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California Hydrogen Car Owners Association (CHCOA) Proton Newsletter – March/April 2025

May 15, 2025

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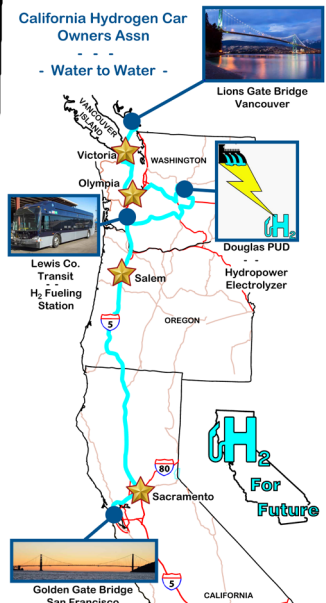


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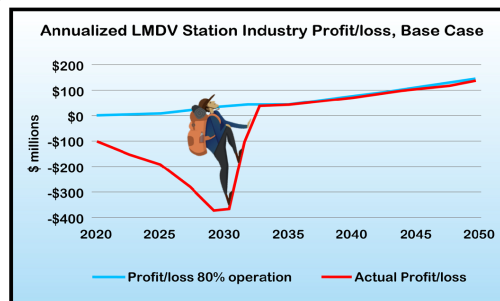


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The NorCal Hydrogen Beat --- (and other news)



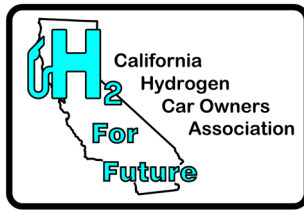
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Iwatani to Join Water to Water Trip

Iwatani



Victoria

(Image Credit: Shutterstock)



Lions Gate Bridge

(Image Credit: Souvenirpixels.com)



Olympia

(Image Credit: istock)



Salem

(Image Credit: istock)



Sacramento

(Image Credit: Shutterstock)

Slowly, but surely, the pieces of the Water-to-Water/Trip on the Hydrogen Highway are coming together. We have selected a location at the north end of the Golden Gate Bridge where the trip will begin. At 9:30 a.m. on the morning of Friday, September 12, we'll assemble in the public parking spaces adjacent to the Bay Area Discovery Museum. At this "kick-off" location, there will be a small ceremony and pictures. All FCEV drivers are welcome. Then we'll head to Sacramento, where we'll reconvene for a rally on the west side of the Capitol Building. Join us at 2:30 p.m. for festivities, refreshments and distinguished speakers to send off the contingent of determined FCEV drivers north to Canada!

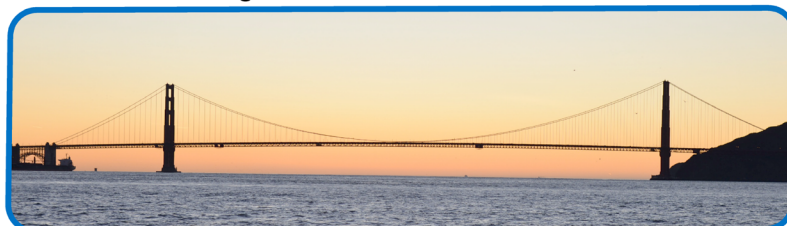
In addition, we're happy to report that we are receiving some very welcome support from Iwatani. Elissa Villa, Iwatani Customer Relations, will be joining us on the journey from the Golden Gate to Portland and will provide a most welcome assistance. We're very excited to have someone with her expertise on board!

The number of cars/drivers on the trip from Sacramento to Vancouver, B.C. will likely be limited, but all are welcome on the first day of travel from the Golden Gate to the Capitol. Keep an eye out in your email for more information. Questions? Contact me at: greg@H2ToNPS.org.

Save the date! The journey begins on September 12th.

Golden Gate Bridge

(Image Credit: Don Ramey Logan - 2015)





California Hydrogen Refueling Station Infrastructure Grows

Chevron opened its first retail hydrogen refueling station on April 21, 2025 in Moreno Valley, California. In addition to the Corona Iwatani station, this is a second station for residents of the Inland Empire. This comes at a good time, as the station located at the City of Riverside maintenance yard closed recently. The Moreno Valley station is equipped with the latest equipment from Cavendish Hydrogen and features a WEH nozzle featuring a burst of dry air that dislodges any moisture resulting from fueling when replacing the nozzle onto the dispenser. Chevron Renewables Project Manager Scott Novak told me that Chevron is committed to providing outstanding experience to customers and encourages calls to the customer service number on the pumps if any issues arise.

