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California Hydrogen Car Owners Association (CHCOA) ***Proton Monthly – June/July 2024***

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By: Chewgag on DeviantArt, as modified by CHCOA

An ancient moral-of-the-story still rings true.

A Busy Couple of Months for Light-Duty FCEVs in California

We are not complaining, but it does take a fair bit of time to put together a newsletter. Bobbie and I have been on vacation visiting family for the past few weeks and have fallen behind in our newsletter duties, thus, the lateness of this edition.

As it turns out, one of the highlights of our trip was a tour - with our eldest grandson - of the Douglas County, Washington, Public Utility District (PUD) Hydrogen Electrolyzer Project. The power is sourced from the existing (green 😊) Wells Hydroelectric Dam on the Columbia River. When Phase 1 is completed in late 2024, the facility will produce 2 tons/day of hydrogen. As a complement to the project, the PUD is also constructing a light-duty Hydrogen Refueling Station in the nearby town of East Wenatchee. PUD staff indicated that we will be welcome to fuel up there on our September 2025 trip on the Hydrogen Highway.

Much more to come about this project in the August Proton Monthly.

We also have a mea culpa to confess. In the May issue of the newsletter, we stated that John Michael Parkan, in addition to owning an FCEV, also drove a *Honda* Ioniq, but the Ioniq is actually a *Hyundai* model. Our apologies.

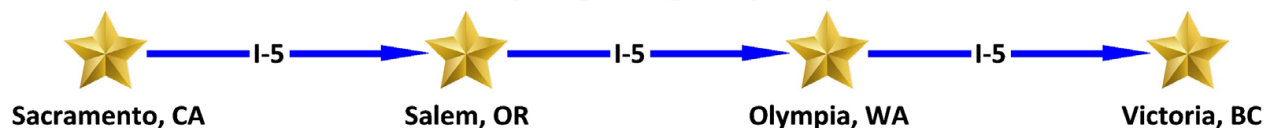
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A Rocky Road to Success for Light-Duty FCEVs

The Advisory Committee for the California Energy Commission's Clean Transportation (CEC CTP) Plan update, met on June 7, with both in-person and remote attendance by the 30 Committee members.

A few of the members are returning from last year's Committee, but since the CEC "refreshed" the Committee this year, many members are first-time participants (including Greg).

At the meeting, CEC staff described the proposed CTP funding for fiscal years 2024-2025 and asked the Committee to weigh in with their opinions. Here is what was proposed for the base funds:

- \$37 Million for LD (**Electric vehicles only, no hydrogen**)
- \$55.2 Million for MD/HD (electric, hydrogen)
- \$3 Million for Workforce Development (electric, hydrogen)

For background, Greg pointed out the benefits of driving an FCEV, including 5 minute refueling time and a 400-mile range. He also brought attention to current efforts to produce more green hydrogen because, as was stated by some BEV members on the Committee, one of hydrogen's biggest drawbacks is that it is currently produced mostly from fossil fuels. Lastly, he highlighted South Korea, and their very successful efforts at deploying FCEVs because they had the foresight to create a substantial fueling infrastructure first.

Katrina Fritz, fellow Committee member and CEO of the California Hydrogen Business Council (CHBC), asked if there was a plan to meet the previously-stated goal of 200 hydrogen refueling stations (HRS) by 2025. Additionally, she added CHBC's support to the opinion that LD and MD FCEVs should be grouped together. (As background, currently MD/HD is the combination cited in the proposed CTP funding. The latest thinking is that since drivers of MD trucks - e.g., box trucks and delivery vans - currently fuel at traditional gas stations, it is reasonable to anticipate that in the future, MD FCEVs will fuel at the same dispensers as LD FCEVs). Lastly, Ms. Fritz remarked that the Shell funding should continue to be used to support LD fueling infrastructure.

(As background, in 2020 Shell received \$41 M to construct 50 HRS. In 2021, they requested to cancel this grant agreement with the CEC. CEC then listed this money as unsubscribed.)

