

# GM's bold move could spark a major shift in the auto industry

February 5 2021, by Leila Ugincius

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While the concept of the electric vehicle has been around since the 1890s, it would take another 100 years before a major automobile manufacturer would mass produce the first modern electric car. But that

first electric car wasn't a Tesla or a Prius. It was the EV1, created by General Motors in the late 1990s.

Two weeks ago, GM added another first to its electric legacy by pledging to eliminate gasoline- and diesel-powered vehicles by 2035.

"[General Motors] is so confident that [electric propulsion](#) and the infrastructure are ready, that it can abandon the internal gasoline engine," said George Hoffer, an emeritus professor of transportation economics at Virginia Commonwealth University. "That's a bold move. Especially bold in the sense that the best predictions in 2035—and this is the highest—is that no more than 40% of the market will be electric. Well, if they are going to be a 100% electric and no more than 40% of the market is going to be electric, that means they are effectively writing off over half of what's expected to be the size of the U.S. market in the midcentury."

This bold move has been in the works for several years, Hoffer said, and has little to do with the new presidential administration. All three of the major markets—China, the United States and Europe—are moving to [electric vehicles](#). But the big move is from China where, being driven by nonmarket factors, the government, concerned about environmental issues, is pushing to get rid of automotive emissions.

"The Chinese government has put a lot of incentives into electrification in China," Hoffer said. To put things into perspective, General Motors sells more vehicles in China than it does in the U.S.

"So China is driving General Motors because General Motors is actually larger in China than it is in the United States," Hoffer said.

Hoffer, an automobile industry expert, discussed the future of the electric [vehicle](#) and the auto industry in a wide-ranging interview with

VCU News.

## **Why is GM doing this now? Is it surprising that GM is the first major traditional manufacturer to do this?**

Let's go back in history. Through the late 1960s GM had over 50% of the U.S. market. GM was the dominant firm by far. Since that time, GM has continued to lose market share. And of course it culminated with General Motors taking bankruptcy in the late '00s. Since that time, GM has continued to lose market share. Last year, GM had barely over 17% of the U.S. market—17.3%. The point is that GM has been on a continual slide for well over 50 years. And the slide has continued since reorganization and exit from bankruptcy.

They're selling more vehicles in China than in the U.S. And, of course, the Chinese are pushing electrification. So that pushes General Motors heavily into electrification because that's where their major market is going.

## **How is GM commencing with its plan?**

GM has two ads this week in the Super Bowl. One is for a Tesla-equivalent called the Cadillac Lyriq. This is GM's response to the largest Tesla. It is the first car of General Motors to be designed from scratch [as] an electric car. If you exclude Tesla, all [electric cars](#) to date have been existing cars and you just plop an electric motor in. You have a bastardization and they've all failed. That's one reason why the electric cars had failed.

The second thing is, it's the first one that is close to being a self-driving car. This is the '22 Cadillac Lyriq. So the best way to view this car is it's General Motors' answer to the decade-old Model S Tesla.

## **Will other manufacturers feel pressure to follow suit?**

Everybody is trying to be green. What GM did two weeks ago, they upped the ante quietly. Everybody's under the same pressure.

The people who are coming in selling electric cars are going to be of two types. One will be existing manufacturers osmosing into the electric car business. You'll start seeing this in late spring. VW is going to sell an electric car called the ID.4. It's kind of a compact sport utility vehicle or compact utility vehicle based on a car. The consumer will see a lot of push for electric cars. The new electric cars are going to be sold by existing firms and firms that are from abroad, especially China, which has given subsidies to electric car manufacturers.

## **What should concern consumers when purchasing an electric vehicle?**

There are two things that concern the public. The first is range. If you get an electric car, you always want to get the high end because the early cars had horrendous depreciation. And that's a real danger with a lot of these new electric cars. There'll be so many new entrants, You don't want to get a car that's here today and gone tomorrow, right? This is going to be the Wild West. Can you imagine a hundred different models of electric cars coming in the U.S. within the next two years? So consumers should really watch out with respect to what they're buying. The problem, just forgetting about where you'll charge it and things like that—assuming you've got that, you definitely want range.

And then there's a second big battle coming, which may obsolete so many electric cars before they even start. All the electric cars that are being used now are what're called liquid batteries. What they're working on now is what's called solid-state batteries. You can do so much more

with them because they are lighter. And the key is you don't have the problem of leakage. You can mold them into whatever shape you want. The question is how fast the electric car industry will go to solid-state batteries.

Another thing with respect to the electric car, we may talk about the range of how far it will go, but that assumes that you don't use the air conditioner, that it's not raining. It assumes that you're not driving at night. Remember everything that you do in the car is electric. So don't get duped by the ranges.

## **How might this affect the future of the transportation industry?**

The electric car will have major ramifications on automobile dealers of the United States. Why? Because the electric car needs very little maintenance. Think of it. How much maintenance does your refrigerator need?

In the United States, the auto dealers have great concern about electrification. There are two problems. As a general rule, all of your profits come from parts and service. And with the electric car, you need much less service and many, many, many fewer parts. That has real implications also for employment in the auto industry. Because all the people who make the parts that you don't see in the car—remember, that car has somewhere around 15,000 parts—that gets dramatically cut when you go to the electric car. You don't even have a transmission.

And the second issue is, will the new people selling electric cars use franchise dealers or sell direct? Electric cars are basically an electric motor with very fancy software. Well, who's better at software than the high-tech people? So the traditional American auto industry is scared to

death of that. Everything is software. And so who's better at software than the ... the Microsofts, the Apples, the Samsungs?

## **How will electric vehicles change our driving habits? When we no longer need to worry about tailgate emissions, will people drive more?**

What's happened within the last year [with social distancing during the pandemic] has really enhanced the desirability of personal transportation. And I think that will be [the case] for a long time. The electric car will make things simpler, [because it requires] less service. The electric car actually lends itself to more personal transportation rather than less.

The electric car is so much mechanically simpler that it actually enhances the desire and the ability for ownership. It's much more forgiving. I think it'll unequivocally help. And that's also because smaller vehicles are much easier to operate electrically because the batteries don't have to be as intense.

Provided by Virginia Commonwealth University

Citation: GM's bold move could spark a major shift in the auto industry (2021, February 5)  
retrieved 4 May 2024 from <https://techxplore.com/news/2021-02-gm-bold-major-shift-auto.html>

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