JSC AUTOMOTIVE

China New Energy Vehicle Report

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2 Forecast NEVs

We will see several different phases in the next 12 years, some of which are overlapping:

- Until 2020 the Chinese OEMs will produce EVs mainly in order to receive subsidies and mainly because fleet operators are the main customers that often belong to the same owner. An example for that is BAIC and the Beijing taxi fleet both belong to the municipal government of Beijing.
- As of 2019 the Chinese OEMs will produce EVs mainly because they find it hard to sell PHEVs and because EVs get more carbon credits that can be sold.
- International OEMs will mainly focus on the CAFC targets and use PHEVs and other technologies until the early 2020s. The main reasons for not selling more EVs until then are the range anxiety and the high cost of EV batteries.
- Once EV batteries become more competitive compared to gasoline engines and the range anxiety disappears because of larger batteries and enough charging stations, both the Chinese and the international OEMs will use more EVs and PHEVs will be phased out. This phase will start around 2022.
- We expect the NEV quota to increase every year by 2% after 2020, which means the quota would be 32% in 2030. It will be much easier to reach those targets with EVs rather than PHEVs. The CAFC limits will decrease to 4l/100km in 2025 and to 3.2L/100km in 2030. These limits will be reached en passant by selling high volumes of EVs.

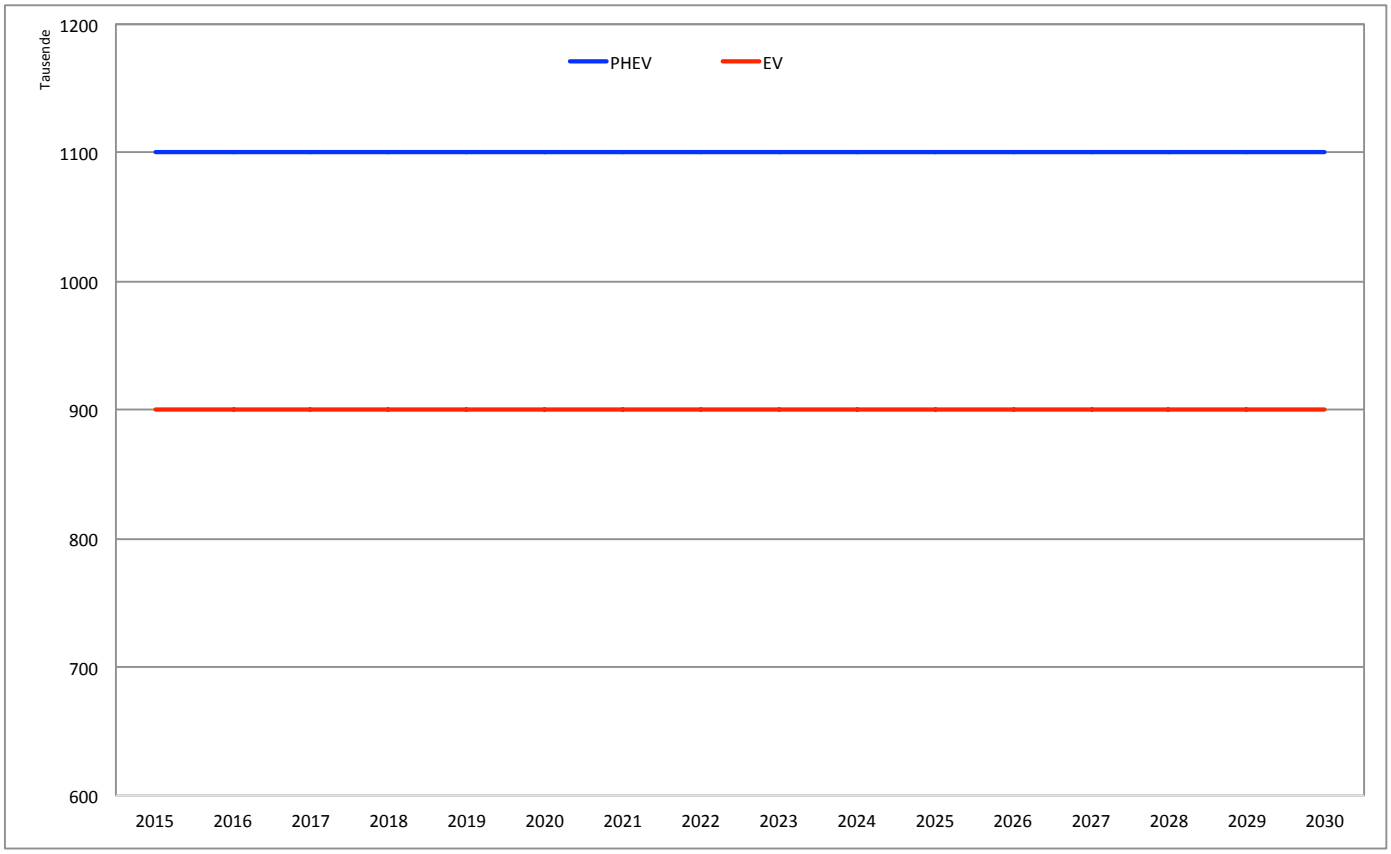

Figure 1: Forecast EV and Plug-In Hybrid production China (Sample Version – not forecast numbers)

Therefore we expect the market for EVs to stay flat until XXXX to then drop until XXXX, when the volumes will pick up and increase at a rapid pace with no end in sight. PHEV volumes will increase rapidly until the mid 2020s to then drop very fast.

3 Current situation for EV and plug-in hybrid passenger cars

The Chinese government announced in February 2016 that the technical standard of the existing electric cars on the market is very low and that this must be improved. This is certainly true with the market leaders Zotye, Chery and BAIC all offering very simple cars with simple electrics and electronics at list prices of RMB160K to RMB180K before subsidies. The Denza, which based on the old B-Series of Daimler and of better standard, has a list price of RMB370K and found only about 4000 people buying it in 2016. Almost all EVs are sold to governmental fleets (taxis, busses), which normally only buy from local OEMs. Private households play a very small role in the demand.

