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raise a number of questions about fuel tax revenue, electricity infrastructure, and more.

Gail Cole • Nov. 04, 2022

Electric vehicle mandates are surfacing at the federal, state, and local levels. We could all breathe a little more easily if such programs are successful, but they raise a number of questions about fuel tax revenue, electricity infrastructure, and more.

For example:

- How will banning gas-powered vehicle sales affect fuel tax revenue?

- Will electricity grids be able to keep up with heightened demand?

wave. State officials say drought, extreme heat, and wildfires will "threaten the reliability of California's electrical grid" for the coming five summers. And California isn't the only state facing this predicament. In February 2021, roughly 4 million Texans lost power when a winter storm "broke the grid."

Producing enough electricity isn't really the issue. The problem is storing the electricity that's produced and getting it where it needs to be. Unlike fossil fuels, electricity can't be poured into a barrel and shipped to where it's needed. As the U.S. Energy Information Administration explains, electricity is generated at power plants and then moves through a grid of electricity substations, transformers, and power lines to get to consumers. If states heighten electricity consumption by instituting electric vehicle mandates, can they ensure the electricity is where it needs to be, when it needs to be there, to power those vehicles?

And as anyone who's ever tried to drive an electric vehicle beyond its range knows, another main obstacle to widespread EV adoption is the lack of a nationwide charging system that will enable EV drivers to get from point A to point B, no matter how far that distance is.

How will banning gas-powered vehicle sales affect fuel tax revenue?

It will likely go down.

Gas tax revenue is already dropping in some states. Connecticut's fuel tax revenue fell 4.2% between fiscal years 2012 and 2021. Some of that decline was a result of the pandemic, but the Connecticut Office of Policy and Management says "it has always been the assumption that the growth in motor fuels consumption will naturally turn negative as consumer behavior changes, either due to price increases or by increased use of alternatively-powered vehicles."

West Virginia's Department of Transportation projects gas tax revenue will fall

Raising gas tax rates could decelerate losses

One way to make up for declining fuel tax revenue would be to increase federal gas tax rates, which haven't changed since October 1, 2023. At 18.4 cents per gallon of gasoline and 24.40 cents per gallon of diesel, federal fuel taxes in the United States are among the lowest of all Organization for Economic Cooperation and Development (OECD) member countries.

States could increase their taxes on fuel as well. However, raising fuel tax rates won't generate the necessary revenue if consumption of gasoline and diesel drastically declines, as is the goal in at least some states. Furthermore, according to a 2004 study by the National Bureau of Economic Research on the effect of gasoline taxes on work effort, increasing gasoline prices by 10% could decrease gas consumption by 4.3% (about 37 gallons per household per year at the time). That could counteract at least some of the potential gains because "taxing gasoline forces drivers to take that cost into account when making driving decisions."

Special registration fees and road user charges could fill the revenue gap

According to the National Conference of State Legislatures (NCSL), 31 states have a special registration fee for plug-in electric vehicles, and 18 place a fee on plug-in hybrid vehicles. Most of the collections go toward state transportation funds, but some is helping to build or support electric vehicle infrastructure — an additional cost states need to account for.

Another option is a road user charge (RUC), also called a fee or tax on vehicle miles traveled (VMT) or mileage-based user fees (MBUF). These apply to all drivers, no matter what powers their vehicles. The NCSL says at least 19 states considered RUCs in 2019 and 2020, and Maine, Nevada, New Mexico, Oregon, Utah, Virginia, and

"developing an equitable and effective VMT tax will be no small feat." There are privacy concerns; states have to figure out the best way to track the miles driven. So it will take time for VMT taxes to get off the ground.

Are there hidden environmental costs to upping electric vehicle production?

Inevitably.

Some experts worry that electric car mandates could actually increase carbon emissions. For example, Indonesia, the world's largest nickel miner, wants to produce more of the Class 1 nickel that's needed for electric vehicle batteries (it produces mostly Class 2 nickel now). But as The Brookings Institute explains, "Indonesia's nickel sector is particularly carbon-intensive and environmentally damaging."

There are other environmental and even geopolitical concerns. Electric cars require more copper than gas-powered cars, and copper mines are often energized by coal-fired plants. Cobalt mines sometimes use child labor. And what will we do with all the batteries once they're used up? These are big issues.

Nevertheless, electric vehicle mandates are proliferating.

President Biden wants 50% of new vehicles sold in 2030 to be zero emission

President Biden is calling for half of all new passenger cars and light trucks sold in 2030 to be zero-emission vehicles (e.g., battery electric, plug-in hybrid electric, or fuel cell vehicles). It's an ambitious target, since only about 6% of new vehicle sales in the third quarter of 2022 were fully electric.

There are no penalties for failing to reach this nonbinding goal. Instead, the Biden administration is hoping new tax incentives created by the Inflation Reduction Act will encourage electric vehicle (EV) sales. And it just might work: A recent Bloomberg

then, the state must meet the following benchmarks for zero-emission vehicle (ZEV) sales:

- 35% ZEV sales by 2026
- 68% ZEV sales by 2030
- 100% ZEV sales by 2035

You don't have to have an electric car in California by 2026, 2030, or even 2035. And you'll still be able to drive gas cars in California after 2035, when the full ban takes effect. However, if all goes as planned, you won't be able to buy a new gas-powered car in California starting in 2035.

California is also looking to ban sales of new fossil-fueled medium- and heavy-duty trucks by 2040, and to have 100% ZEV trucks and buses (where feasible) by 2045.

Other states will follow California's lead

At least five other states are looking to emulate California's plan and ban gas-powered vehicle sales by 2035. "California had to go first according to federal law," Larry Chretien of the Green Energy Consumers Alliance told NBC Boston, "and now states can piggyback on to the California rule."

As of May 2022, the following states had adopted California's zero-emission vehicle standards under Section 177 of the Federal Clean Air Act:

- Colorado
- Connecticut
- Maryland
- Massachusetts
- Minnesota
- Nevada

- New Jersey

program.

Now that California has acted, Massachusetts, New York, Oregon, Vermont, and Washington are likely to move forward with similar ZEV plans of their own. However, not all states will follow suit.

Colorado and Pennsylvania probably won't automatically adopt California's standards. Minnesota announced a new comprehensive climate plan in September 2022 that includes developing a more robust EV charging infrastructure, but it doesn't ban gas-powered vehicle sales by 2035. Republican lawmakers in Virginia are looking to unlink Virginia from California's requirement.

It will be interesting to see how other states react if and when California meets its first benchmark in 2026.

Local governments are paving their own path to EV adoption

Cities and counties across the U.S. (and the world) are encouraging electric vehicle adoption in a number of ways.

According to the International Council on Clean Transportation, about 25 cities worldwide "are signaling there will be no place for vehicle emissions on their streets in the years ahead." These include London, Los Angeles, New York, Oslo, Paris, Shanghai, Stockholm, and Tokyo. Exactly what that will mean for the future remains to be seen.

Denver, Colorado, has a plan to have 100% of light duty vehicles and 100% of taxis and transportation network vehicles in the city be electric by 2050. King County, Washington, (home to Seattle) is working toward creating a 100% zero-emissions public transit fleet. In Hoboken, New Jersey, where driveways and garages are scarce, the city wants to put EV charging stations within a five-minute walk of

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