Chevron is also working on opening a new station in Vacaville. The equipment has been installed and is in the



**First retail Customer
at Moreno Valley Station**

and is in the process of being certified; Novak expects that the station will open within the next few months. Construction has also started on a new station in Carson. This will be a stand-alone Hydrogen Refueling Station (HRS) and although intended for Light Duty FCEVs, the high canopies over the pumps can accommodate MD- and HD FCEV refueling. This station is conveniently located near the 110 Harbor freeway, a major transit route.

The other HRS vendors have also been working on stations. I was told that compressed gas transport vehicles were recently recertified for use at the Linde plant in Ontario, and this has allowed FirstElement Fuels/True Zero to reopen Temporarily Non-Operational (TNO) compressed gas HRS in Southern California, including Playa del Rey, South Pasadena, Hollywood, Long Beach and Lake Forest. I also bumped into True Zero engineers surveying sites at two planned stations in Riverside and San Bernardino, so it looks hopeful that the

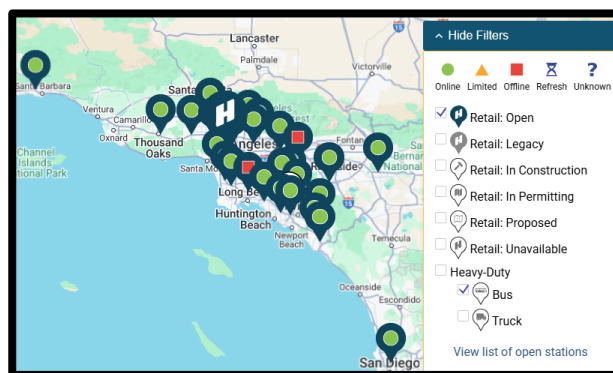
infrastructure will experience further expansion in Southern California.

Iwatani has completed a new station in La Mirada, and I was told that it's on track to open sometime by mid-2025. I visited a partially completed Iwatani station in Fontana, and the Circle K store owner told me that he was hopeful it will also open this year. Similar to True Zero, Iwatani has reopened several TNO compressed gaseous HRS in Seal Beach, Anaheim and San Juan Capistrano.

Finally, one Facebook Group member visited the Sunline Transit Agency in Thousand Palms recently and was informed that they are close to opening a retail hydrogen station to the public. Along with the Moreno Valley station, this station will facilitate travel to the Palms Springs area by FCEV owners.

This year has seen growth in the HRS infrastructure statewide, and the HRS vendors have also been working on improving station reliability. This is great news for FCEV owners.

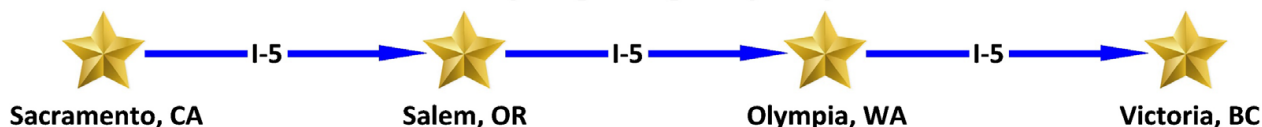
Respectfully submitted,
Nathan Okawa



H2FCP SoCal Station Map (May 6, 2025) shows huge improvement in the last few months.



Join us on the Hydrogen Highway - September 2025





A Conversation with Dr. Lew Fulton

Lew Fulton is Director of the Energy Futures Program - Institute of Transportation Studies at UC Davis. He has led a number of recent examinations into the future for light, medium and heavy-duty FCEVs. Three that are well worth reviewing, and keeping on your virtual bookshelf, are as follows:

July 1, 2024: Report - [Fuel-Cell Vehicle and Hydrogen Transitions in California: Scenarios, Cost Analysis, and Workforce Implications](#)

October 1, 2024: Policy Brief - [Developing a Hydrogen Vehicle Market in California Will Require Significant Upfront Investment, but Should be Self-Sustaining Thereafter](#)

October 17, 2024: Webinar - [Hydrogen at the Crossroads: Scaling Infrastructure, Vehicles, and Workforce for a Zero-Emission Transportation Future in CA](#)

We sat down with Dr. Fulton on a recent sunny day at the Davis campus. He was very cordial and agreed to answer a few questions from us, although he had some questions for us as well! (He was in between meetings with a delegation from Kenya, who was interested in industrial H₂ opportunities.)

