California Hydrogen Car Owners Association For Future

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California Hydrogen Car Owners Association (CHCOA)
Proton Newsletter – January/February 2025

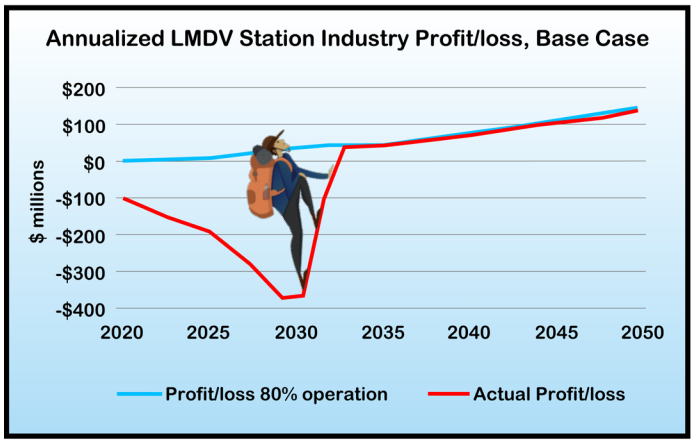
February 15, 2025 Ver: Jan_Feb 2025_1000

Malaise …

Henry Ford Had Bad Days Too

Molecule by Shutterstock
Clouds: ID 351659862 | Sad Cloud © Saad Khan | Dreamstime.com

And Motivation



Climbing Out of the Valley of Death

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

"We've got to stop crying and start sweating, stop talking and start walking, stop cursing and start praying. The strength we need will not come from the White House, but from every house in America."

President Jimmy Carter, "Malaise Speech", July 15, 1979

Malaise … No one could blame hydrogen car drivers for this season of malaise.

As early adopters to a new technology, we thought we knew what we were in for; very few refueling stations, high fuel prices relative to gasoline and diesel, and a public that needed convincing that there was an essential niche in the green energy future for transportation-hydrogen. Bobbie and I have been amongst the early adopters for about 3 years now; longer than some, shorter than many. I'll call this ***Phase 1***.

Then things got worse; the price of hydrogen at the dispenser increased dramatically, more than doubling since we bought our Mirai; Shell pulled out of the light-duty hydrogen market; the supply of gaseous hydrogen ran dry in Southern California and equipment failures across the state caused the number of available stations to actually decline. And, while there was some improvement in public acceptance (measured by legislative and funding successes) convincing Joe Public that light-duty hydrogen was a good bet was still difficult. ***Phase 2***.

There is no value in this venue for excess political commentary. There is, however, no doubt that the Trump presidency, now four weeks old, has had a chilling effect on hopes for the future success of LD FCEVS. Why? (1) By in large, we do what we do to help mitigate climate change. The President claims we are mitigating a "hoax", (2) Elon Musk, the most prominent anti-fuel cell personality on the planet is now the head of the Department of Government Efficiency (DOGE) and (3) The plug has been pulled (at least temporarily) on Hydrogen Hub permitting activity. These circumstances feed on the happiness of H_2 drivers. Think the Dementors of Harry Potter fame. ***Phase 3***

Motivation, See Page 2

. . . And Motivation

Admittedly, it's hard to keep up with events as decisions from the federal government impacting transportation-hydrogen seem to be occurring daily. In spite of the significant headwinds, we see numerous positive indicators that 2025 will be a breakout year[1].

CEC Grant Opportunities

GFO-24-601 - $10 M for LD HRS in Sac and SF areas. Also, $5 M for O & M for HRS anywhere in CA. Notice of Award, March 2025

GFO-24-602 - $30 M for BETs or FCETs. Notice of Award, March 2025

CFI Corridor Project – Joint project with Caltrans. $2.5 B over 5 years. Can fund MD/HD hydrogen refueling stations. **Comments due by Feb. 27** (Federal dollars here, stay tuned)

2025-2028 CTP Funding – The Plan provides $1.4 B of ZEV investments, of which $670 M is for MD/HD BETs and FCETs (State, not federal funds)

Truck and Car Symbiosis

Check out, and comment, on 19-TRAN-02 and 24-TRAN-03. See our docket filing on the former.

Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development (link)

A truthful look at the status of light-duty FCEVs in CA. The Dec. 2024 Report does not hesitate to call out the failures, and remaining challenges, of setting the path of H_2 cars to right in CA. Its conclusion, however, is upbeat:

"Despite the challenges, these programs remain focused on those goals and there is significant opportunity remaining in these programs to continue working to resolve challenges and expand the hydrogen fueling network so that larger numbers of consumers can reasonably and reliably choose to drive an FCEV as their ZEV of choice"

1) See Feb. 2024 Proton Monthly, Pg. 2

Image by ChatGPT

Transit Leaps Ahead with Hydrogen

CARB lists 41 California Transit agencies (40% of California's total fleet of buses) that have hydrogen buses planned, on order, or in operation. Many of these agencies will have H_2 dispensers with LD public access. (Source: ARCHES Paper, Pg. 7)

H_2 on the Move Newsletter

On Feb. 7, we welcomed the first edition of this hydrogen-specific newsletter from GoBiz. The newsletter is the result of the dedicated efforts of Catherine Dunwoody, Hydrogen Program Advisor and the entire team at the Office of Zero Emission Vehicle Market Development. An important article in the newsletter was the announcement of a large-scale hydrogen procurement program for the state.