From the point of LD FCEV owners, the subject of the returned Shell funds became one of the most consequential discussions of the meeting, as evidenced by the following question from a Committee member/BEV advocate, and the CEC response:

Committee Member/BEV Advocate:

"...is the CEC required to direct unsubscribed hydrogen funding from last year, in this year's budget to hydrogen applications, or can it be reallocated to a non-hydrogen to like to battery electric charging infrastructure?"

CEC Staff Member:

"Your question is about a recent fiscal year's hydrogen funds. We have about 4 years in which to encumber funds from each investment plan into a project before we lose the ability to use those funds in the future. If we have not yet encumbered funds, we may still have time to do so. In some cases, for instance, I think, as related to the Shell agreements funding that we had to drop, some of that funding was then repurposed into the Hydrogen Refueling Stations - Operations and Maintenance solicitation. So, it still retains that hydrogen refueling infrastructure funding category and those funds do retain that categorization until, or unless, the CEC revises a previously adopted Investment Plan allocation, which we do have the authority to do. We have not done it in the last couple of years, to my recollection."

It was perhaps this equivocation on the part of CEC, relative to the certainty that the Shell money would continue to be used for the improvement of light-duty fueling infrastructure, that created the firestorm of comments to the docket. Over the next several days, CHCOA was pleased to see that there was a total of 130 comments submitted in support of LD FCEVs. Drivers, who are already frustrated by:

- the lack of reliable fueling stations,
- the failure of the State to follow through on the promise to build the needed stations, and
- the dearth of funding for LD H₂ stations in this CTP funding cycle

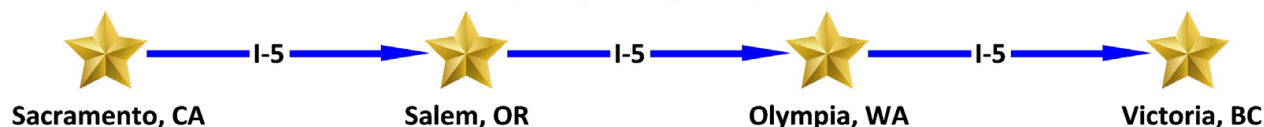
saw this as an additional slap in the face.

Included in the comments were strong letters of support by Senators Archuleta and Newman and six other prominent CA Legislators.

A huge thank you to all of you who contributed comments. It remains now to be seen what the CEC will do. The 2nd draft of the Plan will be published on 9/18/24 and the next meeting of the CTP Advisory Committee will be on 10/1/24.

A recording of the June 7 proceedings can be viewed [here](#).

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Over 500 people attended the 3rd annual California Hydrogen Business Council Hydrogen [Leadership Summit](#) on June 16th and 17th in Sacramento.

CHCOA was proud to be there with a total of seventeen members in attendance, many of whom we had made contact with over the course of this past year but had never met in person. Some of us were even able to have a quick meeting together during the lunch break (see picture).



The lively and upbeat conference brought together hydrogen speakers and panelists and featured industry and government leaders, including four California Legislators: Senators Newman and Archuleta, and Assembly Members Carillo and Petrie-Norris.

Of particular note to the CHCOA members was the excellent speech given by Senator Newman. In it, he highlighted the need for the State to catch up on their promise of ongoing support of Light Duty (LD) FCEVs, which he called “the canary in the coal mine”. He reiterated that LD FCEVs must be a part of the mix of zero emission vehicles if California is going to meet its ambitious decarbonization goals.

Newman pointed out that “two governors and multiple legislatures over the course of more than a decade and a half articulated and funded a set of policy goals that included light-duty hydrogen as part of the solution to transitioning California’s transportation fleet to zero-emission by 2035,” but as we all know (and the Senator pointed out in no uncertain terms) too many hydrogen refueling stations are not operating reliably on any

given day. Additionally, he noted that there will be nowhere near the 200 stations in 2025 that were mandated by Executive Order B-48-18, and that the price of hydrogen has been inexplicably high for some time now.

He hit all these points and closed by offering his help to get California back on track to avert what he called “a series of suboptimal outcomes” in California’s overall approach to decarbonization. We encourage you to read his speech, which we have included in CHCOA’s library [here](#). We owe him a debt of gratitude for putting into words so powerfully what we know about the importance of LD-FCEVs, and the frustrations that we are all experiencing.