CHCOA: We've seen a "malaise" ever since the election among fellow hydrogen drivers. This is in spite of station reliability improving and, slowly but surely, more stations coming online. The price of H₂, however, is still a huge problem. Do you think we are still in the "Valley of Death"? (below).



Dr. Fulton

Fulton: Yes. It's been a real struggle for the hydrogen industry because H₂ stations are underutilized, and this has contributed to the price of fuel being so high. In addition to that, there were supply chain issues and occasional hydrogen supply shortages a while back which also contributed to stations being offline. The goal is still for the price of fuel to be under \$14/kg by 2030, maybe well below this with incentives, and I think it can be done. If the system grows enough, then fleets will get into it. But right now, because of all the problems, I agree there is certainly a "malaise", as you put it.

CHCOA: Some companies that were planning to make FCETs have (at least temporarily) dropped out of the market, is that going to be a problem?

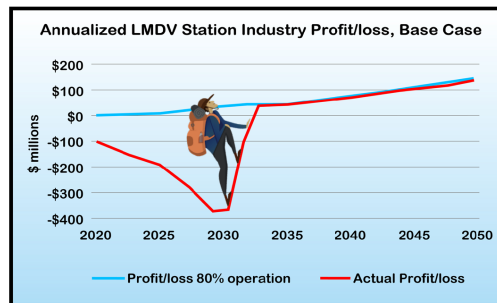
Fulton: Currently, Hyundai is the only company with FCET trucks on the market (and they don't get any tax breaks because they are not US-built). I believe that a number of other companies, such as Toyota (with Kenworth), Cummins, and Stellantis have fuel cell models in the works.

CHCOA: Many in the industry have hoped that ARCHES would become the leader in coalescing the other agencies (e.g., CARB, CEC, GoBiz) and that their work would include support for LD. Do you think that this still will happen?

Fulton: Yes, I think it can still be done. Even with the Federal government's attempts to pull back funding for our hub, the State is working to make sure we can keep moving forward. The first year for ARCHES was a planning year, now they are moving into co-funding station construction, production facilities and pipelines, so things are moving ahead. (ed note: Dr. Fulton is a co-chair of the ARCHES Transportation Working Group). These investments are mainly for heavy-duty but will provide important benefits for light-duty such as lower cost hydrogen. I do believe in the value of keeping up with LD cars; electric cars cannot do it alone. We are years away from having electric batteries charge faster than they do now.

CHCOA: We are planning to take the [Water-to-Water](#) hydrogen highway trip in September of this year and are hoping to get many folks to join us on the Golden Gate to Sacramento segment, which will conclude with a rally in front of the Capitol.

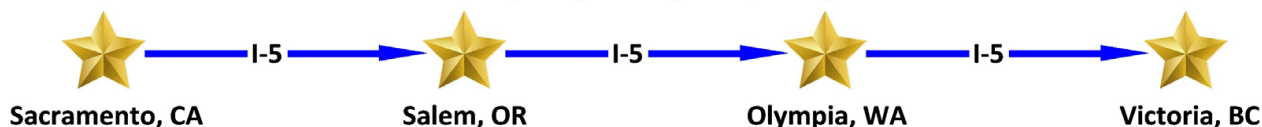
Fulton: Looking back when Gov. Schwarzenegger first conceived of the idea of a "hydrogen highway", the thinking was that it would be best to put H₂ stations along truck routes from Seattle to San Diego. Then, industry folks thought it might be better to put them in neighborhoods, which is the model we currently have. Now, again, the thinking has returned to putting them on freight corridors at truck stops. So, interestingly, you could eventually be traveling along the route that was initially envisioned.



Climbing Out of the Valley of Death

Graph by ITS UC Davis - Climber by CHCOA and pngtree.com

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Checking in at Hydrogen's Half-Life

Hydrogen, the first element, is estimated to be 14 billion years old and will likely be around for another 14 billion years. So, for the sake of argument, let's say we are at the atoms "half-life". During these half-life times, no one on the planet is putting this element through its paces quite like the FirstElement Fuel (FEF) Hydrogen Logistics Hub in Livermore.

We had a fascinating tour of the Livermore site in late April. Both of our tour guides, Emilio Armenta (Plant Manager) and Alex Petrenko (Lead Technician) were very friendly and upbeat, and took obvious pride in their workplace. Along with Emilio and Alex, we met Edgard Curiel, Director of Operations, who provided an overview prior to the start of the tour. We donned special fire-resistant jackets, one of the many safety measures taken at the plant, and headed out.

