

### 5.1.5 Do You Know That ? Different Types of Electric Vehicles

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Although it is still in minority in the transport energy mix, with less than 1% of the final consumption of this sector's energy, electricity is gaining ground in transports and mobility. It reaches each sector one after the other by replacing energy derived from oil or of human or animal origin, or by complementing these energies.

We can find it as an assistance to complement human energy on skateboards, unicycles, Segways, bicycles and other private mobility tools that flourish in major metropolises.

It can also be found as the main engine power for electric scooters, electric motor-cycles, electric tricycles and quadricycles.

It is increasingly found in private cars and light commercial vehicles either as the main or secondary engine power.

It is also being developed in public transports such as taxis or buses, but also in subways or urban and periurban trains.

It is being developed in freight transport but also in agricultural and industrial vehicles.

We can also find it, although to a lesser extent, in maritime and air transport.

Although there is no clear and unique definition of an electric vehicle in terms of vehicle types, we notice that usually non-motorized and off-road vehicles are excluded from this scope. The electric vehicle name is thus limited to the scope of motorized road vehicles that are private or public and transporting individuals or freight.

Electric bicycles are a separate case because depending on the countries, there can be a difference between electric bicycles and scooters. In Europe, electric bicycles belong to the cycle category and not to the moped category. These are privileged conditions for a motorized vehicle that requires no driving license nor insurance. Three conditions are associated with this privilege : power must be pedal-assisted, i.e. the power is cut off when the user stops pedaling, power must be cut off over 25 km/h, and the rated power must not exceed 250 W.

China, the electric two-wheeler world champion with over 200 million circulating units following the prohibition of thermal two-wheelers in most of its major cities, has decreed new regulations in its major city centers in 2016. Only electric bicycles and scooters designed not to exceed 20 km/h with their electric engine are now allowed to circulate. They also need to have a license plate for this purpose.

The different types of electric vehicles we have listed are circulating today in very different quantities that are difficult to estimate globally since reliable statistics are lacking. But here are a few figures (Figure 5.14) : in 2016 there were about 200 to 230 million electric motorized two-wheelers worldwide, most being on the Chinese market. 3 to 4 million electric carts, most being on the Chinese market too. 2 million electric cars and 350 000 electric buses. The electric commercial vehicle

fleet is probably still very small and there is no global inventory of these to this day.



FIGURE 5.14 – EV fleets worldwide, 2016 - IEA Global EV Outlook 2017