership) and other stakeholders are actively working to further build out the components of these market phases to improve market transparency and confidence to spur market demand and trigger private investments to accelerate decarbonization and depollution through hydrogen technologies.

Strategic Imperatives

1. COORDINATED INFRASTRUCTURE ROLLOUT

- Deploy a minimum viable public fueling network to launch (walk) HD and LD/MD markets, demonstrating progress and potential for scaling (run) market development
- Prioritize strategic station siting to maximize utilization and redundancy
- Implement a staged, coordinated rollout to align with vehicle deployments

2. STATE INCENTIVES & LEADERSHIP

- Expand state financial and permitting support for station construction and hydrogen supply
- Provide long-term regulatory clarity and fleet incentive alignment to enable cost reductions and greater OEM commitments – *strong public policy signals and support enable the market certainty needed* to drive private investment and enable both an amplifying effect of public funds and transition to private market demand pull.
- Use SIP planning and other mechanisms to unlock state and federal support and private capital

3. TECHNOLOGY & MARKET READINESS

- Acknowledge early-stage technology challenges while investing in station reliability, throughput, and uptime for long-term improvements and success
- Accelerate production of low-carbon hydrogen and diversify supply chains

4. WORKFORCE, SAFETY & PUBLIC READINESS

- Integrate workforce training and job creation planning in hydrogen deployment
- Streamline permitting and other processes via interagency coordination and Authorities Having Jurisdiction (AHJ) education
- Advance public and fleet operator education to build market awareness and acceptance

5. COMPREHENSIVE VEHICLE STRATEGY

- Support the build-out of the entire hydrogen mobility ecosystem – enabling light-, medium-, and heavy-duty applications to thrive – as all ZEVs and applications are needed to achieve state objectives and equitably meet user needs
- Promote policies that recognize synergies between vehicle classes, station infrastructure, and statewide air quality goals
- Highlight economic and environmental benefits of hydrogen, including GHG and criteria pollutant reductions

The Partnership's pending *Hydrogen Truck Market Development Guiding Principles* whitepaper recognizes that no single factor determines hydrogen's success. Instead, challenges are deeply interconnected: policy, cost, infrastructure, and technology reinforce or constrain each other in feedback loops. The analysis presents core issues that will determine hydrogen's success, highlighting that the technology itself is not limiting hydrogen mobility.



Even in their nascency, FCEVs are already operationally viable and capable of competing with incumbent technologies. The success of hydrogen mobility is more dependent on improvements in market conditions, which can be accelerated or hindered by public and private action. With scale and experience, technology will only improve and become more cost-effective.

The real need now is to create the right market conditions, business models, and policy stability to let this hydrogen technology grow and thrive.

Call to Action

Achieving this vision requires bold, coordinated action across all sectors. Stakeholders must work in coordination, from state agencies and local governments to OEMs, fuel providers, station developers, and fleets.

The time for pilot programs has passed; ***California must now lead a strategic, scaled rollout of hydrogen mobility that delivers economic opportunity, environmental justice, and climate resilience along the path to transportation decarbonization.***

This white paper expands and augments other hydrogen mobility and ZEV activities and should be integrated and referenced as part of the state's larger goals and objectives.