ARCHES Transportation White Paper (link)

ARCHES H_2 investments in transportation-hydrogen, *"should also promote growth in the light duty FCEV market and accelerate station technology improvements across vehicle classes."*

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In recent months, we have seen the significant impact that driver advocacy can have on the outcome of funding decisions. I am a member of the Advisory Committee for the Clean Transportation Program Investment Plan. In just one example of the power of advocacy, from June through October there were well over 100 pro-hydrogen comments to the docket. The Plan was revised by staff to designate specific funding for LD HRS and to include hydrogen in MD/HD funding.

To paraphrase President Carter,

The power to make change will not come from the White House, or the State House, but from us, the households of America that believe in the promise of transportation-hydrogen.

\- Greg

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RE+ CHARGE H2

At the RE+ CHARGE H2 event in Seattle last November, we met briefly with co-organizer Aaron Feaver, Ph.D., Director of Washington State University's (WSU) Joint Center for Deployment and Research in Earth Abundant Materials (JCDREAM) and Consortium for Hydrogen and Renewably Generated E-Fuels (CHARGE). We arranged to have a follow-up Zoom call with him in December to learn more about what is happening with hydrogen in the State of Washington.

CHCOA: Washington seems to be catapulting ahead on transportation-hydrogen. To what do you attribute this?

FEAVER: A few years ago, near the tail end of the pandemic, JCDREAM was looking at all clean energy sectors, and realized we had an abundance of energy supply, especially from hydropower. On the other hand, Washington State has a number of industries, from aerospace to maritime to computing, that are difficult to decarbonize with electricity alone — and instead require the use of hydrogen or hydrogen-containing clean fuels**.** We started talking to corporations and government entities, gathered as many interested folks as we could, and started testing the waters. As a part of this work, we looked at what California was doing with hydrogen, and decided to "go for it". The result was CHARGE, which focuses on green hydrogen and renewable e-fuels. All of this was created before the Hydrogen Hubs.

Dr. Feaver, "Walking the Walk"

CHCOA: Regarding the WSU campus is there, or will there be, a hydrogen station there?

FEAVER: The U.S. Department of Energy awarded WSU grant funding of $4.8 million for hydrogen fuel research. As part of this grant, we will build a heavy-duty hydrogen fueling station on the Pullman campus. The grant also provided for the purchase and operation of a mobile liquid H_2 trailer, a real bonus for extending the reach of hydrogen fueling locations in the State.

WSU will also receive $1.8 million as a partner in a $10 million HYPER-Fuel grant led by the Plug Power company.

CHCOA: Can you tell us a bit more about the HYPER lab, and how it might change fueling infrastructure in the future?

FEAVER: Yes, HYPER stands for "Hydrogen Properties for Energy Research". It is unique in the country because it's the only cryogenic research center in US academia. It was initiated by Associate Professor Jacob Leachman in 2010. The results of their work will improve hydrogen refueling stations for medium- and heavy-duty vehicles. The noted hydrogen fueling station in Pullman is expected to be operational for research in the middle of 2026. It will ultimately fuel WSU and community vehicles.

CHCOA: The Northwest is lucky to have hydropower, a great and renewable resource for producing hydrogen. Can you tell us more about it?

FEAVER: Hydropower is great for the Pacific Northwest – it provides a baseload that we can tap into, although it is almost getting "tapped out", partly because data centers demand so much energy. We are working with some of our dams, such as Wells (in central WA) to see if with better utilization, more electricity can be directed to run electrolyzers. This could possibly also work with the Bonneville Power Administration dams (southern WA). We are also building more solar farms. Ultimately it will be a combination of both.

CHCOA: In California, we get a lot of pushback from electric car owners and environmental justice groups due to the fact that, as of yet, hydrogen is most often produced from fossil fuels. Do you get that too?

FEAVER: Yes, we do, but we are not strongly promoting light-duty H_2 in WA at this time. Electric is viewed as a more efficient use. Our transit companies have been early adopters of H_2, such as Lewis County Transit near Chehalis. We find that electric works better in some instances, hydrogen works better in others. CHARGE is working on both technologies.

JCDREAM
JOINT CENTER FOR DEPLOYMENT & RESEARCH IN EARTH ABUNDANT MATERIALS

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After attending the CHARGE H2 event in Seattle last November, Greg and I took a little time after the conference to reconnoiter the route we will take on the Hydrogen Highway trip next September. In the process of that, we had the opportunity while in Vancouver, BC to visit with Julia Mercer, the External Relations Coordinator for **HTEC** (Hydrogen Technology and Energy Corporation).

