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# Hybrid in a Trade Squeeze

By **KEITH BRADSHER**

TIANJIN, China — For [General Motors](#) and the Obama administration, the new [Chevrolet Volt](#) plug-in hybrid represents the automotive future, the culmination of decades of high-tech research financed partly with federal dollars.

But as G.M. prepares to start selling them here by the end of this year, the Chinese government is putting heavy pressure on the company to share some of the car's core technology.

The Chinese government is refusing to let the Volt qualify for subsidies totaling up to \$19,300 a car unless G.M. agrees to transfer the engineering secrets for one of the Volt's three main technologies to a joint venture in China with a Chinese automaker, G.M. officials said. Some international trade experts said China would risk violating World Trade Organization rules if it imposed that requirement.

The government's demand is the latest example of China's willingness to use the leverage of Western access to the vast Chinese market to extract concessions on advanced technologies. Policies to force technology transfers from non-Chinese companies have already helped this nation build big industries in areas like [wind turbines](#), high-speed trains and water purification.

Western companies have complained that the tactics create an uneven playing field for business ventures trying to compete with domestic Chinese industries.

The dispute over the Volt threatens to lead to another trade dispute with the West and could affect the dynamics of a visit to China this month by the American energy secretary, Steven Chu.

The consumer subsidies in question are considered crucial for helping electric and hybrid vehicles catch on in China, which became the world's largest car market in 2009. The government has made a priority of moving beyond cars that burn fossil fuels and emit polluting exhaust. At an industry conference here in this port city near Beijing over the weekend, government officials called for Chinese automakers to put new emphasis on producing more **fuel-efficient** and technologically advanced models, including gasoline-electric hybrids and all-**electric cars**.

Right now, the subsidies are available for electric cars made by Chinese automakers, like the e6 made by BYD, giving them a huge competitive advantage. The Volt, if G.M. proceeds with plans to begin selling it in China by year's end, will be the first mass-market predominantly electric car imported to China by a foreign manufacturer.

The Volt has not yet been priced in China. But the Chinese subsidies are nearly half the Volt's suggested retail price in the United States of \$41,000, before including a tax break of up to \$7,500 that Washington offers.

The American tax break is not restricted to domestic cars, nor does it require technology transfers.

G.M. is pressing Chinese officials to let the Volt qualify for the subsidies and tax breaks without the technology transfer. "We'll bring it up in every conversation we have," said Raymond Bierzynski, the executive director of electrification strategy at G.M. China, which has headquarters in Shanghai. G.M. has a series of joint ventures with several Chinese automakers, but plans to import the Volt from Michigan.

Global companies like Ford, Nissan, **Toyota**, Volkswagen and Daimler have spent billions of dollars to develop electric and plug-in hybrid cars. They are eager to start earning a return on those investments by selling them in China, where 17 million cars — virtually all of them gasoline-powered — were sold last year.

But Japanese and European automakers in particular have held back for fear of losing trade secrets if they are forced to share their newest technologies with Chinese companies. The Volt would be the pioneer, with the subsidy issue

shaping up as a crucial test case.

G.M.'s arch rival, Ford, already intends to accede to the Chinese demand, a Ford executive said. But Ford is still conducting only demonstration projects of electric cars in China, including an effort here in Tianjin, and has not set a date for commercial sales.

Chinese automakers may need technology assistance for advanced cars because their research budgets tend to be only a tiny share of sales by international standards. That is why the Chinese government wants to ensure that its automakers gain the technology to manufacture their own electric and hybrid cars.

"We have to break through and master the core technologies," Chen Jiachang, a deputy director of the ministry of science and technology, said in a speech Saturday at the conference here.

At least five trade experts said that Chinese government policies making it uneconomical to sell an imported electric car in China without transferring technology could violate rules of the World Trade Organization, of which China is a member.

"The rules do not allow a country to impose a requirement affecting the internal sale, distribution or purchase of a product in a way that favors its own product over imports," said Carolyn B. Gleason, a partner at McDermott Will & Emery in Washington and longtime specialist in W.T.O. cases.

American trade officials will need to review the details of the availability of Chinese car subsidies, said Nkenge Harmon, a spokeswoman for the Office of the United States Trade Representative. But she added that, "while the United States shares China's desire to support the development and deployment of electric vehicles, we have been clear that it is important that we and other trading partners employ policies that do not discriminate against foreign enterprises and foreign products."

China's commerce ministry had no response to questions submitted by phone, e-mail and fax about whether the subsidy policy complies with China's W.T.O. obligations.

American and European Union officials have already made a series of informal protests to Chinese officials about the subsidy issue, said another Western official who insisted on anonymity because of the diplomatic sensitivity of the issue.

The Chinese government has proposed the subsidy condition in a draft policy that it has circulated to Chinese and multinational automakers. The final release of the policy was expected by the end of the month, after which it would become even harder to change it, the Western official said.

Asked about the issue, David Sandalow, the assistant secretary of energy for policy and international affairs, said that the Energy Department, which had helped G.M. for many years on electric car research, "has no comment at this time."

In local driving, the Volt operates like an electric car, drawing energy from a large battery that can be recharged by plugging it into a household outlet. For trips beyond the car's range of about 35 miles on its battery alone, the Volt has a gasoline-powered generator to provide electricity for the car's electric motors, giving it the capability to drive a total of about 350 miles on a fully charged battery and a tank of gas.

The proposed Chinese subsidy rules cover "new energy" vehicles, which China defines as including electric cars, plug-in hybrids and fuel-cell cars. The rules do not apply to hybrid gasoline-electric cars in which a gasoline engine provides most of the horsepower, as in current models of the [Toyota Prius](#), say.

The three core technologies that China is most interested in acquiring through the subsidy provision are electric motors, complex electronic controls and power storage devices, whether batteries or a fuel cell. At least one of those systems would need to be included in the technology transfer for a vehicle to qualify for the consumer subsidies.

In Ford's case, Nancy Gioia, director of global electrification strategy, said the company planned to transfer at least one of the core technologies to a joint venture in China at the point when Ford decided to sell such a vehicle in China. Ford's main joint venture partner in China is the civilian automotive affiliate of China Weaponry Equipment, a large contractor for the People's

Liberation Army.

Ford has been working closely with the Energy and Defense Departments in the United States to develop its advanced vehicles, Ms. Gioia said. The Defense Department is working on military applications, like hybrid or electric vehicles that can operate in places — like rural Afghanistan — far from ports and refineries where gasoline or diesel is hard to provide.

Ms. Gioia said that providing mastery of a core electric vehicle technology to a foreign country represented a way to improve the global environmental sustainability of the auto industry. She said the technology's potential military applications did not lead to legal restrictions on its transfer to other countries.

Like many automakers, Ford tries to manufacture its vehicles in the same markets where they are sold, to avoid currency fluctuations and trade frictions. That is another strong argument for manufacturing electric-vehicle technology in China, Ms. Gioia said.

Ford sells an electric Transit Connect van in the United States and plans to introduce an electric version of its popular Focus compact car by the end of the year.

The Japanese company Nissan has introduced the Leaf electric car in the United States, Japan and Europe over the last year and plans to introduce it in markets around the world next year. But that will not include China, said Minoru Shinohara, Nissan's senior vice president of technology development. The Chinese market is not "suitable" for the Leaf, he said, declining to elaborate.

Nissan is planning to work instead with its Chinese joint venture partner, Dongfeng Motor, to introduce a Chinese electric car under a Chinese brand by 2015, Mr. Shinohara said.

