

UBE test method by using HD chassis dynamometer

~Alternative method should be included in the HDV GTR phase 1~

China, May 28th, 2024

The importance of alternative method

It is recommended to retain alternative methods in phase 1 of HDV regulation:

1. The proposal on battery durability for heavy duty electrified vehicles is a United Nations regulation. It should consider all test methods worldwide. The $UBE_{\text{certified}}$ and $\text{Range}_{\text{certified}}$ test method for HDV is using chassis dynamometer in China. Therefore, the in-vehicle UBE testing needs the method of chassis dynamometer to ensure consistency with type approval.
2. Since the methods on the test track (method 1a), on the road (method 1b) and VRTE(method 2) have included in the regulations, the chassis dynamometer method should be added, because it is a method which can completely replace the above three test method.

The importance of alternative method

3. It has the best repeatability. The weather, temperature, road condition and others of chassis dynamometer method can be controlled well. It has higher accuracy and higher reliability.

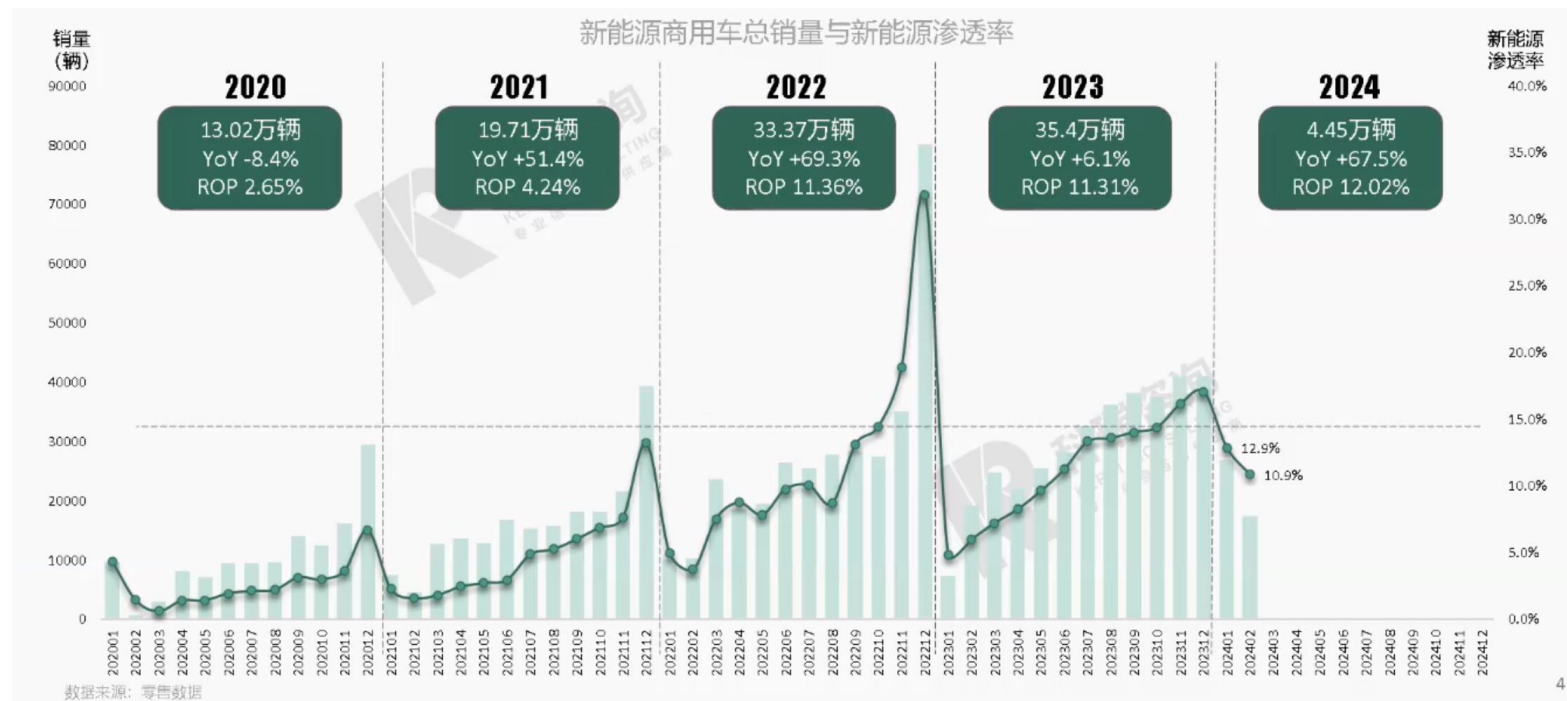
4. In addition, the test method in GTR 22 for LDV is using chassis dynamometer. So this is a mature approach and it also make sense for HDV. The test method refers to GTR15. Therefore, China proposes to introduce this method to HDV with the same reference of GRT 15 and adjust the parts that are not suitable for HDV.

The importance of alternative method

5. The market penetration rate of heavy-duty pure electric vehicles has been increasing year by year in China, and the annual sales volume of heavy-duty pure electric vehicles has exceeded 300,000. The certification of heavy-duty pure electric vehicles and HD hybrid vehicles in China mainly adopts the chassis dynamometer test which is the same as the alternative method proposed in this regulation. According to the SOCE measurement requirements currently in the heavy-duty battery durability Regulation, In-vehicle UBE testing should be the same as the certification test method. In order to meet the applicability of this regulation for a lot of heavy-duty electric vehicles in China, it is necessary to retain the alternative method in the phase 1 of the regulation.

The importance of alternative method

- From 2020 to 2024, the penetration rate of new energy commercial vehicles will increase from 2.65% to 12.02%, with a high growth rate.



- According to the forecast of China, the penetration rate of new energy commercial vehicles will reach 16-19% and 28-33% in 2025 and 2030.

The importance of alternative method

6. Chassis dynamometer measurement accuracy has been widely discussed and accepted. In the early stage, China have made several proposals to prove the reliability of this test method, which has also won the approval of EVE experts. We respect the differences in testing requirements among countries and only consider writing regulations as an alternative. The alternative method is exactly corresponding to the test method in GTR22. The draft content of HD chassis dynamometer is mature.