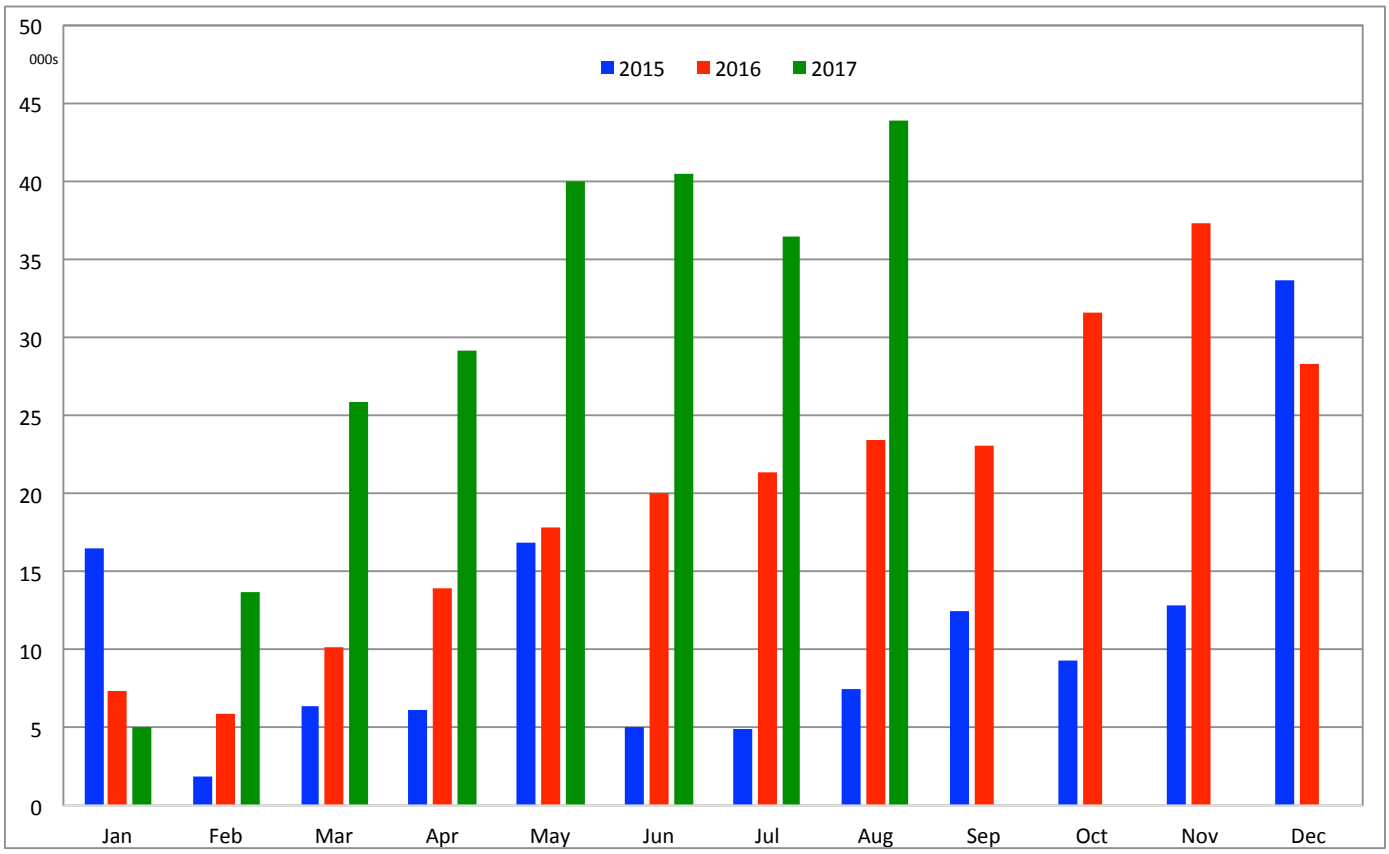

Figure 2: EV passenger cars monthly production

The production of EV passenger cars has been significantly higher each month compared to the same month a year earlier. Exceptions were December 2016 through February 2017. The main reason for that was that the government changes the requirements for the EV production licences. Many EV models hadn't received the updated licence until February 2017. Since March 2017 the electric car sales have been double those from the year before.

