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California Hydrogen Car Owners Association (CHCOA) Proton Monthly – October 2024

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Co-opetition: A Key to Success in the Transportation-Hydrogen Economy

We had a great meeting with Henry Jepsen, Field Engineer and Operations Manager (Hydrogen) at Iwatani (See page 2). At the meeting, one of the subjects discussed was recent news of "Co-opetition" among members of the transportation-hydrogen industry.

As defined in the Harvard Business Review, "co-opetition" means, "cooperating with a competitor to achieve a common goal or [to] get ahead." Although not confirmed, the term may have been initially used in relation to transportation-hydrogen by the Hydrogen Fuel Cell Partnership.

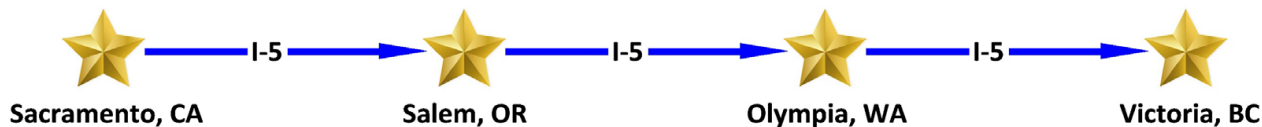
In the Oct. 17 webinar (See Page 4), Dr. Lew Fulton discussed a "Valley of Death" for transportation-hydrogen; that is, the time when station utilization is low and fuel costs are very high...sound familiar?

An important leg up out of the Valley is improved station reliability and reduced fuel costs. Simultaneous cooperation (e.g. sharing

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Iwatani

An Evening with Iwatani's Henry Jepsen



On Oct. 10, a few northern California CHCOA members met at the home of Tim and Lynnette McHargue in Sacramento. Henry Jepsen, Field Engineer and Operations Manager (Hydrogen) for Iwatani was the guest speaker.

We all learned quite a bit over the next 2 hours! Henry started out in the oil and gas industry but couldn't get the picture of dolphins frolicking in an oil sheen in the Gulf of Mexico out of his mind, so after a while, he began working in renewable energy in Chula Vista, using landfill gas for power production. This eventually led him to work in transportation-hydrogen at FirstElement Fuel, and then in June of this year, he switched over to Iwatani.

One of his first tasks at Iwatani was to join forces with Paul Wilkins, Iwatani Director of Engineering, and Robert Hines, Maintenance Manager on "Project Reliability", wherein they took on the task of upgrading Iwatani hydrogen refueling stations (HRS) in the State.

Of particular interest to us northern California folks was the West Sacramento Iwatani station, one of the oldest HRS in the state. It had been having challenges in recent years; from short fills, to 15-minute waits between fueling, to being offline for mechanical reasons. After the Shell stations in the Sacramento area started having their own issues, followed by the final pullout of Shell from the light-duty HRS business, the West Sacramento station really struggled, not only with its own mechanical issues but because it was (and still is) the only station in the Sacramento area. We very much appreciated that it was the *Little Station*

The Little Station That Could



A big thanks to the Iwatani station in West Sacramento! Recently, it has often been the only source of H₂ in the Sacramento area.

From our first newsletter – May 2023

That Could, but it was severely overtaxed, resulting in long lines and frustrated drivers.

Henry, Paul and Robert started to analyze the issues, figured out what the problems were and made needed changes. Much to the relief of the Sacramento area FCEV drivers, uptime at the station has improved radically, to 95%!

Henry, who drives a 2021 Mirai, admitted to "falling in love with hydrogen" before he made the move from the oil/gas industry. He defends its role in the ZEV industry by saying that it can create numerous jobs since the transition for an oil/gas worker to hydrogen production can be relatively easy. In addition, as a result of ARCHES, the move to greener and cleaner hydrogen is a win-win for the State.



The "inaugural" meeting of the NorCal CHCOA group: From left to right, Paul, Tadashi, Fumi, Glenn, Bobbie, Greg, Henry, and Tim

In order to reduce the time to resolve problems with stations, Iwatani is currently focused on in-house upgrades. For the foreseeable future, they will work to match the outstanding reliability now experienced by the "West Sac" station to the rest of the stations, statewide.

