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CHINA'S NEV MANDATE PAVES WAY FOR STRUCTURAL CHANGE, **BUT LIMITED MEDIUM-TERM IMPACT ON GASOLINE DEMAND**



By Man Yiu Tse

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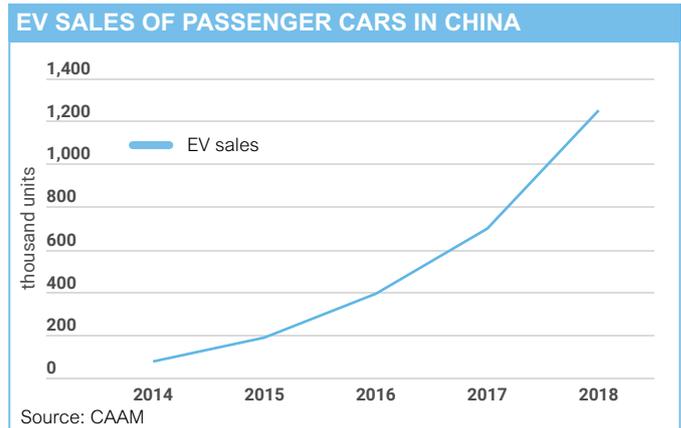
China's New Energy Vehicle (NEV) mandate which came into effect on 1 January 2019 will challenge gasoline demand in the long term, but its medium-term impact will be capped, as the share of EV remains relatively small and the mandate provides flexibility for car manufacturers in meeting the corporate average fuel consumption (CAFC) target.

Under the mandate, car manufacturers with annual production or import volume of at least 30,000 conventional internal combustion engine (ICE) passenger cars need to meet an NEV credit target of 10% of ICE passenger vehicles produced or imported in 2019 and 12% in 2020. This means that to produce or import 30,000 ICE passenger cars, the car manufacturer is required to earn 3,000 NEV credits in 2019 and 3,600 NEV credits in 2020. The targets beyond 2020 were to be determined later. Depending on the vehicle type (battery electric vehicle, plug-in hybrid electric vehicle, or fuel cell vehicle), electric range, and energy consumption, an NEV can earn NEV credits ranging from 1 to 6.

The NEV mandate is an addition to the existing fuel consumption regulation that requires all car manufacturers to reduce their overall passenger car fleet's CAFC to 5L/100km in 2020, from 6.9L/100km in 2015. Car manufacturers will generate CAFC credit deficit if their actual CAFC falls below the target. On the contrary, the manufacturers will gain surplus CAFC credits if their actual CAFC is above the target.

Since the Chinese government's strong push towards electric vehicles through generous tax incentives and subsidies almost a decade ago, the EV population has seen robust growth. China's total number of EVs surpassed the US as the largest EV market globally in 2016. And the sales of electric passenger cars exceeded 1m units in 2018, year-on-year growth of close to 80%, according to China Association of Automobile Manufacturers (CAAM). The sales volume accounted for 5.3% of total passenger car sales in 2018.

The NEV mandate is expected to support continued EV growth and bring about a structural change to the passenger vehicle market in China in the long term. Some positive signals can already be seen as strong



policy support has attracted new investments from Chinese and foreign investors to the EV sector. Chinese EV start-ups such as Singulator Motors, WM Motor and Xiaopeng Motors successfully obtained funds from Chinese investors last year to increase production and market share in China. California-based Tesla is setting up a factory in Shanghai, with production expected in the second half of 2019.

The long term trend of EV growth will challenge gasoline demand growth. But in the medium term, the impact is likely to be limited. While the EV sales growth has been solid, China's share of electric passenger cars remained at a low level of 1.3% in 2018. The share of gasoline-engine passenger cars has dropped a mere one percentage point over a five-year period to reach 98.1% in 2018. Given that gasoline-engine passenger cars still account for the vast majority of the vehicle fleet in China, the growth in EV alone is unlikely to impact gasoline demand growth in a significant way in the next five years.

Extrapolating that NEV credit target will continue to progressively increase by two percentage points every year post 2020 to 2023, along with ICIS' baseline assumption that on average each NEV produced earns around three NEV credits, ICIS estimates the share of electric passenger cars will increase over a five-year period from 1.3% to 2.9% in 2023.

Under the same premise of NEV credit target, two other scenarios were derived by testing the extreme ends of

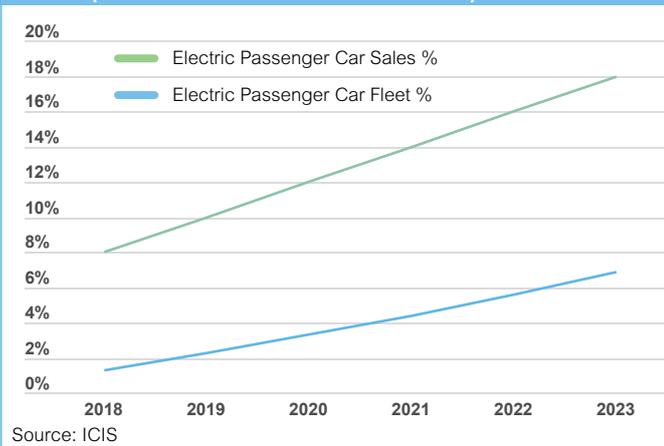
the NEV credit per vehicle (a minimum of one and a maximum of six, as specified in the mandate), which showed a range of electric passenger car penetration between 1.9% and 6.9%. In other words, even in the scenario where there is a high and immediate penetration in sales of electric passenger cars – as much as 18% of total passenger car sales in 2023 in the high penetration scenario – the delayed impact on the total fleet on the road means that displacement of gasoline-engine passenger cars still remain limited.