The excitement and momentum of the Summit was contagious, and it was gratifying to realize that all of us “pioneers” in this technology have made a huge contribution to the momentum that is now being felt in the hydrogen industry.

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A Peek at the Early CHBC

CHCOA’s own Glenn Rambach was a member and an attendee of the very first meeting of the California

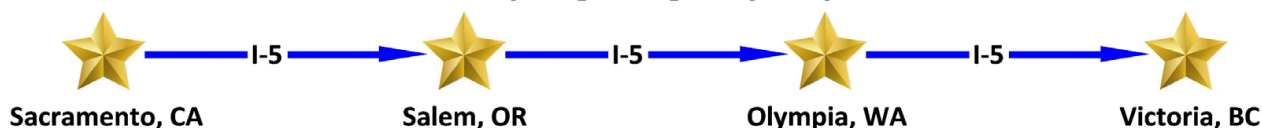


Hydrogen Business Council, back on June 4, 1997. Here are two pictures he sent to us of the event, held in a hotel in San

Jose, CA. This certainly shows how interest in transportation hydrogen has grown. This first event also featured a 1992 Ford 2000cc ICE pickup. We owe a debt of gratitude to these visionary men and women for their early commitment to hydrogen!



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Hydrogen Lobbying, Meeting Maggy and Getting a Free Fuel-Up!

By Timothy McHargue

Several weeks ago, I received an invitation to attend an event at the West Sacramento Iwatani hydrogen pump. This event, on July 12th, was sponsored by the California Hydrogen Coalition to publicize the fact that we are in urgent need of more fueling stations for our light duty vehicles.

Theresa Cooke of the Hydrogen Coalition organized this publicity effort, and the guest of honor was one Maggy Krell, presumptive Representative for the 6th Assembly District (Sacramento area). Maggy Krell polled the most votes in the primary election for the Assembly position that Kevin McCarty is leaving in his bid to become Sacramento Mayor.

When I arrived at the gathering a small group of folks was discussing the trials and tribulations of hydrogen fueling with the representatives from the Coalition and their hydrogen lobbying outfit (CA Lobby). Maggy had yet to arrive. A representative from Iwatani, Henry Jepson, discussed their plans to work on the West Sacramento pump to make it less prone to disruption, and mentioned possible expansions in the Sacramento area.

The Mirai and Hyundai owners were vocal about the repeated failures of the pumps to deliver in a reliable fashion. One gentleman who had long ago exhausted his Toyota credit card of \$15,000 complained about the high cost of the fuel at these pumps—when they worked. “I usually leave the car in the garage,” he shared. “Too expensive.”

Soon Maggy Krell arrived and was introduced to those of us discussing our hydrogen vehicles. It was not immediately apparent that she knew much about hydrogen vehicles (not being an owner herself) but she seemed ready and willing to learn and listen to what we had to say.

Theresa asked if I would mind if Maggy took my Mirai out for a spin. “Of course not”, I replied. Then I remembered that my car windows were dusty from the trees in my Land Park neighborhood. I had brought along Windex but had yet to get around to cleaning them.

“Never mind,” Theresa replied, and said that my Mirai was presentable and appropriate for a quick demonstration.

Next thing I know, I’m riding in the passenger seat with Maggy at the wheel. It did not take me long to realize that I resided in the District Maggy was a candidate to represent—which may have been why my vehicle was picked. I’m a constituent of the 6th District. I also vaguely recalled voting for Maggy, an unknown entity to me but heavily recommended by everyone I respected.

“We love our cars!”, I offered in conversation with Maggy. “Being off petrol is a wonderful thing. What we’re not so happy about is the lack of hydrogen facilities, especially in the Sacramento and Northern California area.”

Maggy and I continued to discuss electric and hydrogen fuel cell vehicles. She did not have much experience with alternative energy vehicles, but she was very interested. I mentioned plans for future stations and expressed the desire that these be expedited, for the sake of us light duty vehicle owners as well as for the planetary climate crisis.

