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China: Will EV Push Undermine Gasoline Car Fuel Efficiency?

China's push to improve the fuel efficiency of its automobile fleet achieved only marginal progress in 2017, casting a shadow on whether it can deliver on a goal to cut national average passenger car oil consumption to no more than 5 liters for each 100 kilometers traveled. Based on figures submitted by automakers for car models manufactured in 2017, the average passenger car's oil consumption was 6.77 liters per 100 km, representing a marginal improvement of only 1.7% from the previous year, according to calculations by the nonprofit Innovation Center for Energy and Transportation (iCET). At this rate, it would be daunting for automakers to achieve the 2020 target, not to mention the even tighter 2025 target of just 4 liters/100 km. But the central government has offered carmakers an escape route through electric vehicles (EVs), or what Beijing terms "new-energy vehicles" (NEVs) -- defined as pure-electric, hybrid petroleum-electric and hydrogen fuel cell car models that consume less energy in oil equivalent terms than those powered solely by traditional internal combustion engines.

In the state-set formula for computing the average fuel consumption of an automaker's entire fleet, each NEV is assigned a weighting that is five times that of a conventional petroleum vehicle. This lowers the calculated fuel consumption through a multiplier effect: With help from NEVs, the 2017 calculated oil consumption of an average passenger car in China was pulled down to 6.30 liters/100 km, or nearly 7% lower than the actual figure of 6.77 liters/100 km, says iCET's Beijing-based Senior Manager Liping Kang. In addition, automakers producing sufficient NEVs can accumulate "credits" for fulfilling the mandatory NEV production quotas recently introduced by the government ([NE Oct.5'17](#)). Beijing has also added a market touch to the scheme: NEV credits are not only transferrable, but can also be used to offset for underperformance in gasoline car fuel efficiency, so carmakers with a surplus of NEV credits can sell them to those failing to meet NEV quotas or conventional car fuel efficiency. NEVs will therefore play an increasingly vital role in the Chinese auto market as a means of fulfilling the dual requirements of fuel economy and the NEV production quota. The policy design is clearly tilted toward promoting NEVs, sending a signal to carmakers to either make the electrification leap or risk having to subsidize their rivals ([NE Jul.13'17](#)).

NEV sales in China rose 53% in 2017 to a combined 777,000 units of pure-electric vehicles and plug-in gasoline-electric hybrids. In the first four months this year, the growth rate accelerated to 149% ([related](#)). However, the multiplier benefit of NEVs on fuel efficiency will be cut progressively -- from five times that of a conventional vehicle in 2017 to three times in 2018-19 and down to two times in 2020. At the same time, fuel economy standards will become increasingly stringent, requiring annual improvements of 6.3%, 8.3% and 9.1%, respectively, over 2018-20. Many automakers in China will find it a challenge to deliver genuine improvements in fuel economy. In 2017, over a third of domestic carmakers fell short of their fuel consumption targets and more than half of foreign car importers exceeded limits, according to Kang's analysis of raw data released by the Ministry of Industry and Information Technology. In terms of the actual fleet, a quarter of vehicles produced domestically in 2017 failed to meet fuel efficiency standards while over a third of imported cars were too fuel intensive. "Imported cars fared worse because Chinese consumers able to afford imported vehicles tend to be status conscientious and favor luxurious models that are bigger and consume more fuel," Kang explains.

The iCET would like to see carmakers making efforts to upgrade gasoline car technology even as they strive to meet NEV quotas, rather than focus just on NEVs as a single means of meeting the dual requirements of NEV production

and fuel efficiency standards. However, since Beijing's announcement last September of its intention to phase out petroleum cars at some point in the future, some carmakers might take the policy cue and decide to prioritize research spending on NEVs at the expense of gasoline cars ([NE Sep.28'17](#)). "Automakers should adopt a two-pronged approach, because gasoline vehicles are projected to still account for the lion's share of 60% of the market in the years until 2030, so it is important to get serious on fuel conservation technology," Kang tells *EI New Energy*.

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