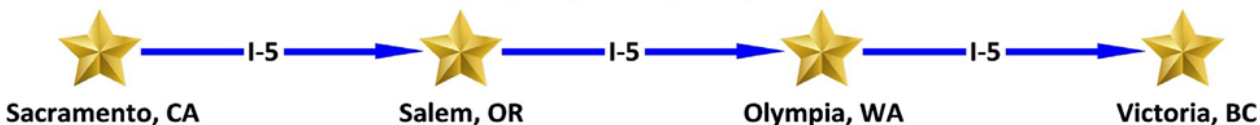
One of the more fascinating aspects of Henry's talk was the fact that there seems to be a movement towards more collaboration ("[Co-opetition](#)") among not only the H₂ providers; FEF, Iwatani, Air Products, Chevron, etc., but also more friendly relations and collaboration among the hydrogen OEMs, such as Toyota, Honda, Hyundai, Nikola, Ford, BMW, and GM, to name a few. All of this could only be good news for this fledgling industry that so many of us believe in.

His advice for CHCOA:

- Keep up the proactive support for H₂,
- Emphasize the importance of the number of jobs that can be created from hydrogen, and
- Remind the public of the energy independence that can come from the switch.

We owe a debt of gratitude to Henry and Iwatani for taking the bold move to improve station reliability state-wide, and to continue to promote hydrogen as a great alternative fuel!

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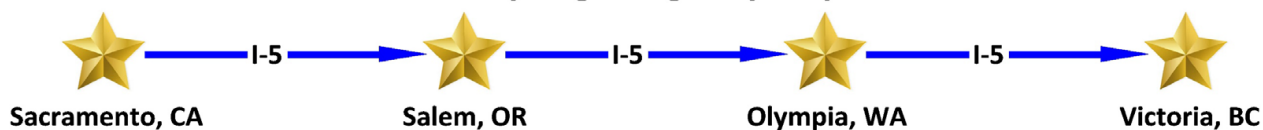
This is a sample of “*The Courage to Believe*” page/poster. This is open to drivers everywhere, not just those in California. We’ll also be asking the trucking and transit folks to join, as we are all inextricably linked to the same future goals.

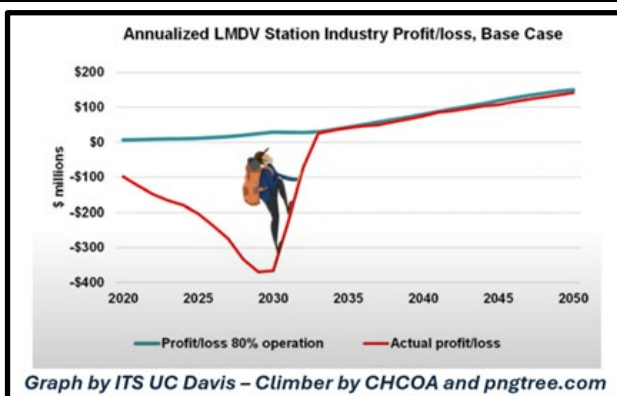


If you would like to be included, email either Bobbie or me a photo of you, your fuel cell vehicle by the third week in November. These will form a collage around the *Courage* wording. We’ll send out the results in the newsletter at the end of November. It will be available by poster, as requested.

Thanks, Greg: greg@h2tonps.org Bobbie: bobbie@h2tonps.org

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Continuing Our Climb Out of the “Valley of Death”

On Oct. 17, 2024, the UC Institute of Transportation Studies (ITS), in partnership with ARCHES, held a webinar entitled “Hydrogen at the Crossroads: Scaling Infrastructure, Vehicles, and Workforce for a Zero-Emission Transportation Future in California”.

Several notable hydrogen researchers were on hand to discuss ARCHES and what it means for the State of California, including ARCHES CEO Angelina Galiteva; Lewis Fulton, PhD, UC Davis; Timothy Lipman, PhD, UC Berkeley; and Daniel Coffee, UCLA. Also participating were guest respondents, Matt Miyasato, PhD, FirstElement Fuel, and Lorraine Paskett, Executive Director, Air Products and Chemicals. A link to the recording is provided [HERE](#).

While all the speakers and topics were well worth hearing, this synopsis will focus on the talks that were of particular interest to LD-FCEV owners. That is, Fulton, in his role as the Energy Futures Program Director, and Miyasato, from FEF.

Dr. Fulton spoke about the [report](#) his team prepared entitled “Fuel-Cell Vehicle and Hydrogen Transitions in California: Scenarios, Cost Analysis, and Workforce Implications”.

Although the ARCHES program focuses on HD trucks and buses, the key findings of Fulton’s report include light-duty vehicles, and it makes clear what is currently happening. Of the approximately 50 Hydrogen Refueling Stations (HRS) in California, the average utilization rate is 56%, which means they are “fairly severely” underutilized. This has a very negative impact on station economics. He goes on to describe what he calls the “Valley of Death” (see graph, red line) wherein HRS are underutilized, so companies must charge a high price for fuel to break even.