Before much more could be said, we were back at the West Sacramento pump. We parted company and I thanked her for showing interest in our hydrogen dilemma. I also made a mental note to help Maggy Krell get elected to my Assembly District. Anyone interested in hydrogen gets my vote!

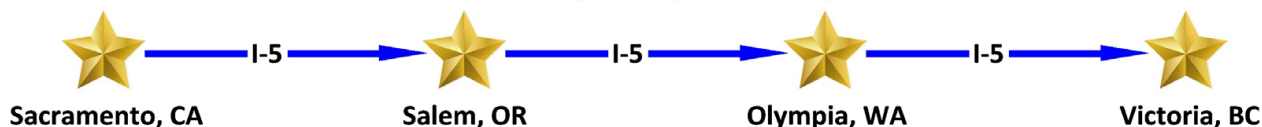
I had intended to fuel up if the opportunity presented itself. The Iwatani representative, Henry, invited me to pull up to the pump, which I did. I then presented my Toyota credit card and he said, “No need, the fuel’s on me.”

I drove away with a full tank, the promise of more reliability at the West Sacramento pump and knowledge of a new legislator who appeared very interested in our promotion of hydrogen as a fuel for the future.



Maggy in Tim's Mirai (Courtesy of California Hydrogen Coalition, on Facebook)

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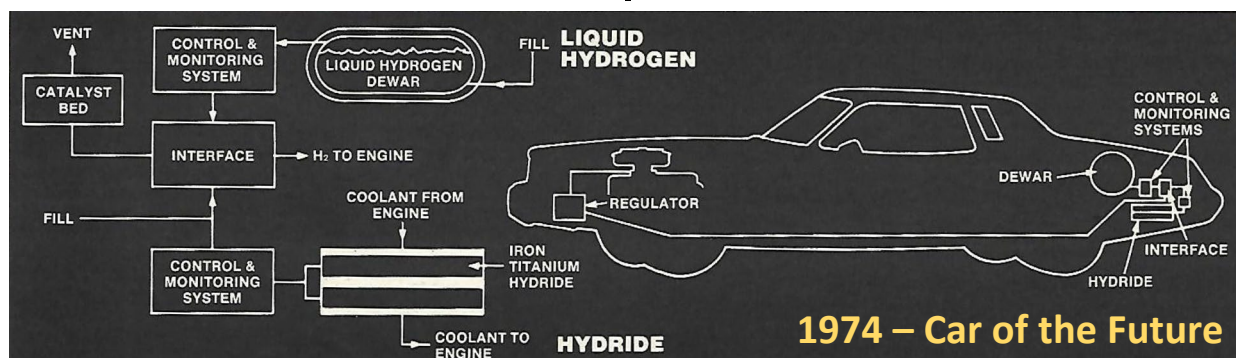


When It All Began
By Stephen Mirkin

Do you remember when you first became interested in hydrogen as a fuel for cars? I do. It was May 1974, and I was thumbing through my issue for that month's Motor Trend magazine. We were in the middle of a fuel crisis in the USA. An oil embargo from the middle east had caused gas prices to soar or severe shortages at gas stations. The concern over fuel economy had become a major

As the years went by, I never lost interest in hydrogen, even though the car companies had no real interest in replacing fossil fuels for their products. Then, at the 2017 LA auto show, there was a Honda Clarion and a Toyota Mirai on display and I was able to test drive the Clarion. An electric car powered by a fuel cell? It was amazing. Yet, I was not in the market for a new car and so the dream stayed a dream.

Now, 50 years later after first learning about hydrogen to fuel our cars, I am driving my 2022 Mirai. It was in February 2023 that I made the move to sell my Subaru WRX car and purchase a car powered by a fuel source that I first learned about in that issue of Motor Trend. I still kept the paper I wrote in December 1974, but that magazine was long gone.