HTEC, which owns and operates five hydrogen stations in British Columbia, has been involved in designing, building, owning, and operating hydrogen fueling infrastructure for LD/MD/HD hydrogen transportation since 2004. Three of their LD stations are in the greater Vancouver area, another station is in Kelowna and the fifth station is near the Provincial Capitol in Victoria, Vancouver Island.

Julia was born in Newfoundland, Canada, but moved west to where more opportunities to work in sustainability were located. She has worked for HTEC for a little over 2 years and loves driving the HTEC company Mirai.

Left to Right – Bobbie and Greg Cane; Julia Mercer

In 2018, HTEC built the first retail hydrogen refueling station in Canada. Their primary source of hydrogen is through electrolysis powered by the province's abundant hydropower. Last May, they received a **$337 million loan** from the Canada Infrastructure Bank (CIB) which will, among other things, allow them to build more hydrogen production facilities in Western Canada, some of which will additionally use electrolysis from hydropower. They are predicting that it will also result in 20 new hydrogen refueling stations throughout Canada, including several heavy-duty stations. At the present time, they are charging their customers an enviable $14.70/kg.

Julia and her co-workers at HTEC work closely with the **Pacific Northwest Hydrogen Hub,** which includes Washington, Oregon and Montana, and they enjoy bipartisan support in their Parliament for transportation-hydrogen. She gave us invaluable information that will help us in our hydrogen tour in September. It was a pleasure to spend an hour with this vibrant, intelligent, and dedicated young woman! - Bobbie Cane

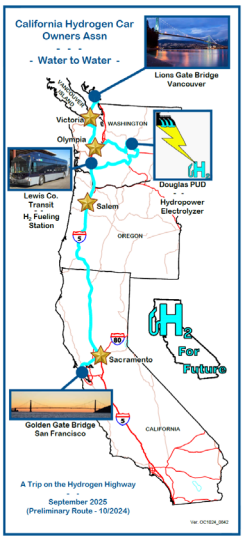
Hydrogen Snippets

Southern California Wildfires

In the 2024 March/April Proton Monthly, it was announced that the 2023 Platinum Proton Award was presented to Toyota. Along with the award, CHCOA makes a $500 donation to a worthy cause. In January, $500 was sent to the American Red Cross for use in aiding California wildfire victims. At least two CHCOA members lost their homes in the fires.

LCFS Update

The CARB LCFS Monthly Average Credit price held steady from November to December at $70 per metric ton (MT). Sadly, industry sources indicate that hydrogen fuel prices will likely not significantly decline at the dispenser until the LCFS Credit price climbs above $100 per MT.



Trip on the Hydrogen Highway

Plans are coming along for our "Water to Water" trip on the Hydrogen Highway, planned for September of this year. We are currently preparing letters and brochures of our trip plans to be sent to various groups in which we will make a final, concerted effort to secure a mobile fueler. These will go out to all CHCOA members, hydrogen-related government agencies, H_2 lobbyist groups, truck and transit agencies, hydrogen car OEMs, H_2 fuel station owners, pro-H_2 legislators and, of course, mobile fueling companies. We are inviting folks who drive FCEVs to join us on all, or just a part, of the trip as we make our way from the Golden Gate Bridge through the western state capitols up to the Lions Gate Bridge in Vancouver, BC. We plan to send out these mailers by the end of February.

(See next page)

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Light-Duty FCEV Panel

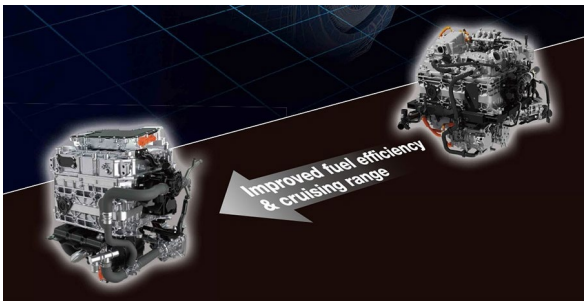
As we discussed at the top of this newsletter, despite some overall recent positive H_2 news, many of us have been impacted by a measure of malaise in recent weeks. To help with this, CHCOA is currently working on sponsoring a panel of four or five LD FCEV experts for a one-hour Zoom meeting to discuss what we, as drivers, can do now to motivate the momentum. - Stay tuned -

H2B2 Update

This green hydrogen production company was highlighted in our March/April 2024 Proton Monthly. According to the Final Project Report, H2B2's SoHyCal project has completed Phase 1, which is expected to generate up to 1,000 kg/day of 100% emission-free hydrogen. It will serve HRS in the San Joaquin Valley and the San Francisco Bay Area. Phase 2, expected to be completed by Q2 2026, will increase production to 3,000 kg/day.

New Fuel Cell

A bit of late-breaking news that did not make it to the Motivation page. On Feb. 14, Toyota announced their 3rd generation fuel cell stack. The new fuel cell will address a main criticism of FCEV's detractors, that of fuel efficiency. The new stack will have 20% more fuel efficiency and 20% more range.



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