Over time, as stations get larger, station construction costs decrease and utilization rates improve, this problem should go away. By 2030, the model reflects that there will be 175 LD stations (with MD vehicles fueling at these stations). But he states that it is clear that supportive government policies will be needed for some time, through the 2020s, and possibly into the 2030s for LD-HRS. The scenario is similar for HD, but they won’t need support for as long because HD vehicles use a lot more hydrogen per refueling. If the LCFS is modified, that may help a small amount, but even at \$200/credit, it would not be sufficient to solve the problem. If LD stations are not supported by government subsidies, economic incentives, and other measures to make sure station operators can get through this period of time, it could result in bankruptcy for their owners.

Later in the webinar, Miyasato indicated that he concurred with the results of the ITS study. The “Valley of Death” scenario is real and happening right now as there is not enough throughput. The only revenue source is fuel sales and when sales are low, there is not enough to cover the cost of the stations.

While acknowledging that the State of California has done a lot (and is the reason for the existence of FEF in the first place) he called for more coordination across all state agencies such as ARCHES, CEC, CTC, CARB and GoBiz so they can agree on a unified State demand profile that will help with policy incentives to navigate through the Valley of Death. He is hopeful that ARCHES can help with that.

A Note of Support From GoBiz

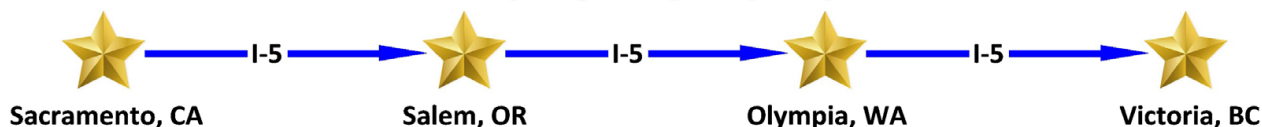
We would like to express our sincere gratitude to the California Governor’s Office of Business and Economic Development (GoBiz) for their support of our [upcoming trip](#):



“We wish the California Hydrogen Car Owners Association great success in their upcoming tour, “From Water, to Water: A Trip along the Hydrogen Highway”. The group will travel on the Hydrogen Highway (I-5) from California to British Columbia in order to further highlight the important role that clean, renewable hydrogen can play in the State’s, and in the Nation’s, energy future.”

- Tyson Eckerle, Senior Advisor, Clean Infrastructure and Mobility
- Gia Vacin, Deputy Director, Zero Emission Vehicle, Market Development Office

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The California Senate and Assembly are currently in recess and will convene on December 2, 2024 for the 2025-2026 session. So, there is no Legislative Update this month. There is, however, a funding update. There is lots going on with the California Air Resources Board (CARB) and the California Energy Commission (CEC).

CARB - Low Carbon Fuel Standard (LCFS)

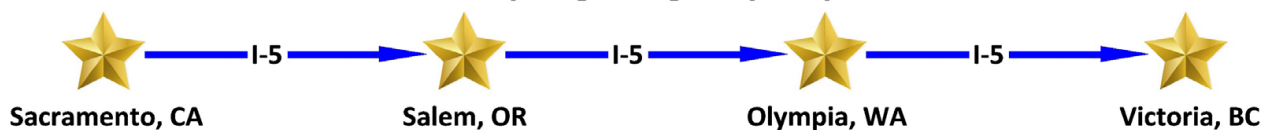
As many of you know, the LCFS was originally designed to decrease the carbon intensity of California's transportation fuel and provide a range of low-carbon and renewable alternatives. It is also intended to support the deployment of ZEV infrastructure. The stability of the LCFS is fundamental to the hydrogen market, as it allows hydrogen companies to build out infrastructure. For current LCFS FAQs, as prepared by CARB, see [here](#).