Overall, the news is positive! One of the best things we learned is that the gaseous supply shortage in Southern California is over – I'm sure this isn't news to those of you in SoCal who have happily realized you can again fuel at your favorite HRS.

Continuing the tour, there was more good news in the form of tarped "modular units for future stations" stored in the yard. These are ready to be shipped out to planned station locations.

This facility has two main functions; one is to take in liquid hydrogen (LH₂), shipped from the Las Vegas Air Liquide plant and convert it into gaseous hydrogen for True Zero stations in northern California. After arriving on site, the LH₂ is stored at -423° F, just a few degrees above



During the tour, we spotted a grey cat darting out from somewhere. Sylvester (not his real name) they said, was just getting off duty from the night shift – keeping mice at bay around the plant! (ed. note: As with most facility tours, certain photo shots were not allowed.

For security reasons, pics of Sylvester were not permitted.)



Series Vaporizers

absolute zero. Before being transferred to trailers, it goes through vaporizers, in series, to raise the hydrogen to ambient temperature, thus converting it to its gaseous form. It is then pressurized to 7,500 psi, to fill the tube trailers that are sent out to the stations.

The second function is to test equipment, such as new models of more efficient pumps. Other manufacturers use the facility to test their equipment as they don't

have the capacity to perform the operational assessments themselves. Since this plant has the world's largest throughput of hydrogen, it can test equipment from others to simulate long-term duty in a much shorter time period. Two such prototypes being tested were pumps

from Mitsubishi Heavy Industries and Bosch Rexroth. FEF has given numerous tours to highlight the Hub's capabilities, including to Toyota, Honda, Mitsubishi, Chevron, and Air Liquide, to name a few.



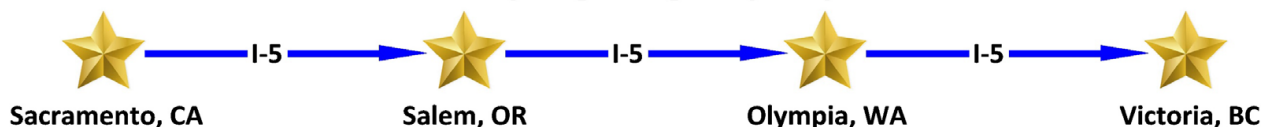
Emilio, Bobbie and Greg.
Tube trailer in background.

To echo what Curiel said earlier, the future is bright. Even though there has been a slowdown at the Federal level, FEF is moving forward, as a business, and at the employee level. A good indicator was the fact that Alex recently bought a new 2nd generation Mirai for his family, after having been a "BMW man" for many years. He says his wife drives it though, because "she is afraid he looks too sexy in it". Now there's a reason to buy an FCEV if ever there was one!

At the close of the tour, we compared schedules and agreed that we must not let another 14 billion years go by before we do this again.

- Bobbie Cane

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Intrepid Protoner

David Troup



On our recent trip to the San Francisco Bay area, we met up with a long-time hydrogen car owner, David Troup. David started out in the Midwest but has lived as far and wide as Europe and Hawaii. He has resided in the Bay Area for the last 25 years.

Our hour-long conversation ranged from one hydrogen topic to another, and it felt like we had known him for a long time, largely because our views on hydrogen were so similar!

David has been interested in hydrogen technology for a long time, initially watching from the periphery. He owned a 2016 Lexus-hybrid, which was the “greenest” car at the time. Then, Toyota sent an invitation for a promotional event for the (Gen 1) Mirai and he “took the plunge” and leased one. There were only 2 stations in the Bay Area at the time, at Mill Valley and in South San Francisco. Eventually, he leased a Nexo in 2019, and currently owns a 2022 Nexo. Through each change, he has relied solely on his FCEV (he doesn’t have a back-up ICE car, like us less courageous drivers).

After Adam Bray-Ali started the [Hydrogen Car Owners](#) Facebook page, he joined and eventually became a friend and then a co-administrator of the site. Their



Makin' Water ☺

intent is to reach all FCEV owners and also others who are just interested in hydrogen car technology.

He feels he’s always been an “ideal”

candidate for H₂ cars – he is self-employed as a landlord of many apartment buildings, so he has no commute. During the many months in 2017-18 when stations were down due to H₂ shortages, he had no problem with periodic checks of the SOSS to find out when they were back up and operating again. Even if that meant refueling at 10:30 or 11:00 at night!

