As gas prices surge, are more Fresno drivers going electric? What the sales numbers say

By Tim Sheehan
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For more than a decade, sales of zero-emission vehicles have plodded along in Fresno County as residents grappled with the idea of switching away from gasoline-powered internal combustion engines.

Many were conflicted by doubts about battery life and range, or by the difference in cost between gas and electric vehicles.

But while plug-in hybrid and battery-electric cars, pickups and SUVs remain mostly a blip among the more than 705,000 light-duty vehicles on the road in Fresno County – only about 7,700, or 1.4% – demand for them has surged in 2021 and through the first half of 2022 as gasoline prices climbed to record heights.

“There’s absolutely a correlation” between rising gasoline prices and demand for hybrid and plug-in vehicles, said Stephen Prince, sales manager at Blackstone Toyota in north Fresno. “Customers used to tell me, ‘I’ll never, never, never buy a hybrid. Now … people are begging to buy a hybrid.”

Two years ago, the average price for a gallon of regular unleaded gasoline in Fresno was about $3.08 per gallon, according to GasBuddy.com. Six weeks ago, in mid-June, the Fresno average reached its highest-ever price of $6.33, before settling this week to below $5.40 per gallon.

During that same two-year span, Fresno County has also been surpassing records for sales of light-duty zero-emission vehicles or ZEVs – cars, pickups, SUVs and vans – that are powered entirely by electricity, or primarily by electricity instead of gasoline, or that use hydrogen fuel cells to power the motor.

In 2020, data from the California Energy Commission indicates that 1,172 such vehicles were sold in Fresno County in 2020 – a figure that was a new record at that point.

But that mark was short-lived, as 2021 sales were more than double the 2020 figure, reaching 2,364 ZEVs sold in the county – an average of 197 per month.

And so far, 2022 looks like it’s on a pace to beat that record. Through the first six months of the year, the state reports that 1,616 ZEVs were sold in Fresno County, or an average of 269 per month.

Those figures only count vehicles deemed as zero-emission by the California Energy Commission. They don’t include more “traditional“ gasoline hybrid vehicles – like earlier versions of the venerable Toyota Prius that’s been on the market since the late 1990s – that operate with both gasoline engines and electric motors without a plug to charge the batteries. But gasoline hybrids accounted for more than 17,520, or about 2.5%, of all light-duty vehicles registered in Fresno County by the end of 2021.

Still, experts say they expect ZEV sales to continue to climb as gasoline prices remain elevated, concern for the environment grows, and performance and mileage range of the vehicles increase with improved technology. “We’re absolutely seeing more demand each year, especially with a push for more fuel economy,” said Prince, adding that he’s driven a hybrid car since 2016.

“The marketing focus used to be, ‘Go green.’” he said. “Now it’s more about performance. It’s not just better fuel economy, but more power and better performance” from electric motors.

Among ZEVs in Fresno County, the market is dominated by Tesla, the cars produced by high-profile tech billionaire Elon Musk. Of the ZEVs sold to buyers in Fresno County in the first half of 2022, almost 1,000 are various models bearing the Tesla badge – more than 10 times the next-most-popular make, Toyota.

Jeep, Kia, Hyundai, Ford, BMW, Chevrolet, Volvo and Audi round out the top 10 makes of ZEVs in Fresno County.

Nationwide, the U.S. Department of Energy reported that sales of new light-duty plug-in electric vehicles, including all-electric and plug-in hybrids, almost doubled from 308,000 in 2020 to 608,000 in 2021. “The rapid growth in plug-in electric vehicle sales from 2020 to 2021 is remarkable in the context of overall light-duty vehicle sales, which increased by only 3% during the same period,” wrote Scott Minos from the federal agency’s Office of Energy Efficiency and Renewable Energy.

Prince said demand locally is at a point where it's difficult to keep hybrid or electric vehicles in stock. While a global shortage of microchips has hamstrung auto manufacturers' production overall, that's magnified in the high-tech electric vehicles in which "everything you touch in the car has a microchip," he said.

The supply chain has been further cramped over the past two years by COVID-19 pandemic protocols that have limited the number of truck drivers available to haul cars from the factories where they're built to the ports from where they are shipped, and then on to customers or dealerships, Prince added.

"A majority of my vehicles coming in already have a deposit from a customer who's just waiting for the vehicle to land on the (dealership) lot," he said.

Globally, far more electric vehicles are sold in China and Europe than in the U.S., according to the International Energy Administration. Last year marked "an impressive return" for the U.S. market for electric cars following the economic upheaval of the COVID-19 pandemic in 2020, the organization reported. "The overall U.S. car market recovered as well, but electric cars doubled their share to 4.5%," IEA analysts reported.

"The U.S. electric car market is still mostly dominated by Tesla, which accounts for more than half of all electric units sold," added IEA clean energy analyst Leonardo Paoli and energy technology policy chief Timur Gül. But, the pair wrote, "Tesla's market share nonetheless declined from 65% in 2020 as new electric models were offered by other automakers."

Depending on the make or model, an electric vehicle may cost between $5,000 and $20,000 more than a comparable gas-powered vehicle, said Loren McDonald, who heads electric vehicle data analysis and research firm EVAdoption.

"One of the top hurdles to EV adoption in the U.S. is the often-touted issue that EVs simply cost more than similar gas-powered vehicles," McDonald wrote in June. "But assuming you can get your hands on one, roughly two dozen (battery and plug-in electric vehicles) available for sale in the U.S. this summer have a base manufacturer's suggested retail price … of less than $45,000."

