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Hydrogen manufacturing

I've been a hydrogen fuel cell vehicle owner since 2021. I am a member of the California Hydrogen Car Owners Association (CHCOA). The price of hydrogen at the filling stations has tripled since I purchased the car. At $36/kg, it is now at the equivalent price as if gasoline was $18/gal. The high price has destroyed the value of our cars, where they are now worth 10% of what the MSRP was when we purchased them, in only a couple of years. Over 100 of us are in arbitration with Toyota (in what started out as possibly a class action lawsuit) over this massive financial loss and lack of fuel availability. Collectively, as hydrogen car owners, we have lost way into the millions. For the most part, we're not rich people with money to burn. We're average people with average incomes or fixed incomes, and want to be responsible.

Several car manufacturers have hydrogen powered vehicles ready to go out into the market. This includes Hyundai, Honda, and several more. There's hydrogen internal combustion engines coming out from Toyota. They and many others are also using fuel cell technology, which also is progressing rapidly in efficiency, and at much lower cost, Fuel cells have been around since the 1950s and are safe and work well.

Hydrogen makes sense since the filling time is only about 5 minutes, and yields for most people around 300 miles. Many like us, live in apartments and do not have battery electric vehicle charging stations nearby. I've heard that the electric grid infrastructure is not capable of handling charging for more than 10% of the total number of all vehicles in California. So to make that viable for more than 10%, billions of dollars would need to be invested into the grid and into power generation. Yet the methane gas from our landfills and sewage treatment plants goes into the air.

Methane gas can be processed into hydrogen fuel. The new plant in Long Beach is an example. See their web site at https://oneh2.com/projects/long-beach-hydrogen-terminal/ It uses steam-methane reformation (SMR) technology to process the methane gas. They're not the only ones researching various methods to produce hydrogen gas that can be used for automotive fuel.

I would strongly urge that these types of technology that can be used to produce fuel at industrial levels. That would greatly increase the viability of hydrogen as a fuel in the long run.

Supply is a huge part of the problem. First Element Fuel runs the vast majority of hydrogen stations under the brand name of True Zero. As a member of CHCOA, I toured their facility in Santa Ana recently. Their station reliability is getting very good now, for liquid hydrogen fuel delivery. They did this mainly due to their own in house research and development of pumps used for compressing the hydrogen with seals and

valves that will withstand the low temperatures and high pressures of one of the smallest molecules on earth. But with fuel prices so high, their investment cannot do well long term. The high prices are driving car sales to zero, and fewer and fewer cars are on the road now.

One of the biggest challenges to hydrogen fuel is the oil industry. It's a multi-trillion dollar industry which contribute massively to many countries economies worldwide. So you will likely get lots of negative comments saying hydrogen is not viable.

Let me give you an example of how this influence is not in the public's best interest. About 14 or 15 years ago, I was working in hydrogen research on my own, and saw a full size pickup truck in my local hardware store parking lot with the sign "This Truck Powered by Hydrogen" across the rear window. Of course I went right over and struck up a conversation and we became friends. He invited me over to work with him on hydrogen research, at his wonderfully equipped shop. He was the guy that built the Harley used in the movie Terminator 2 - that bike had a nitro booster on it - he was a brilliant engine specialist and had won best in show at the Sturgiss bike rally 6 years in a row.

What really caught my attention was the modifications he showed me on his pickup truck. Without those, it would get a 'normal' 7-8 mpg, especially when towing his full sized travel trailer. Well, he'd dabbled in converting vehicles to running on hydrogen. His first step was to built a little jelly jar electrolysis device - that's using metal plates suspended in water with an electrolyzer to separate the water into hydrogen and oxygen. He plugged it into the cigarette lighter to power it, so it wasn't putting out that much hydrogen. He ran the hydrogen live to the fuel line of the truck with nothing more than a tee connection. He got 33-35 mpg when towing his travel trailer, which he did over the course of several months of vacationing throughout the western US to make sure of the results. Even back then, vehicle computers are designed to sense the fuels coming in, and the efficiency and adjust the engine accordingly. That's part of why they get the government kickbacks for having multi-fuel engines.

This right there shows me that car gas mileage is purposefully held at incredibly low numbers just to provide the cash flow to the oil companies. It was said in the most recent State of the Union address that the US is at the highest oil production levels in history. yet we're supposed to be trying to reduce greenhouse gas emissions. Something is horribly wrong with this picture.

So please, let's get funding going to produce more hydrogen production plants at lower costs so that we can wean ourselves off of oil, and use up all that methane gas we create from our waste. Some want battery electric vehicles, and that's fine, and costly infrastructure improvements will be needed. But please also provide the infrastructure improvements needed for hydrogen.

Thank you for your time.