Our conversation turned to the current Toyota Lawsuit. He feels that some people may have had unrealistic

expectations when they purchased an FCEV. He believes that the car makers, especially Toyota, have really gone out of their way to compensate for the struggles that they expected FCEV drivers to have with stations that were down due to low supply and/or mechanical issues. These have included \$15,000 fuel cards, payment for towing and rental cars, plus the hefty discounts on the purchase price of the cars. Everyone who buys one of these cars must do their research and be willing to put up with some inconvenience, as this is still considered a “nascent” technology.

We asked about the range of the Nexo, and he said if you drive conservatively, it is not hard to get the promised range of 400 miles. In fact, a while back he was planning to drive from Southern California to Northern California, when he found out that the Harris Ranch station, near Coalinga, was down. As anyone who has made that trip knows, Harris Ranch is the only HRS on that stretch and is essential if you want to make the trip devoid of range anxiety. However, David decided to chance it, and filled up at the most northern station in the LA area – Mission Hills. Then, he drove very conservatively at 55 MPH and actually made it to the Port of Oakland station, with 40 miles to spare! Not sure we would recommend that but it’s good to hear that it can be done!

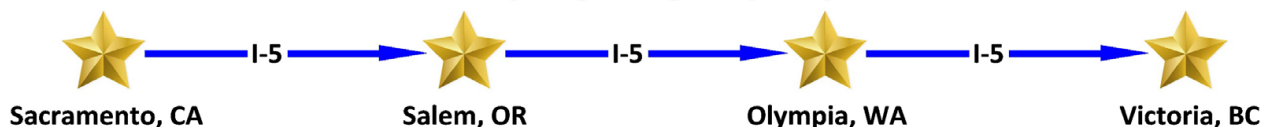
Since he has been driving FCEVs for so long, he feels like he has the advantage of a longer perspective than many folks. And in his view, things have come a long way. In fact, many times, he doesn’t bother to check the SOSS, as station reliability has improved so much, and there are many more stations than there used to be. Now that is the milestone we can all cheer about!



David, Bobbie and his FCEV
Nexo



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Creative Pathways to a Green Molecule

One of CHCOA's goals has long been for hydrogen to become "Green before the Grid". Often, hydrogen's current link to fossil fuels is cited by many in the electric car industry and environmentalists as to why they think there is no place for hydrogen in the green energy future.

For that reason, we were delighted to find out that Janice Lin, Founder and President of the Green Hydrogen Coalition (GHC: www.gh2forclimate.org) lives in Nevada City, which is a next-door neighbor city to Grass Valley, where we live. Recently, we sat down at a café in Nevada City to talk about her organization. Janice started out her career as a strategy consultant in New York City. She came to California in 1995 to join a venture capital firm. At that time, her work was focused on launching early-stage startups. After graduating business school, she realized she wanted to do something "good for the world" so she left the VC world to work for a small solar company, PowerLight Corporation (later was acquired by Sun Power Corp). Eventually she founded her own consulting firm called Strategen in 2005, to help organizations design innovative, practical solutions for the clean energy future. According to their website, their mission is to "empower and inspire global corporations, utilities and public sector leaders to accelerate grid modernization, decarbonize the planet, and improve quality of life around the world."

In 2016, Janice was serving as the Executive Director of the California Energy Storage Alliance, an industry trade association she founded in 2009. At that time, she was exploring how to achieve 100% renewable energy in the power sector, and the types/duration of energy storage that would be needed in the future. Lithium batteries effectively store energy for intraday (~4-6 hour energy shifting) applications, but to achieve a fully renewable power sector Janice realized that multi day, and eventually seasonal energy storage would be required. After searching for a storage solution to achieve such ultra long duration storage, she realized this could be accomplished with hydrogen. And if hydrogen could be utilized for scaled ultra long duration energy storage, it

can also be used as a fuel to decarbonize hard to abate sectors like maritime shipping and aviation. That's when she decided to found the Green Hydrogen Coalition, in the fall of 2019.