"Do electric vehicles need to come down in price to make them more attractive and affordable to mainstream US households? Absolutely," McDonald added. "But with less than 1% of vehicles on the road in the U.S. being electric and more than 10% of households with annual income of $200,000 or more, affordability isn't yet what's holding greater EV sales back."

That observation may not necessarily be the case in Fresno and surrounding central San Joaquin Valley counties, however. The median household income in Fresno County, according to U.S. Census Bureau data for 2020, was just over $57,000 per year, and about one out of six families have incomes low enough to put them at or below the official poverty threshold.

How massive wildfires create their own weather

By Manola Secaira
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Fire tornadoes. Pyrocumulous clouds. Smoke that chills temperatures.

After years of massive wildfires, it's become evident that these blazes do more than burn their surroundings — they're also influencing weather.

The relationship between weather patterns and wildfires has been studied for a long time. Researchers have seen how certain conditions are more conducive to the creation and growth of wildfires. Drought, which can dry out forests and create perfect fuel for a flame, is one example.

As teams of firefighters have deployed to combat blazes throughout the state, researchers have seen more and more examples of the unique ways that massive wildfires influence their environment.

"Fires create their own weather, they can get very intense, and they can really impact the weather around them," says Craig Clements, who directs San Jose State University's Wildfire Interdisciplinary Research Center.

With a team, Clements studies these weather patterns and also observes them in person. His team's field approach is still largely uncommon when it comes to how fire-induced weather is studied.

"There's not a lot of observational research because it's very hard to collect these types of data," he says. "Most wildfire research is done after the fact, after the fire's already been put out and people go back and look at how intense it was."

As large wildfires become more common, Clements says that work like his could help predict wildfires-induced weather patterns, and therefore help teams of firefighters prepare for it.

Predicting weather created by wildfires

The idea of a fire influencing its environment isn't new. Wildfires, regardless of size, inevitably have an effect on their surroundings.

"Even small fires, even grass fires, modify the local wind around the fire," Clements says.

But what is new is our ability to predict fire-induced weather patterns quickly enough to help firefighters anticipate them.

Adam Kochanski is another researcher at the Wildfire Interdisciplinary Research Center, leading the center's fire modeling group. The models he uses focus on how fires create their own weather as well as how they impact air quality.

A decade ago, Kochanski says, models like his weren't fast enough to predict fire-induced weather in a useful timeframe. It could take days to work out a prediction, which would come far too late.

In the last few years, Kochanski says they've been able to refine their model, which can now create a 48-hour forecast within three to five hours.

"That's a big change," he says. "Now, because of that, we start thinking about those models, not just as research models, but also as tools that can provide useful information if you have a fire."

But this kind of prediction isn't enough on its own. It's hard to tell, without observations to back it up, if the predictions he gets are accurate — and that's where Kochanski says Clements in-person work comes in.

What researchers are seeing

With a team, Clements goes out to wildfires while they're still happening to make observations. He says that the ways in which fires influence their environment vary.

Clements says that these changes to the weather start with the heat emanating from the fire itself. The extreme heat of the fire causes air to rise quickly, creating fire-induced winds. These winds sometimes help the fire spread more quickly and can arise even if the location of the fire wasn't particularly windy before the blaze started.

If a blaze is large and creates particularly strong updrafts, that can then cause clouds to form. These clouds are sometimes called "fire clouds" or "pyrocumulous clouds." Sometimes, a large fire can create a thunderstorm, called a "pyrocumulonimbus cloud."

And then there are "fire tornadoes." Clements says that these tornadoes can happen after a fire cloud has formed.

"If you form a cloud, you get some cooling, and then you can actually get downdraft air … back down to the surface from the cloud," Clements says. "And that can actually push the fire in different directions."

When the winds start coming at the fire from different directions, this can start rotating the plume of smoke and the fire itself, which can create a vortex such as a fire-generated tornado.

"It's these larger scale vortices that can be very dangerous," Clements says. "And we've seen a lot of those in California over the last few years, like the Carr Fire, the Creek Fire, to name just a few."

Large fires also create a lot of smoke. Kochanski says that a large quantity of it, like the smoke that inundated the Bay Area as a result of the fires in 2020, can turn the sky orange for days in a row and lower temperatures.

There are longer-term impacts, too. Kochanski says that a large wildfire can inject smoke high up into the atmosphere, which makes it harder for it to dissipate and can also cause it to travel long distances.

“If you inject it high enough, the smoke just stays there for a much longer period of time,” he says.

Battling fire-induced weather

Kochanski says that climate change is becoming a bigger part of the conversation around fire-induced weather. As Californians have already seen, drier conditions make it easier for large wildfires to erupt, which then increases the likelihood of drastic fire-induced weather patterns.

As a result, he says that researchers need to adjust their expectations of what fires will look like in the future. Making predictions of CO2 impacts from large wildfires, for example, will need to account for how wildfires might continue to grow in size in years to come.

“We are kind of trying to wrap our heads around it and see how to put everything together to better understand what we should expect,” he says. “What is going to be the impact of those fires on the climate, on the timescales of, let's say, tens or hundreds of years?”

Clements says that there’s more work to be done in terms of observing these weather patterns.

“It's one of the phenomena that we just don't get enough observations of,” he says. “And so as the fires are getting worse through climate change, we need more people trained in the wildfire sciences as we move forward in the next few decades.”