

A CONVERSATION ON CALIFORNIA'S CLEAN ENERGY FUTURE

Bringing the electric vehicle back to the future

BY TONY EARLEY, CHAIRMAN & CEO, PG&E CORPORATION

BEFORE THE MODEL S, THE VOLT OR THE LEAF, there was the Morrison.

William Morrison, a chemist from Des Moines, developed the first American electric car around 1890. It fit six people and had a top speed of 14 miles per hour.

Electric vehicles (EVs) such as the Morrison were once in high demand, attracting the interest of Henry Ford and Thomas Edison. Ford's wife Clara even owned one.

But only briefly. The discovery of cheap oil and the difficulty of recharging in a nation that was not yet fully electrified quickly doomed the technology.

One hundred years and billions of tons of hydrocarbons later, EVs are back. But so are some of the same problems that confronted the early EV innovators. The difference is this time we don't have another century to figure out the solutions.

Transportation accounts for 38 percent of California's greenhouse gases, dwarfing all other sources. That's why the governor is shooting to have 1.5 million zero-emission (mainly electric) vehicles on our roads by 2025.

PG&E proposes to purchase and install 25,000 chargers in Northern and Central California—nearly ten times more than exist today.

So far, we've managed about 100,000—a good start, but far off the pace needed to reach the state's aggressive targets for greenhouse gas reductions.

To get there, Californians will have to start buying EVs at double the current rate. Generous state tax credits for EV purchases will help. So

will the growing selection of high-performance zero-emission models with lower prices.

Yet just like 100 years ago, worries about access to charging and limited battery range are deal-breakers for most would-be buyers. Until we eliminate this "range anxiety," the vision of 1.5 million EVs will be a pipe dream.

Fortunately, there are two ways to do that.

First, plug-in electric hybrid vehicles operate like EVs for the first 20 to 30 miles, before shifting to a gasoline engine. Since most Americans drive less than 50 miles per day, a significant percentage of trips would be emissions free. (I own a Ford C-MAX Energi plug-in hybrid and can attest to the pleasures of a once-a-month visit to the gas station.)

Second, California's utilities can help fill the "charging-station gap." California now has only about 6,000 publicly available Level 2 chargers, which provide roughly 25 miles of range for every hour of charging. To support a million EVs by 2020, we will need about 250,000.

Each of the state's big utilities has presented plans to dramatically increase the number of charging stations at work places, multi-family dwellings and retail centers.

For example, PG&E proposes to purchase and install 25,000 chargers in Northern and Central California—nearly ten times more than exist today. We would also furnish 100 DC Fast Chargers, which are able to "fill up" most EVs in just 30 minutes.



PG&E has one of the largest electric vehicle fleets in the U.S., and we've pledged to invest more than \$100 million over the next five years to make it even greener.

The first phase would produce 2,500 new places to plug in within two years—and if the state agrees, 7,500 in three. That would still leave plenty of the vehicle charger market open to other companies. Given the urgency of the timeline, we hope this is one area where regulators can move at Silicon Valley speed.

At PG&E, we're putting the pedal to the metal. We were one of the first utilities in the country to offer special rates that let EV owners to charge cheaply at night.

We're also adopting electric vehicles ourselves. PG&E already has one of the largest EV fleets in the U.S., and we've pledged to invest more than \$100 million over the next five years to make it even greener—while leading a national initiative encouraging other utilities to follow suit.

William Morrison was on to something back in 1890. Today, with the stakes far higher, California can give the venerable EV its long-overdue second chance.

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