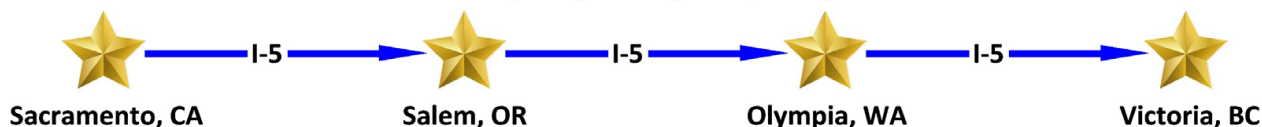
The GHC is a 501c3 educational non-profit whose mission is to facilitate policies and practices to advance the production and use of green H₂ at scale in all sectors where it will accelerate the transition to carbon free energy systems. Janice sees great potential for states like California and the US more broadly to produce hydrogen from renewable feedstocks, such as water and waste biomass. Technologies are commercially available today to convert these feedstocks into renewable hydrogen which can be used directly to displace fossil fuels, such as for use in a hydrogen car, or the renewable hydrogen can be used to create renewable alternative liquid fuels such as sustainable aviation fuel. Renewable hydrogen enables the production of a range of valuable fuels from locally abundant resources, thus enabling a circular economy, reduced reliance on fossil fuels, increased energy security and the creation of thousands of family sustaining jobs.

One of the GHC's key goals is to foster greater collaboration and sharing about green hydrogen's production pathways, transport, storage and multi sectoral end uses both on a regional and global basis. To further this goal, the GHC is producing an educational summit in Sacramento on June 30-July 1, the California Global Hydrogen Energy Transition Summit along with co-hosts the California Energy Commission (CEC), the California Air Resources Board (CARB), the Alliance for Renewable and Clean Hydrogen Energy Systems (ARCHES), and the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The event will be held June 30/July 1, at the California Natural Resource Agency Building. Its goal is to bring together policymakers and industry leaders from around the world to share progress and explore the role of clean hydrogen in accelerating our energy transition. Link to register: [California Global Hydrogen Energy Transition Summit — GREEN HYDROGEN COALITION](https://www.gh2forclimate.org/california-global-hydrogen-energy-transition-summit)

We're glad to have a person and an organization of such stature on our side, and in our neighborhood!



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FIRST PUBLIC H₂

A Bold Step Into the Future by America's First Public Hydrogen Utility

An exciting new Public Authority has entered the scene in Southern California! The First Public Hydrogen Authority (FPH₂) began in Lancaster earlier this year. FPH₂ was established as a Joint Powers Authority between the City of Lancaster and the City of Industry. We had the pleasure of sitting down for a Zoom call with two staff members, Paul Whang and Ashley Wegner in early March.

Both Paul and Ashley are Project Coordinators. Paul has a background in international energy markets and policies. Ashley has a background in project management.

Although the Authority has the distinction of indeed being the first Authority of its kind in the world, the City of Lancaster is no stranger to being considered a first. They were the first US city to embrace hydrogen power, earning the nickname "First Hydrogen City". Projects in Lancaster include Element Resources – which is the largest off-grid renewable green hydrogen production project in the US, and SGH₂, which is launching the world's largest waste to H₂ green production facility, processing 40,000 tons of waste annually (mixed paper waste) to produce 3,800 tons of green hydrogen per year.



Ashley Wegner



Paul Whang

It is the goal of FPH₂ to bridge the gap between hydrogen suppliers and off-takers, scale renewable, affordable, reliable, and transparent hydrogen for our public agency members, and help kickstart the broader hydrogen market. They realized that production sites weren't being

built rapidly enough, and off takers, including municipalities, transit agencies and industry partners were reluctant to invest in a hydrogen future until they could be assured production was available.

FPH₂ aims to prove that local Government can play a big role in the success of transportation-hydrogen's green energy future.

A bold step, and *their* success will be *our* success.



Hydrogen Snippets



Iwatani

Driving Forward:
Toyota's Hydrogen
Strategy in Partnership
with Iwatani



Next-Gen Fuel Cell System:

Toyota's new fuel cell system is more efficient, durable, and scalable – designed for everything from cars to heavy-duty trucks. Its enhanced performance helps lower costs and support broader hydrogen adoption.

Expanding the Hydrogen Fleet:

Toyota is expanding its hydrogen vehicle lineup with new light and heavy-duty models powered by its advanced fuel cell system, supporting global efforts to cut emissions and shift to cleaner energy.

Infrastructure Development:

Toyota is investing in hydrogen refueling stations, partnering with industry and government to build a strong, accessible network in key regions for hydrogen adoption.

For more information on Toyota's hydrogen initiatives, please refer to the official press release: [Toyota Expands Commitment to Hydrogen Society with Fleet, Infrastructure and Next-Gen System Debut - Toyota USA Newsroom](#)

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