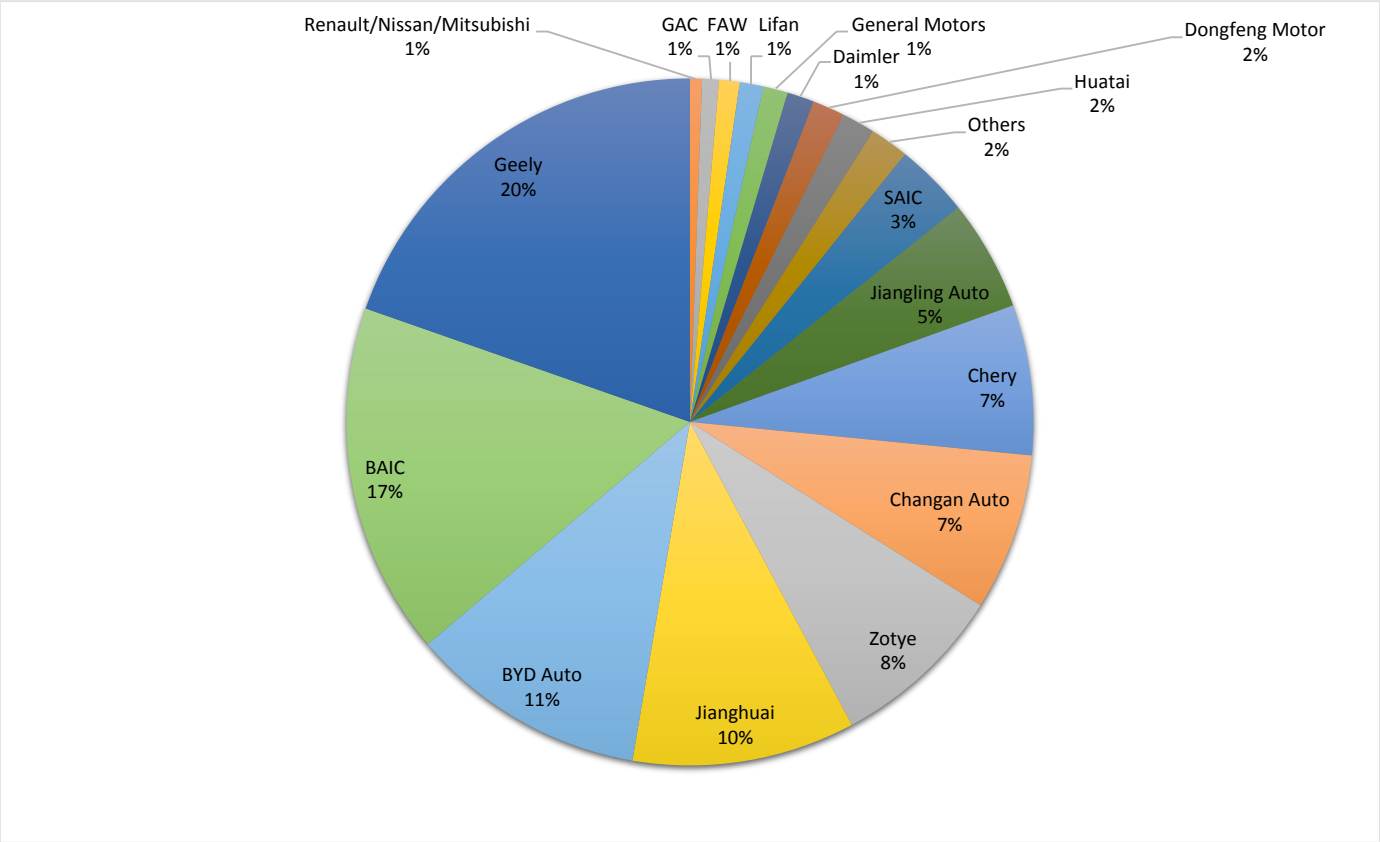

Figure 3: Market share EV passenger cars by brand 2017

Geely including ZD currently still is the market leader for EVs followed by BAIC.

	Volume	CAFC Factor		NEV Factor		Fuel Cons.		NEV Points
Denza	X	2	X	5	X	0,0	X	X
A-Class	X	1	X	1	X	4,8	X	
A-Class Hat	X	1	X	1	X	4,8	X	
B-Class	X	1	X	1	X	5,0	X	
C-Class	X	1	X	1	X	6,0	X	
C-Class eL	X	2	X	2	X	2,8	X	X
E-Class	X	1	X	1	X	6,5	X	
E-Class eL	X	2	X	2	X	2,0	X	X
GLA	X	1	X	1	X	5,0	X	
GLB	X	1	X	1	X	5,5	X	
GLC	X	1	X	1	X	6,3	X	
GLC eL	X	2	X	2	X	2,0	X	X
V-Class	X	1	X	1	X	8,0	X	
Vito	X	1	X	1	X	8,0	X	
Imports	X	1	X	1	X	7,8	X	
Imports NEV	X	2	X	4	X	1,4	X	X
						5,04		**X%**

Figure 19: Potential game plan for Beijing-Benz 2020 (Sample Version – not forecast numbers)

