

The electric vehicle revolution will come from China, not the US

14 May 2019, by Jack Barkenbus



A Chinese hybrid-electric SUV made by BYD. Credit: [Jengtingchen/Wikimedia Commons](#), CC BY-SA

The electric vehicle revolution is coming, but it won't be driven by the U.S. Instead, China will be at the forefront.

My research on EVs, dating back a decade, convinces me that this global transformation in mobility, from petroleum-fueled vehicles to electric ones, will come sooner than later. The shift is already happening in China, which is the world's largest automobile market, with [23 million cars sold in 2018](#). As Western countries approach peak car ownership, there are still hundreds of millions of Chinese families that [don't own a car at all](#) – much less two or more.

Many of them are buying electric cars. By 2015, electric vehicle sales in China had [surpassed U.S. levels](#). In 2018, [Chinese sales topped 1.1 million cars](#), more than 55% of all [electric vehicles](#) sold in the world, and more than [three times as many](#) as Chinese customers had bought two years earlier. U.S. electric vehicle sales that year were just 358,000.

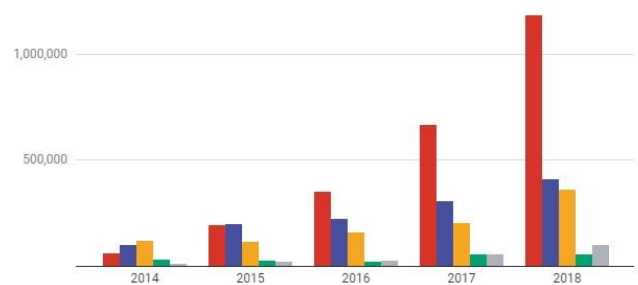
A key element of an electric vehicle's price is the cost of its batteries – and China already [makes more than half](#) of the world's electric vehicle

batteries. Battery prices continue to fall; industry analysts now suggest that [within five years it will be cheaper](#) to buy an electric car than a gas- or diesel-powered one.

Forecasts predict the Chinese producing [as much as 70% of the world's electric vehicle batteries](#) by 2021, even as the demand for electric car batteries grows.

Global plug-in electric car sales, 2014-2018

China's electric car market is growing much faster than electric vehicle sales in Europe, the United States, Japan and the rest of the world combined.



Credit: The Conversation

Huge government backing

China has a [fledgling, but ambitious](#), automobile industry. It has never been able to [match the efficiency and quality](#) of established automakers at making gas-powered vehicles, but electric vehicles are [easier to build](#), giving Chinese firms a new opportunity to compete.

The Chinese [government](#), therefore, has chosen to highlight electric vehicles as one of 10 commercial sectors central to its "[Made in China](#)" effort to boost advanced industrial technology. Government efforts include using [billions of dollars to subsidize](#) manufacturing of electric vehicles and batteries, and encouraging businesses and consumers to buy

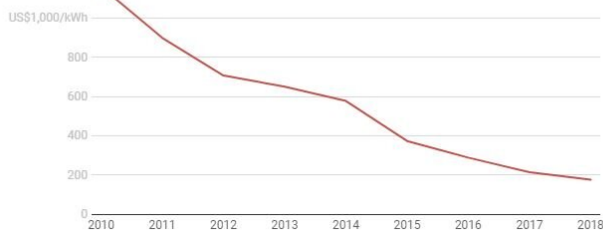
them.

The government is also aware that electric vehicles could help solve some of [China's most pressing energy and environmental concerns](#): Massive air pollution chokes its [major cities](#), national security officials are worried about how much oil the country imports and China is now the nation contributing most to global climate change emissions.



Electric-vehicle battery prices per kWh, 2010-2018

Per unit of energy, electric-vehicle batteries are getting cheaper very rapidly. Prices are expected to get even lower as technology advances.



Prices in constant 2018 dollars. Credit: The Conversation

New companies

[Scores of Chinese auto-making companies](#) have formed to profit from these subsidies. A major player is BYD, which stands for "Build Your Dreams," headquartered in Shenzhen. More than a decade ago, billionaire investor Warren Buffett bought about [a quarter of the company for US\\$232 million](#) – a share that is now worth more than \$1.5 billion.

The company's initial plans to export vehicles to the U.S. proved premature and fizzled. BYD instead started to focus mainly on the Chinese auto market, as well as building [electric buses for the global market](#), which it now dominates.

If BYD's electric car plans falter, though, there are plenty of other Chinese firms ready to pick up the slack.

BYD's 2019 Yuan 360EV is an all-electric SUV available in China. Credit: BYD

Further support

In addition to the government subsidies to ensure BYD and its competitors have lots of customers, new government regulations are kicking in. The Chinese government now requires all automakers who sell in China, whether domestic or foreign firms, to make a certain percentage of their sales electric, through a complex crediting formula. The mandate will get stricter over time, perhaps requiring each company to make [at least 7% of their sales electric by 2025](#).

Major foreign car companies have [large investments in China](#) and can hardly afford to abandon the market. Volkswagen, for example, now [sells 40% of its output](#) in China, which is a main reason the [company](#) is [pushing hard to develop electric vehicles](#).

China's domestic automakers have largely not yet engaged in the export market. Electric vehicle industry analyst Jose Pontes says there are [three reasons for their reluctance](#): First, the Chinese market is big enough to absorb their current production. Second, many car companies in China are utterly unknown in the West, so customers would be wary of buying from a strange brand. And third, their cars do not yet comply with strict safety regulations in the U.S. and Europe.

However, all of those obstacles can be overcome with time and money. It's possible Chinese electric

car companies could enter the low- to middle-income market in the West, as [Volkswagen did 60 years ago](#).

If – or when – that happens, inexpensive, efficient [electric cars](#) may spread through the West from China, surpassing Tesla and other American and European electric [vehicle](#) efforts. Only Western government attempts to protect domestic automakers with tariffs and other trade barriers could derail this development.

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Provided by The Conversation

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