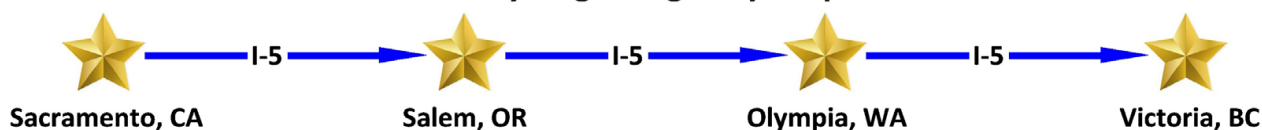
concern of the car community. Besides offering ways to improve MPG, alternative fuels were being considered if the crisis was to continue. And there it was, in this issue was an article on an alternative fuel for cars: Hydrogen!

There, in a big H on page 76, was the story entitled "*H is for Hydrogen*". It fascinated me. People had always dreamed of a car that ran on water and here was the basis for using hydrogen as a replacement fuel for the internal combustion engine. It laid out who was working on the science; how Roger Billings and Frank Lynch had developed a system to use hydrogen in place of gasoline. This impressed me so much that in December of 1974 I wrote a paper for my college English 1 class documenting all that I could find on the application of hydrogen as a replacement for gasoline. At that time hydrogen's use in fuel cells was only for the space program and not for automobiles.

Back to the future! And thank you eBay. I was able to find a pristine issue of that Motor Trend magazine and now I have truly come full circle; without the use of a time machine.

If you have a dream, hold on to it. You never know when science will catch up to your dream and it will become a reality. Then, one day, we might be able to say, "beam me up, Mr. Scott".

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CHCOA Ventures into AI

We asked CHCOA member Paul Whitman to write an article about the close relationship between light-duty and heavy-duty FCEVs. Paul said “sure”, and that since he is experimenting around with AI, he’d like to take a stab at letting the computer do the hard work, while he provides the general outline.

You be the judge, but it looks like us newsletter publishers may soon be looking for other work 😊.

Paul’s outlined directive:

- Write an article in 250 words for a small association about the synergies of light and heavy-duty fuel cell vehicles. Include the following demo performance data from Nikola: Miles: 42,392, Avg LOH: 187, Avg. mi/kg: 8.13, Avg mi/DGE: 9.07, Truck Uptime: 92.9%, Fueling Uptime: 97.9%, Overall Uptime: 95.4%* From September 13, 2023 - May 31, 2024. * Includes fuel station down time (The AI author was “Claude”)

SYNERGIES BETWEEN LIGHT AND HEAVY-DUTY FUEL CELL VEHICLES

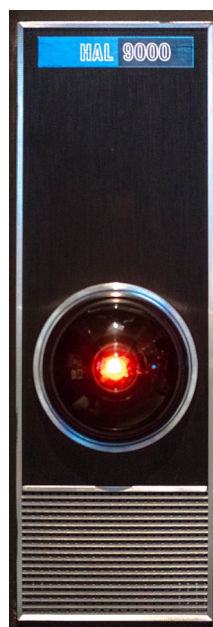
THE FUEL CELL VEHICLE (FCV) INDUSTRY IS WITNESSING A REMARKABLE CONVERGENCE OF TECHNOLOGIES ACROSS LIGHT AND HEAVY-DUTY APPLICATIONS, CREATING SYNERGIES THAT ARE PROPELLING THE SECTOR FORWARD. AS BOTH SEGMENTS ADVANCE, THEY MUTUALLY BENEFIT FROM SHARED INNOVATIONS IN FUEL CELL STACKS, HYDROGEN STORAGE, AND REFUELING INFRASTRUCTURE.

LIGHT-DUTY FCVs HAVE PAVED THE WAY WITH CONSUMER-ORIENTED FEATURES AND EFFICIENCY IMPROVEMENTS. THESE ADVANCEMENTS ARE NOW BEING ADAPTED FOR HEAVY-DUTY VEHICLES, ENHANCING THEIR PERFORMANCE AND DRIVER EXPERIENCE. CONVERSELY, THE ROBUST ENGINEERING REQUIRED FOR HEAVY-DUTY FCVs IS INSPIRING DURABILITY IMPROVEMENTS IN THEIR LIGHTER COUNTERPARTS.