Beijing-Benz as a typical premium carmaker might have about X% of the cars as plug-in hybrids. All other avenues and lower cost technologies will have to be used as well to reach the target. Daimler can count all the entities in China as one “enterprise” according to regulation. Therefore Denza can be included as well as the imported cars. Otherwise Daimler would have to count the imported cars on its own and would have to reach the CAFC and the NEV targets on its own. While NEV points can be traded with any other company, CAFC points can only be traded within enterprises. For imports we assumed that the average fuel consumption of gasoline cars is 1l/100km more than the E-Class, because most of the imported cars are larger than the E-Class. For imported NEVs we assumed XX/XX for PHEVs and EVs. The EVs would be the new generation that would get 5 credits, while the PHEVs would get 2 credits, which means an average of 3.5. In Daimler’s case the NEV points sum up to xxx and this divided by the number of cars means a quota of xx%. This would enable Daimler to trade xxxx credits to other companies, as Daimler needs only xxxxx credits to reach the quota of 12%.

	Volume	CAFC Factor		NEV Factor		Fuel Cons.		NEV Points
A EV	X	2	X	3	X	0	X	X
Boyue	X	1	X	1	X	5,4	X	
Boyue Coupe	X	1	X	1	X	5,4	X	
BX11	X	1	X	1	X	5	X	
CC11	X	1	X	1	X	5,5	X	
CH11	X	1	X	1	X	5	X	
CS11	X	1	X	1	X	5	X	
CS11 PHEV	X	2	X	2	X	1	X	X
CS12	X	1	X	1	X	5,8	X	
CX11	X	1	X	1	X	6	X	
CX11 PHEV	X	2	X	2	X	1,5	X	X
DCY11	X	1	X	1	X	6,5	X	
DCY11 PHEV	X	2	X	2	X	1,5	X	X
DX11	X	1	X	1	X	6,8	X	
Emgrand	X	1	X	1	X	4,9	X	
Emgrand Hat	X	1	X	1	X	5	X	
Emgrand EV	X	2	X	5	X	0	X	X
Emgrand GL	X	1	X	1	X	5,5	X	
Emgrand GL HEV	X	1	X	1	X	4	X	
Emgrand GS	X	1	X	1	X	5,2	X	
Emgrand GS EV	X	2	X	5	X	0	X	X
Emgrand GS PHEV	X	2	X	2	X	1,5	X	X
Emgrand HEV	X	1	X	1	X	4	X	
Emgrand PHEV	X	2	X	2	X	1	X	X
GC9	X	1	X	1	X	6,5	X	
Jingang	X	1	X	1	X	5,6	X	
KC-2HB	X	2	X	2	X	2	X	X
MPV E	X	2	X	2	X	2	X	X
SV-1	X	1	X	1	X	4,7	X	
SV-1 PHEV	X	2	X	2	X	1	X	X
SV-2	X	1	X	1	X	4,7	X	
VF11	X	1	X	1	X	5	X	
VF12	X	1	X	1	X	5,5	X	
Vision	X	1	X	1	X	4,8	X	
Vision S1	X	1	X	1	X	5,2	X	
Vision SUV	X	1	X	1	X	5,5	X	
Vision X1	X	1	X	1	X	4,5	X	
Vision X1 EV	X	2	X	3	X	0	X	X
Vision X3	X	1	X	1	X	5,8	X	
						5,00		**X%**

Figure 21: Potential game plan for Geely 2020 (Sample Version – not forecast numbers)

Geely as a typical Chinese carmaker might also have x% of its cars as plug-in hybrids. It might have to be even higher, because even by 2020 Geely and the other major Chinese OEMs will still catch up on lower cost options like DI gasoline etc. In this scenario Geely would have to buy about xxxxx NEV credits from the market. This would equate to about xxxx EVs or xxxx more PHEV Geely would have to sell in order to reach the 12% target. This would probably be more expensive than buying the credits from the market. Thus Geely might have decided to keep the majority in ZD Auto, as 2020 is the last year with EV subsidies making it easier to sell low level EVs. They would need to sell xxxx of those assumed that the range will remain at the current 160 km like the Kandi branded cars now. Longer term Geely will probably offer more high tech EVs under the Lynk & Co. and Volvo brands.