

# West Coast Electric Highway Grows

State Adding Charging, Refueling Stations for Zero-Emission Vehicles



Caltrans photos by Thomas Ritter

Twenty hydrogen fuel cell vehicles were recently delivered to the Caltrans District 7 equipment shop in Sylmar. The department now has more than 130 zero-emission vehicles in its fleet.

In 2016, California was home to nearly half of all light-duty zero-emission vehicles in the U.S., with more than 200,000 plug-in electric cars and trucks on its roads, a number Gov. Edmund G. Brown Jr. wants to raise to 1.5 million by 2025.

Caltrans has 3,480 light-duty vehicles, including 133 zero-emission vehicles (64 all-electric vehicles, 49 plug-in hybrids and 20 hydrogen fuel cell cars).

Under the governor's [2016 Zero-Emission Vehicle \(ZEV\) Action Plan](#), the department will begin installation of at least 30 public fast-charging locations at highway rest stops and other strategically located Caltrans property. The [Caltrans Sustainability Program](#) is developing a pilot program that will first test such stations at two rest areas, two park-and-ride lots and two workplaces.

Caltrans is also working with the California Energy Commission to identify sites for three hydrogen fueling stations on Caltrans right-of-way properties such as rest areas and park-and-ride lots by December 2018.

The 2016 ZEV Action Plan is consistent with Cal-

trans' [Strategic Management Plan 2015-2020](#) and the [California Sustainable Freight Action Plan](#), and will help expand the refueling network known as the [West Coast Electric Highway](#) being built in partnership with Oregon and Washington. Independent of the ZEV Action Plan, Caltrans has approved a total of 175 charging stations throughout the state for its own fleet of zero-emission vehicles.

One goal of the pilot project is to provide a more reliable link for ZEV motorists who might be nervous about their vehicle's ability on the open road to make it from one station to the next before draining their batteries. The pilot also will give the department a chance to measure usage, time spent at fueling stations, as well as possible vandalism and other issues.

The state currently has 28 hydrogen fuel stations (22 retail, six non-retail), with 19 more in development, according to the [California Fuel Cell Partnership](#). Plug-in vehicles have more options, with about [3,500 charging stations](#) (including those only for Teslas) across the state, but most are in urban



Fuel cell vehicles, like this Toyota Mirai, use hydrogen to produce electricity, generating zero carbon emissions.



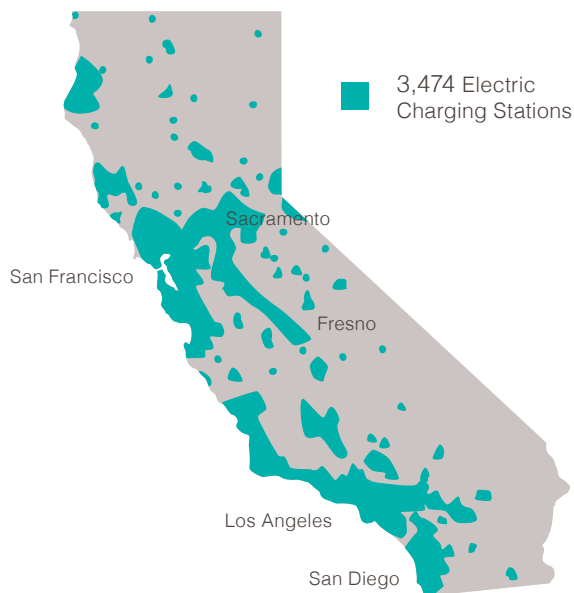
This hydrogen fuel station (there are 28 in the state), offers a half-pressure fill (H35, equivalent of a conventional half-tank), and a full fill (H70).

areas, giving motorists some range anxiety out on the open highway.

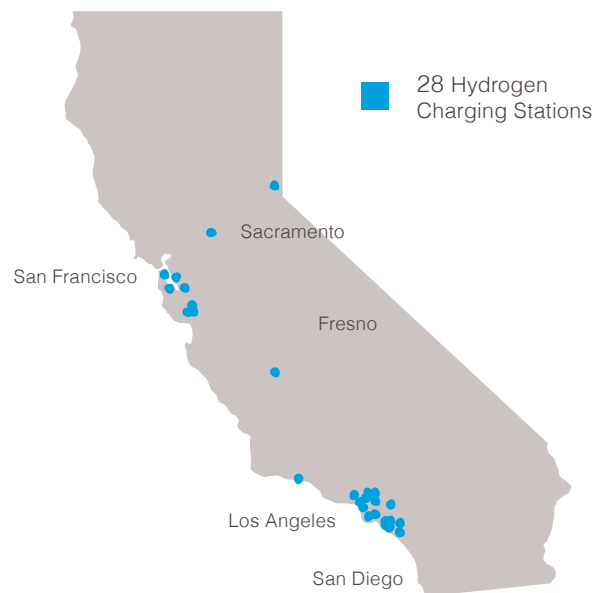
To some extent, the pilot program and possible addition of even more charging and fueling stations may help foster the fledgling ZEV industry. Private firms, other than Tesla Motors, have been reluctant to build new ZEV fueling stations until consumers

buy more vehicles. Meanwhile, consumers are hesitant to buy more ZEVs until more fueling stations are built to permit long-distance trips. These areas are expected to help reduce range anxiety — not to mention reduce the number of stranded motorists — and encourage interregional travel. **MM**

### Electric Charging Stations



### Hydrogen Charging Stations



Source: U.S. Department of Energy

Electric charging stations, locations shown at left, are heavily concentrated in coastal cities and along the main arteries of the Central Valley. At right, hydrogen fuel stations, while still much less common, appear to be following a similar pattern.