THE HEAVY-DUTY SECTOR, PARTICULARLY LONG-HAUL TRUCKING, IS DEMONSTRATING THE VIABILITY OF HYDROGEN POWER FOR DEMANDING APPLICATIONS. NIKOLA, A LEADER IN THIS FIELD, HAS RECENTLY SHARED IMPRESSIVE PERFORMANCE DATA: FROM SEPTEMBER 13, 2023, TO MAY 31, 2024, THEIR TRUCKS COVERED 42,392 MILES WITH AN AVERAGE LOAD OF 187 MILES. THE EFFICIENCY METRICS ARE NOTEWORTHY, WITH 8.13 MILES PER KILOGRAM OF HYDROGEN AND 9.07 MILES PER DIESEL GALLON EQUIVALENT.

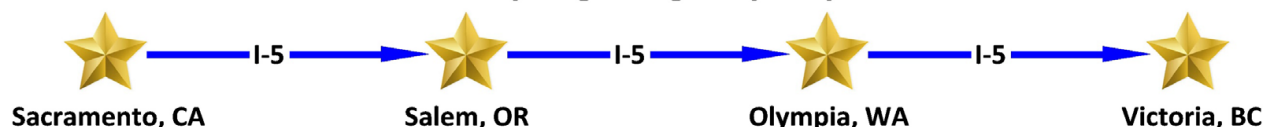
RELIABILITY IS CRUCIAL FOR COMMERCIAL OPERATIONS, AND NIKOLA'S DATA SHOWS PROMISE. TRUCK UPTIME REACHED 92.9%, WHILE FUELING STATION AVAILABILITY WAS 97.9%, RESULTING IN AN OVERALL UPTIME OF 95.4%, INCLUDING FUEL STATION DOWNTIME. THESE FIGURES DEMONSTRATE THE GROWING MATURITY OF FUEL CELL TECHNOLOGY IN DEMANDING, REAL-WORLD CONDITIONS.

AS BOTH LIGHT AND HEAVY-DUTY FCVs CONTINUE TO EVOLVE, THEIR SHARED ADVANCEMENTS ARE ACCELERATING THE DEVELOPMENT OF A ROBUST HYDROGEN ECONOMY. THIS SYNERGY IS NOT ONLY IMPROVING VEHICLE PERFORMANCE BUT ALSO DRIVING DOWN COSTS AND EXPANDING INFRASTRUCTURE, PAVING THE WAY FOR WIDESPREAD ADOPTION OF THIS CLEAN TECHNOLOGY ACROSS VARIOUS TRANSPORTATION SECTORS.



So, in the future, ask Claude, or HAL. Dave did.

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Status of the California Bills that CHCOA is currently tracking:

[AB 2147](#) Mathis; Hydrogen fueling stations: job creation and workforce development.

Status: Held under submission in Senate, 5/16/24. (We spoke with Mathis' Chief of Staff, Matthew Tuttle on May 30, who verified that the bill is dead for this session. It was a "tough fiscal year" to pass it, he said.)

[SB 1418](#) Archuleta/ Newman/Petrie-Norris/ Dodd; Hydrogen fueling stations, expedited review.

Status as of 7/29/24: Bill passed out of the Senate on May 21. From there it went to the Assembly Committees on Local Government and Transportation, and then on to the Appropriations Committee where it was amended on July 3rd and re-referred to the same Committee.

[SB 1420](#) Caballero/ Archuleta/Dodd/Newman; Hydrogen production facilities: certification and environmental review.

Status as of 7/29/24: Bill passed out of the Senate on May 22. From there it went to the Assembly Committees on Utilities & Energy, and Natural Resources, was amended and sent to the Appropriations Committee, amended again and re-referred to the same committee on July 8.

[SB 1387](#) Newman; CA Hybrid and ZEV Truck and Bus Voucher Incentive Project.

Status as of 7/29/24: Bill died in the Assembly Transportation Committee. According to Brandon Wong, Aide to Senator Newman, "The Chair was concerned that HVIP is oversubscribed and that expanding eligibility to new vehicles when there are limited funds available was bad policy." There had been a similar Assembly Bill that had died previously in that same committee.

Note: The Legislature has been on recess since early July and will reconvene on Aug. 6.

See: [A Guide for Accessing California Legislative Information on the Internet](#)

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