All other things being equal (average distance travelled per vehicle, fuel efficiency and car sales), ICIS estimates that the growth in electric passenger car sales under the base case scenario will potentially result in an annual average loss of around 600,000 tonnes of incremental gasoline consumption between 2019 and 2023. That is only a fraction of the 5.8m tonnes of gasoline consumption added in 2018. Under the high penetration scenario, the annual average loss in incremental gasoline consumption

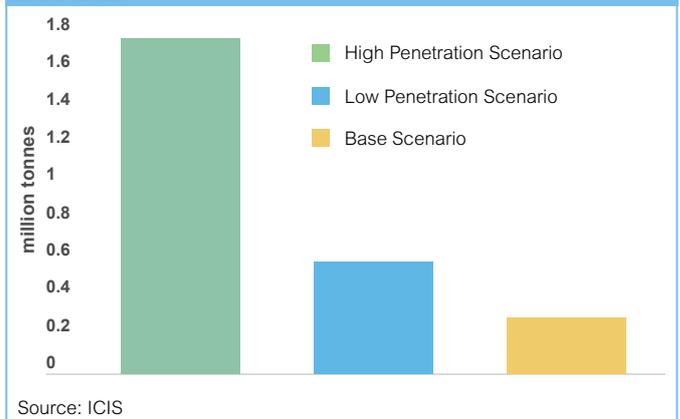
would increase to close to 1.8m tonnes, or around 30% of the gasoline consumption growth in 2018. While more substantial, this suggests that other factors such as average distance travelled per vehicle and fuel efficiency of gasoline-engine cars will still be the primary determinants for gasoline consumption growth.

Furthermore, the potential loss of incremental gasoline consumption may be countered by a slowdown in fuel efficiency improvement of ICE vehicle fleet. The NEV mandate and the CAFC requirement form an integrated program in which car manufacturers are allowed to use surplus NEV credits to offset CAFC credit deficits. Surplus credits can also be banked for use in future or sold to other companies to offset credit deficits. In other words, car manufacturers could produce vehicles of lower fuel efficiency standard and compensate the deficit with NEV credits. This may, as a result, hamper the overall efforts in the industry to improve fuel efficiency. ICIS estimates that every 1% of fuel efficiency improvement could mean up to

ELECTRIC PASSENGER CAR SALES % VS FLEET % IN CHINA (HIGH PENETRATION SCENARIO)

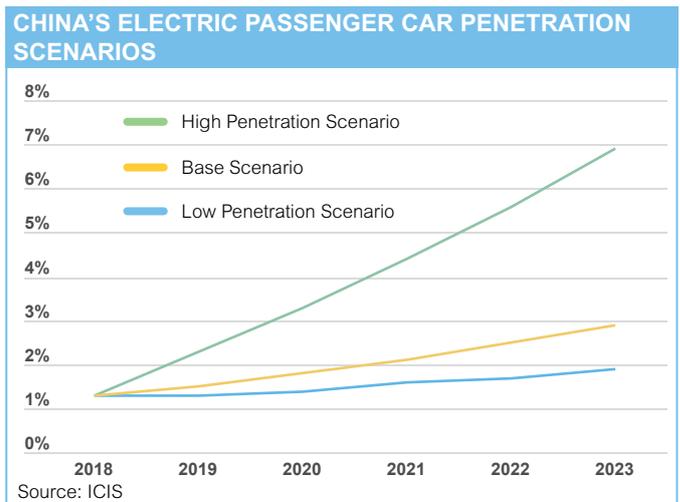


POTENTIAL ANNUAL AVERAGE LOSS OF INCREMENTAL GASOLINE CONSUMPTION DUE TO EV PENETRATION IN 2019-2023



1m tonnes of savings in gasoline consumption in China. It remains to be seen how car manufacturers will exploit the flexibility, and hence the extent of the impact on fuel efficiency improvement.

The NEV mandate is one of the many Chinese policies to combat air pollution in the country. China's strong stance against air pollution is a signal that stagnant, or even negative, demand growth of gasoline in the country is a likely reality in the long term. But in the medium term, the share of EV is expected to remain relatively small as the EV fleet will take time to build, and only moderate volumes of gasoline demand will be displaced. The additional compliance flexibility to the CAFC requirement also may lead to a slowdown in fuel efficiency improvement efforts which would in turn offset the gasoline consumption loss.



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