

Q&A: Economist says EVs can help drive US to carbon-neutral power grid

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Vehicle standards recently announced by the Environmental Protection Agency establish stringent new goals for manufacturers to slash greenhouse gas emissions and other forms of pollution, pushing the

industry to accelerate a transition to electric vehicles.

The ruling aims to help achieve the administration's goal to reduce U.S. emissions 50%–52% below 2005 levels by 2030 and become carbon-neutral by 2050.

But is it realistic to expect most Americans to switch to cars that, for now, are significantly more expensive than their gas-powered counterparts and rare on the used market? And will deploying vast fleets of EVs to replace traditional vehicles help prevent climate change if they're charging up with fossil fuel-generated electricity?

To get some answers, we sat down with Joshua Linn, a professor in the University of Maryland's Department of Agricultural and Resource Economics, who studies the effects of environmental policies and market incentives in the transportation, electricity and industrial sectors.

Do you think it's possible to eliminate new gas vehicles by 2050, or to meet US climate goals, for that matter?

2050 is a long way off, and when you look at the market for cars now, it is a lot different from what it was 25 years ago. Historically, a few decades is what's required for big transitions in car markets. We're still a long way from having all [electric vehicles](#), and it seems unlikely we're going to meet those targets ahead of time, but a lot will come down to how consumers perceive these vehicles. Many people are just still just learning about it and considering it.

We have a lot of policies that are supporting those goals, and they're definitely pointing us in the right direction. Whether we get there by 2050 or if it takes longer is pretty hard to predict.

One barrier to adoption is that EVs tend to be more expensive than comparable gas vehicles, with the most popular EVs starting in the mid-\$40,000s. How has China been selling them in the \$10,000 range?

There are lots of ways that the market in China is different from the U.S. Many of China's EVs are small, lower-end types of vehicles. I'm skeptical that those types of vehicles would do well here.

U.S. consumers have stronger preferences for big vehicles and certain accessories, and the segment of the market that's expanding here is in crossovers and sport utility vehicles. That's also where the manufacturers can earn higher markups, so that's where they are putting their efforts for EVs. The market for smaller EVs just hasn't been there yet.

But most EVs are too expensive to qualify for tax credits. Isn't that hurting the switchover to electric cars?

These restrictions stem from a combination of politics and concerns about equity. EV subsidies didn't used to have the price caps or income requirements, and nearly all of those tax credits were being claimed by very high-income households for very high-dollar vehicles. With the Inflation Reduction Act, there was a desire to shift those subsidies toward lower-income households who tend to buy less expensive vehicles.

That makes sense. Higher-income households will tend to buy what they want even without a subsidy, but when you offer subsidies targeted toward lower-income households, those consumers do respond to price reductions, and the subsidies are more effective at boosting sales.

As a result, now I think you're going to see a lot more vehicles priced just below the cap, maybe a little smaller and with fewer bells and whistles, aimed at a different segment of the market.

Economically, how does owning an EV in the long term compare to having a gas vehicle?

Overall, it can be a good deal for many customers, but it's not an overwhelming savings. You don't pay for gasoline, but you do pay for electricity. So, it really depends a lot on how much you drive and where you live. In regions like Maryland, we're sort of in the middle for electricity prices across the country, and it's more attractive than somewhere like California where electricity rates are very high.

Most drivers are converting to EVs from efficient gasoline vehicles like hybrid sedans, not giant pickup trucks. So, if you compare an electric vehicle to an efficient gas-powered sedan, you'll cut your driving costs per mile by maybe half, depending on gasoline prices. You may save hundreds of dollars a year, but it probably won't be thousands.

And then you have to consider the cost of adding a charging station to your home, although there are subsidies for that. And maintenance costs on EVs are lower.

For those who don't see that as an economic incentive, and aren't concerned about cutting carbon emissions, how will the US increase EV adoption?

That gets back to the idea of how consumers see these vehicles, and I think it's given rise to a new strategy, which is to say, "Yes, you will save on fuel, it's good for the environment and all that's true, but it's also just more fun to drive an EV." They give you really good performance on

acceleration. They're quieter, and manufacturers are building in entertainment features and high-end interiors.

Much of the US grid still runs on fossil fuels, so if all Americans switch to electric cars, won't that just shift emissions from cars to the power companies?

As more people drive EV's across the country, there's going to be an increase in overall electricity demand, which means there's going to have to be investment in the power grid—new generators, and enhancements to the distribution network, all of that. If the cost of wind and solar are cheap, and other [environmental regulations](#) increase the cost of building new coal or natural gas-fired power plants, people will build wind and solar to meet the electricity demand. And that's how we eventually decarbonize our electricity sector.

Provided by University of Maryland

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