China's E.V. Threat: A Carmaker That Loses $35,000 a Car

Chinese electric vehicle companies like Nio are pulling ever further ahead, partly through government support but also through rapid technological advances.

By Keith Bradsher
Reporting from Shanghai

Published Oct. 5, 2023 Updated Oct. 6, 2023, 9:52 a.m. ET

Nio, a Chinese electric car company that competes with Tesla, employs 11,000 people in research and development, but sold a mere 8,000 cars per month from April through June.

It has invested so extensively in robots that one of its factories employs just 30 technicians to make 300,000 electric car motors a year. Nio offers $350 augmented reality glasses for each seat in its cars, and has introduced a cellphone that interacts with the car's self-driving system.

And none of it is profitable — far from it. Nio lost $835 million in the second quarter, or $35,000 for each car it sold.

Nio and other companies in China's sprawling electric car sector have formidable government backing that allows them to withstand such losses and keep growing. When Nio nearly ran out of cash in 2020, a local government immediately injected $1 billion for a 24 percent stake, and a state-controlled bank led a group of other lenders to pump in another $1.6 billion.

Today Nio embodies China's dominance of electric vehicle innovation and manufacturing, underlining its threat to traditional auto powers in Europe and the United States.

The strike by the United Automobile Workers union against three Detroit carmakers, now in its third week, is at its heart a conflict over electric vehicles: The companies say they must invest billions of dollars to retool their operations, while workers say they must defend their jobs from automation and technology while increasing their pay.

On Wednesday, European politicians worried by a wave of Chinese exports formally launched an investigation into whether electric car manufacturers in China have received government subsidies, a step that could lead Europe to impose tariffs. China's E.V. exports have surged 851 percent in the past three years, mainly to Europe. The inquiry by the European Union is geopolitically complicated: Many of Europe's most important companies have ties to China's market, and China is ready to retaliate.

China's Ministry of Commerce denounced the inquiry on Wednesday, calling it "naked protectionist behavior that will seriously disrupt and distort the supply chain of the global automotive industry chain."

Companies like Nio, which is spending heavily on marketing in Germany and other European countries, need exports. The question is whether Nio can sell enough cars to justify its enormous research and investment effort.

"I'm actually not concerned about the capacity or volume of manufacturing — I'm only concerned about the demand," said William Li, the chairman and chief executive of Nio, at a news conference in Shanghai.

William Li, chief executive of Nio, introducing Nio's new cellphone at a news conference in Shanghai on Sept. 21. Keith Bradsher/The New York Times

As American and European manufacturers struggle to catch up, Chinese automakers lead the world in a critical aspect of the E.V. supply chain: battery technology. They have pioneered new battery chemistries that allow long-range driving at considerably reduced cost. China also dominates electric motor production, and in designing high-efficiency systems that tie together batteries and motors.

Electric car sales are growing fast, but China has been building factories even faster for practically every electric car component. That has created a glut of capacity that has driven price tags for electric cars below the price of gasoline-powered cars.

Wages also tend to be lower in China. Autoworkers in big cities like Shanghai earn about $30,000 a year in pay and benefits, while workers in less expensive cities in the interior earn considerably less.

By contrast, Ford Motor has said its workers earned an average of $110,000 a year in pay and benefits. The U.A.W. is seeking a roughly 40 percent pay raise over four years, plus a paid day off each workweek.

As Nio's new electric motor factory shows, Chinese car manufacturing is now among the most automated in the world. American automakers are finding that they have to buy industrial robots and other automation from Chinese suppliers, said Michael Dunne, an auto analyst in San Diego who specializes in China.

"They look around and say does America have anything close to their ability on automation, and the answer is no," said Mr. Dunne, a former president of General Motors Indonesia.

Paul Gong, head of Asia automotive research for the bank UBS, predicted that Chinese carmakers would capture a third of the global car market by the end of the decade. Much of the growth in his forecast is a jump in Chinese carmakers' share of the European market to 20 percent, from just 3 percent now.

In China, he said, "the competition is so fierce that it pushes every automaker to develop new technologies."

A Nio electric car factory in Hefei, China, in 2020. The lifts are used to raise batteries into the underbodies of cars. Keith Bradsher/The New York Times

China's technological edge has convinced some European automakers that it makes economic sense to strike partnerships even though they compete with Chinese exporters.

In July, Volkswagen paid $700 million for a 4.99 percent stake in XPeng, a money-losing Chinese electric car start-up, putting a valuation of $14 billion on XPeng. Nio received assistance from the Hefei local government, but XPeng has acknowledged assistance from the local government in Wuhan, also in central China.

Volkswagen announced in April that it would build a $1.1 billion car development center in the central China city of Hefei. VW will hire 2,000 engineers to do work previously performed at its headquarters in Wolfsburg, Germany, for cars manufactured in China.

Not all Chinese E.V. companies are losing money. BYD, the electric car leader in China and globally, tripled profit to $1.5 billion in the first half of this year. BYD makes its own batteries and is a highly efficient manufacturer.

UBS researchers teamed up with an engineering firm to tear apart a BYD Seal electric car. They found that the Seal hatchback sedan cost at least 35 percent less to make than a slightly smaller car of similar quality, the Volkswagen ID3.

The global market can expect far more exports from BYD: The company recently ordered, from Chinese shipyards, its own fleet of the largest transoceanic car-carrying ships ever built.

In addition to Europe, Chinese brands report soaring auto sales in markets from Australia to the Mideast to Latin America. The only market in which Chinese cars have a negligible share and are not expected to gain ground is the United States.

In 2018, Robert E. Lighthizer, President Donald J. Trump's trade representative, imposed a 25 percent tariff on all cars imported from China. The Biden administration has created a subsidy proposal for electric vehicles that excludes Chinese cars.

Nio announced its new cellphone and other technical advances at an abandoned steel mill. The aim was to signal China's shift from heavy industry to high tech. Keith Bradsher/The New York Times

The overall car market in China has been shrinking since 2017, as sales of gasoline-powered cars have plummeted faster than electric car sales have risen. Ride-hailing services have become ubiquitous while high-speed rail lines and subways have knit the country tightly together.

Chinese companies keep racing to improve their technology. Since April, Nio has introduced its first small touring wagon and a new coupe sport utility vehicle while upgrading three other car models. Nio's Internet-enabled augmented reality glasses can allow passengers to project a video meeting or share a computer game.

These initiatives are starting to increase the company's sales, although they remain low. Figures released by the company on Sunday showed that the average monthly pace of vehicle deliveries rose to 18,477 from July through September. The company has not yet released financial information for the third quarter.

Selling smartphones and electric cars together has long been the dream of the electric car and smartphone industries. The cellphones, which work closely with a car's self-driving functions, can be replaced much more frequently as technology improves than semiconductors in cars, which must pass lengthy safety reviews.

On Sept. 21, Nio put on sale its own brand of cellphone with a button on the left side for car controls. The founder of Geely, another Chinese automaker, last year acquired 79 percent of a smartphone manufacturer, Meizu, and has begun putting its software into Geely cars. Apple has talked for years of selling electric cars in addition to iPhones, but the Chinese smartphone maker Xiaomi is in the final stages of preparing to enter the car market next year.

So China's electric carmakers persevere despite initial losses. "You all know we have not broken even, we are under great pressure," Nio's Mr. Li said. But he reaffirmed the company's tech investments as "the path we should take."

Li You contributed research.

Keith Bradsher is the Beijing bureau chief for The Times. He previously served as bureau chief in Shanghai, Hong Kong and Detroit and as a Washington correspondent. He has lived and reported in mainland China through the pandemic. More about Keith Bradsher