

Current standards and specifications for electric vehicles

Currently, electric vehicles follow the same standards and specifications of traditional vehicles. These cover the whole life cycle of vehicles, including production, registration, marketing and scrapping. At the same time, however, relevant government departments have also started to carry out targeted research on standards matching the specific technical characteristics of electric vehicles.

1. Market access standards for new electric vehicles

To promote the standardisation of the electric vehicle industry, and ensure the quality of new energy vehicles and products, the Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission (NDRC) and other government departments have issued some regulations and policies for market access standards of new electric vehicles. These include:

- (i) *Norms of the Automobile Power Battery Industry;*
- (ii) *Policy on Technology of Electric Vehicle Power Battery Recycling.*

The market access administration of domestic electric vehicle products is mainly supervised and implemented according to the *Administrative Regulations on Market Access of New Energy Vehicles Makers and Product* (Order No.39 of MIIT). Furthermore, in addition to meeting the relevant standards of traditional automobile products of the same sort, new energy vehicles should also meet the requirements stipulated in the *Special Inspection Items and Standards for New Energy Vehicle Products* – which currently include 19 items such as energy storage devices, motors and controllers, safety of electric vehicle, and electromagnetic field radiation.

These norms and requirements are supported by three mandatory national standards, aimed at safeguarding the technical security electric vehicles. These are:

- (i) *Safety Requirements for Electric Vehicles;*
- (ii) *Safety Technical Conditions of Electric Buses;*
- (iii) *Safety Requirements for Lithium-ion Power Batteries of Electric Vehicles.*

Finally, in 2019, MIIT's department of equipment industry and the National Technical Committee of Auto Standardisation completed the technical review of *Functional Safety Requirements and Test Methods for Battery Management Systems of Electric Vehicles*.

2. Registration standards for electric vehicles

The registration procedure for electric vehicles is the same as the one for traditional vehicles. All relevant aspects, including registration of vehicles, change, transfer, mortgage, cancellation, and verification and issuance of school bus licenses, is handled in accordance with the requirements of the *Rules for the Registration of Motor Vehicles* (Order No. 124 of the Ministry of Public Security). During the registration process, inspectors of vehicle management departments should inspect the vehicle according to the *Working rules for Motor Vehicle Inspection* (GA 801-2019). Based on the requirement of registration and inspection, for domestic electric vehicles, it should indicate in the

Notice on Road Motor Vehicle Manufacturing Enterprises and Products whether they belong to new energy vehicles, eventually specifying the vehicle type; while for imported electric vehicles, their models should be included within the scope of the General Administration of Customs' catalogue of new energy vehicles imported. In addition, new energy vehicles imported after 1 December 2016, should also specify whether they belong to the new energy vehicles indicated in the "inspection situation" column of the *On-board Inspection List of Imported Motor Vehicles*. During the inspection process, the vehicle code, motor type, factory number, vehicle brand and model, and the external charging interface, should all be checked. During the process of registration for safety inspection, the signage of battery electric vehicles, plug-in hybrid electric vehicles and fuel cell vehicles should include information such as model and power of main drive motor, the operating voltage, and the capacity of the power battery. The inspection bodies should verify accurately the information illustrated in the signage.

3. Relevant standards for electric vehicles in use

Concerning standards for electric vehicles in use, in October 2015 the General Office of the State Council issued the *Guiding Opinions on Accelerating the Construction of Electric Vehicle Charging Infrastructure*. The Opinions pointed out that, by 2020, the charging infrastructure system should be able to meet the charging demand of more than 5 million electric vehicles, and at the same time improve its performance in charging interface standards, current communication standards and charging time. In addition, the voluntary national standard *Guide for Emergency Rescue of Electric Vehicle Disasters and Accidents* was issued in 2019, providing a reference for emergency rescue in case of electric vehicle accidents such as fire, collision and soaking.

In addition, in order to guarantee the safety technical conditions of electric cars in use, vehicles should also follow the regular inspection system for traditional vehicles – which is carried out according to the *Technical Inspection Items and Measures for the Safety of Motor Vehicles* (GB 21861-2014). In May 2020, the standard was revised into *Technical Inspection Items and Measures for the Safety of Motor Vehicles* (GB 38900-2020), which came into effect on 1 January 2021. In particular, the newly revised standard puts forward the requirements for safety technical inspection, mainly relating to three aspects:

- Firstly, in terms of external appearance and characteristics of electric vehicles, plug-in hybrid electric vehicles and battery electric vehicles are required to have the external charging interface (battery electric vehicles whose batteries are swapped, are excluded from this requirement);
- Secondly, in terms of danger signage, for battery electric vehicles and plug-in hybrid electric vehicles manufactured after 1 January 2018, the rechargeable energy storage system (REESS) of B-class voltage and circuits within visible areas of visual inspection, should be marked with warning sign according to the regulations;
- Finally, in terms of integrated structure, the REESS shell of battery electric vehicles and plug-in hybrid electric vehicles should not feature any defects such as clear deformation, cracks, damage, or electrolyte leakage.

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