As referenced in our [September newsletter](#), the LCFS credit price has dropped significantly over the last 3 years. The LCFS is currently being amended to align with the most recent [AB 32 Scoping Plan](#). A hearing on this was held in May 2024. There have been three comment periods on the proposed changes and subsequent amendments since the May hearing. During the most recent comment period, there were 304 public comments received. Based on input received, CARB has made a number of modifications after the initial May proposal. Still, a review of the most recent comments indicates that transportation-hydrogen stakeholders have remaining concerns. Some concerns are included below. The entirety of the public comments are available on the [CARB website](#) (scroll down to **Comment Period 15-2**):

- *"Cutting off crediting for fossil-based hydrogen, penalizing it with a great obligation, and requiring 80 vol % renewable content is punitive at a time when the industry is facing serious economic headwinds."* (Green Hydrogen Coalition)
- *"The revised LMD-HRI and HD-HRI...put significant risks on station providers by limiting the HRI period to 10 years and capping the cumulative incentive amount received to 1.5 times the capex (capital expenditure – ed.) of the station, which is a double constraint".* (FirstElement Fuel)
- *"We request that previous grant-approved stations not yet built be grandfathered in with the current HRI regulations of capacity maximum 1,200 and 15 years of crediting, considering these projects had applied for Grants based on the previous economics and not the new proposed rule with a limit of 10 years and 1.5x CAPEX constraints."* (Japan Hydrogen Forum)
- *"To further continued growth of the nascent hydrogen fuel market, it is premature for CARB to eliminate feedstock pathways for hydrogen. LCFS credit generation should be determined by the CI of the fuel."* (General Motors, LLC)

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- *"CARB should allow medium-duty vehicles to fuel at either light-duty or heavy-duty stations."*
(General Motors, LLC)

The [final hearing](#) for the proposed LCFS will be held on November 8th.

"Shell" Funds

We've been following the \$41M that was awarded to Shell for building hydrogen refueling stations under GFO-19-602. As many of you may recall, Shell decided not to move forward with that agreement. We asked Mark Johnson, Air Pollution Specialist at CEC, about the disposition of those funds. He explained:

Of the original \$41M, \$7M had to be returned to the general fund because the encumbrance deadline had passed. Of the remaining ~\$33M, \$15M of that has recently been offered in GFO-24-601 (mainly for development of LD-HRS in Sacramento and San Francisco counties). No decision has been made yet about the remaining \$18M of the Shell LD-HRS money.

CEC - Clean Transportation Program

The 2nd CEC CTP Advisory Committee workshop for the year was held on Oct. 1, 2024. Of particular interest to LD-FCEV drivers was the fact that, after 120 comments advocating for more funding for LD-FCEVs were submitted to the docket following the 1st Advisory Committee meeting, there is now a \$15M dedicated funding category for hydrogen refueling infrastructure. The category includes LD along with MD and HD. However, the revised draft now includes \$38M for MD/HD *charging* infrastructure, but does not include *hydrogen refueling* infrastructure for MD/HD. It is widely recognized that fuel cell trucks will play a prominent role in the greening of the transportation industry in California. The ability of these trucks to carry heavier payloads makes it likely that they will haul the bulk of future over-the-road freight tonnage. It does not make sense, therefore, that we would spend \$38M for charging and nothing for H₂ refueling for these vehicles.

For more information, see CHCOA's [docket comment](#). Additionally, the huge disparity between total electric and hydrogen funding (\$78M vs \$15M, respectively) was noted [in the docket](#) by several other commenters.

CEC - New Grant Funding Opportunity (GFO) for Trucks and Buses

Another solicitation, [GFO-24-602](#), has just been released for \$30M dedicated to MD/HD from fiscal years 22/23 and 23/24 for H₂ fueling and/or charging infrastructure along designated corridors. \$6M of this is dedicated for H₂ only; the remaining \$24M is available for either technology.

This GFO does not include any money from Shell's canceled funds.



Co-opetition (Cont.)

concepts for improved equipment design) and competition (to help drive down fuel costs) will build more and better stations, which will lead to greater FCEV car sales, which will lead to more stations, etc., etc. A win-win for industry and H₂ drivers.

This is stated more succinctly by Matt Miyasato, PhD, Chief Public Policy & Programs Officer of FirstElement Fuel: *"We view co-opetition as vital for helping the industry get off the ground and enable faster growth. We need more station providers in more locations so the OEMs will sell more cars. This will also help establish a more robust supply chain and fuel supply options by providing a larger market. We can't do this alone."*

CLASSIFIEDS

Two items in this month's classifieds:

- We can use your help. If you would like to write a short article for the Proton Monthly or have current information about the status of an H₂ station construction (preferably with a photo), contact us.
- While we very much enjoy our work, after next year's Trip on the Hydrogen Highway we would like to transition to support positions here at CHCOA. If you are interested in being considered for the rewarding and challenging work at the Association's helm, send us a note.

- greg@h2tonps.org - bobbie@h2tonps.org

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