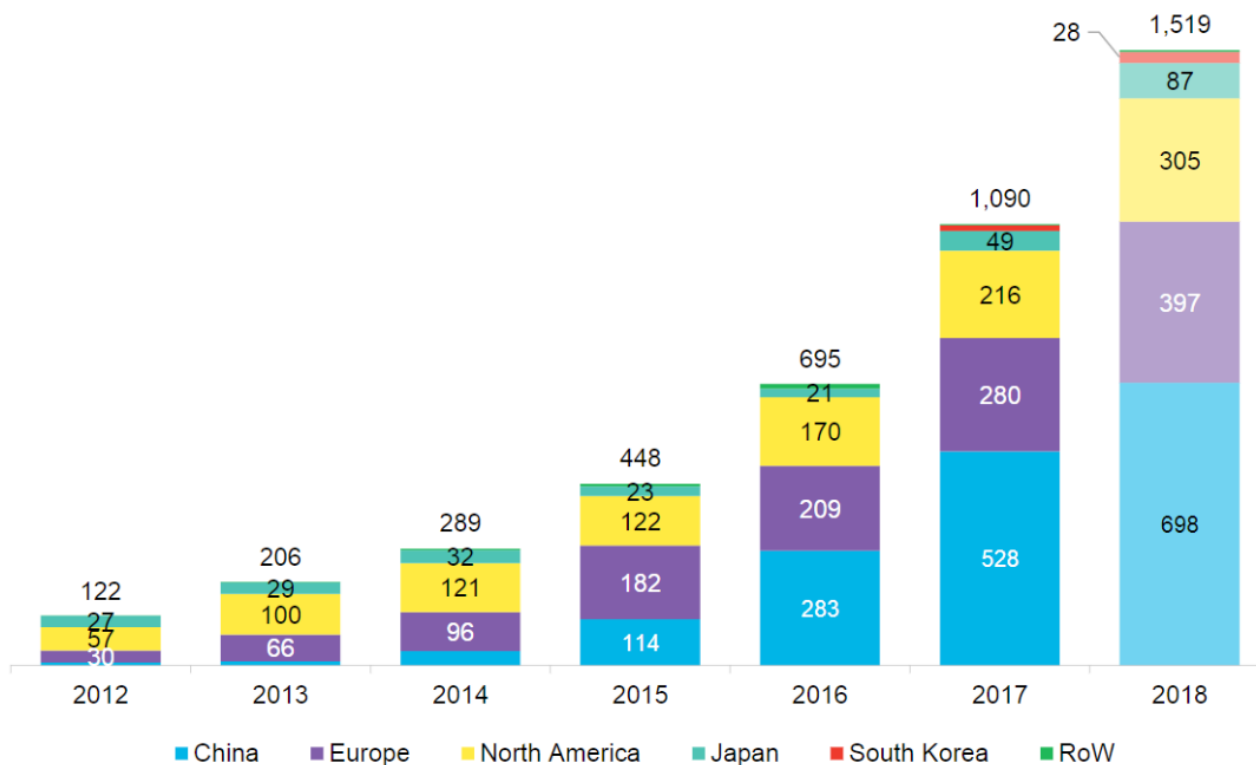


EV Sales

Global EV sales are rapidly increasing as the figure below shows. It has taken nearly 20 years to sell the first million electric cars on the road. Since then the pace has accelerated significantly, only taking 18 months to sell the next million electric vehicles. 2017 was the first year that has seen over one million electric vehicles sold. Yet sales of electric vehicles only constitute a small portion of all passenger vehicle sales. Just below 1% of all cars sold in 2017 was electric.



Global EV sales per region in thousands. *Source:* Bloomberg New Energy Finance

However, electric vehicle sales have been growing at an exponential rate. This exponential growth rate implies that this number will grow very fast in the years to come. It's predicted that by 2040 more than half of all new passenger vehicles will



have an electric drivetrain.

EV sales also vary significantly across countries. While EV leaders such as Norway and Iceland have a very high market share in new sales for electric vehicles, the growth in numbers is mainly driven by the Chinese market. The main factor that drives these differences between countries and cities are the different ambitions and policy incentives by the national and local governments.

Segments

Passenger vehicles are not the only fleet of vehicles that will be electrified. Some segments are more likely to shift to electric vehicles in earlier stage. These other segments include:

- Motorcycles
- Light electric vehicles
- City logistics freight trucks
- Heavy duty freight
- Buses

Motorcycles

Traditionally a segment dominated by the Asian market in which nearly 80% of all motorcycles are sold. Motorcycles in the Asian market are a popular means of daily transport especially in traffic ridden cities. This market could be electrified soon as some Asian cities are aggressively tackling air pollution. In other markets



the motorcycle is more seen as a leisure vehicle in which the electric version has to compete on the customer experience. This market is more likely to move at a slower pace as the noise and acceleration of the motorcycle play an important role.

Light electric vehicles

The light electric vehicle segments includes small vehicles with two, three and four wheels. These includes electric bikes. This segment has reached the highest market share globally compared to other segments. Over 35 million electric bikes are already sold globally. Electric (cargo) bikes are emerging as an important alternative for inner-city logistics.

City logistics freight trucks

City logistics freight trucks is a segment that focuses on inner-city deliveries of goods. Local governments of city's demand zero emission earlier than the state or central government. Yet there is a lack of available models than satisfy the needs of transport companies. The lack of available delivery van models has resulted in delivery companies such as DHL and UPS to design their own electric vehicles and taking them to the market. This shows that this segment is willing to move faster than traditional car makers can keep up with.

Heavy duty freight

Although long thought as impossible, with the introduction of the Nicola and Tesla semi, also the heavy and long-haul freight trucking is a market that is likely to be electrified soon. The fleet of long haul trucks is actually very suitable for



electrification from a business perspective. The high number of miles driven means that fuel and maintenance costs are a significant factor in the operational expenses. Due to the better energy efficiency, driving on electricity is cheaper than on diesel. Together with the significant lower maintenance cost the Total Cost of Ownership is potentially lower and the Return on Investment is higher than in other segments.

Buses

Buses are an excellent example of fleets in which electrification goes at a faster pace than the passenger vehicle market. Especially for public city transportation electric buses are an ideal solution because they travel at low speeds, have fixed routes and fast opportunity charging possibilities at bus stops. They also provide a direct positive effect on air quality in cities.

