

With the world's fastest growing largest electric car market, China scales up solutions to meet demand

By DAVID HO in Hong Kong
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In the near future, energy grids for electric vehicles could balance the supply and demand for power by providing a two-way flow of electricity, charging cars when the grid's supply tops out and drawing power back from cars when demand peaks.

In China, this scenario is not at all far-fetched.

Even in the midst of a slump in car sales, demand for electric vehicles in the country is surging. Some 721,000 new energy vehicles were sold in China between January and September, representing 3.5 percent of total new vehicle sales. Throughout last year, 777,000 new energy vehicles were sold, up 53 percent from 2016.

"China will be, by far, the fastest expanding electric vehicle market over the coming decade. In fact, we expect China to have a battery electric vehicle (BEV) fleet of almost 11 million vehicles by 2027, compared to 3.4 million vehicles in Europe and 1.4 million vehicles in the US," said Daniel Brenden, a power and renewables senior analyst for Fitch Solutions.

"This will in turn mean that China will be able to harness its substantial electric vehicle fleet to support the integration of increasing volumes of intermittent wind and solar power in the market through technology called vehicle-to-grid (V2G) solutions," he added.

V2G entails a two-way flow of electricity between electric vehicles and the power grid. China's growing electric vehicle market will make it possible for the country to scale up V2G solutions faster than any other market over the next decade.

"In fact, with BEV and plug-in electric vehicles totaling 13.4 million vehicles, China will in theory have access to 1,138 gigawatt-hours by 2027. This is compared to 295 GWh in the United States and 459 GWh in Europe," said Brenden.

It is reflective of an increasing shift to electric vehicles in China, as the country phases out diesel and gasoline vehicles.

The adoption rate of electric vehicles has been largely driven by government efforts. Sales could account for almost 15 percent of the market within a decade.

Fabrice Gatwabyege, also of Fitch Solutions, said the fast rate of electric vehicle adoption in China is helping it become the world's largest electric vehicle market.

"This has been achieved through government subsidies as well as making it difficult to get a license plate for an internal combustion engine vehicle when compared to



Workers examine electric cars on the assembly line at an auto plant in Qingdao, East China's Shandong province, on Sept 28. China's electric vehicle fleet is viewed by analysts as a potential storage tool for integrating increasing volumes of wind and solar power into the grid. IMAGINECHINA

EVs in the fast lane

an electric vehicle," he said.

Electric vehicle sales are likely to reach 1 million units by next year, Gatwabyege said. For the time being, sales of plug-in hybrid vehicles are likely to outpace those of pure battery vehicles, he added.

The China Association of Automobile Manufacturers has estimated previously that new energy car sales would exceed 1 million units in 2018.

Anna Yu, vice-president of oil and gas sector research for ICBC International, noted the faster sales growth of plug-in hybrid vehicles compared to pure battery vehicles.

In September, plug-in hybrid vehicles saw 146 percent year-on-year growth and pure battery vehicles 66 percent, despite the Chinese government's gradual rollback on new electric vehicle subsidies.

"We believe this high growth trend for plug-in hybrid vehicles will continue in the interim as nationwide construction of electric vehicle charging infrastructure still takes time to pick up. Until then, we may expect to see faster growth in pure battery vehicle sales," said Yu.

"The Chinese government has encouraged sales of new energy vehicles by providing subsidies since 2010. In the future, the government will continue to support the industry by implementing a dual credit policy."

Apart from electric vehicles, sports utility vehicles, or SUVs, have been a trending category for car owners.

"The Chinese SUV market has been doing better than all other

passenger vehicle segments and that continues to highlight the shift in consumer preference to larger vehicles due to their practicality, perceived safety, and status as a symbol of affluence," said Fitch's Gatwabyege.

But even as sales rise, Gatwabyege believes some consumers may be shifting away from car ownership, due to better public transport systems and the popularity of ride-sharing services.

"This can be overcome by establishing new retail models, such as those of subscription services," he suggested.

Nonetheless, a large and fast-growing number of electric vehicles is on China's roads.

In addition to spearheading global electric vehicle deployment, this would also help to make China the fastest expanding renewables market globally.

This has posed a number of issues in the market, where grid constraints (in addition to provincial preferences for coal power) have meant that large volumes of wind and solar power have been wasted.

It is particularly relevant in Northwest China's Gansu province and the Inner Mongolia and Xinjiang Uygur autonomous regions, where the supply of renewables has outstripped demand, and exports to other parts of the country have been capped by grid constraints.

"As China improves this connectivity, we believe the electric vehicle fleet can become a substantial

storage tool for the government to integrate rapidly growing supplies of wind and solar power to the grid, without jeopardizing its stability," said Fitch's Brenden.

"That being said, the country already operates its coal fleet at low utilization rates, highlighting the base-load overcapacity in the country's power sector. This will likely mean that V2G will be slower to materialize in China than somewhere like Europe where base-load capacity is coming offline at a rapid pace."

With US electric vehicle maker Tesla recently announcing the construction of a new Shanghai factory, many global car companies are making moves in the China market.

ICBC International's Yu said she believes China will see more mergers and acquisitions and industry consolidations in the coming years.

"(This is due to) increasing foreign marquee's domestic production, mounting global trade tensions, lowering of import tariffs for autos and auto parts (except for US-made ones), upcoming easing of (the) foreign ownership cap on their joint ventures from 2022 onwards, gradual rollbacks of subsidies on new electric vehicles, and rise of auto technology," she said.

This flurry of business activity could also relate to self-driving cars, or autonomous vehicles (AVs), an area in which China could become a global leader with both international companies and economies of scale.

In August, the Chinese government approved regulations that list national standards for testing, according to Fitch. And the rapid pace of regulatory change in China is outstripping that of the US or Europe.

"China already has several of its biggest companies from both the automotive and technology sectors involved in developing AVs, including BYD, SAIC, Baidu and Tencent," said Anna-Marie Baisden, head of autos research at Fitch Solutions.

In August, Waymo, the AV division of Google, arrived in China. Waymo has already logged more than 11 million kilometers of testing, the most by any company, according to Baisden.

Other global corporations of note that have applied for testing licenses include BMW and Daimler.

The National Development and Reform Commission aims to have 50 percent of new vehicles sold by 2020 fitted with some form of autonomous features.

Another challenge to step up the development of AVs in China is mapping data. China has already given out 14 permits for local companies to gather the relevant information, a gargantuan task to complete nationwide.

"We believe the industry is entering into a phase of rapid transformation and elimination in which only a couple of domestic automakers with strong product line and market competitiveness will take up most of the market share," said Yu.