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FUTURE OF ELECTRIC MOBILITY

The electric vehicle (EV) quantity grows every day. Global sales of electric vehicles exceeded 2 million in 2018, up from just a few thousand in 2010 and industry analysts are forecasting an acceleration of this growth, (figure 1), with electric vehicles expected to account for 57% of all passenger vehicle sales by 2040 at which time 30% of the global passenger vehicle fleet will be electric vehicles (EV) [1].

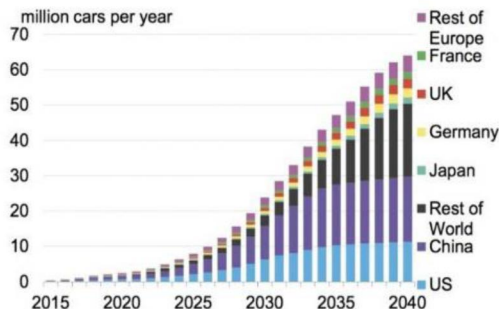


Figure 1 – Current level and forecast of EV sales.

This is the most innovative and prospective technology since the electricity found. What will the future of electric mobility be?

Probably, the most exciting technology is autonomous driving, well known as autopilot (figure 2).

What can be better than just driving to the place you want and enjoy cityscapes or landscapes, fields or skyscrapers, without switching your attention to driving? Besides, this technology is good for the people with special needs, perhaps, it is only one way for them to drive a car as a professional driver. EV can make it true. Tesla motors developing above-mentioned technology and currently it has a good performance.



Figure 2 – Tesla autopilot.

Next technology may change the world and our imagination of driving. It is wireless charging of EV. The inductive wireless charging of electric vehicles would provide ease and convenience of charging without the requirement of any charging cables. The technology uses two electromagnetically linked coils that exchange power at high frequency (figure 3) [2].

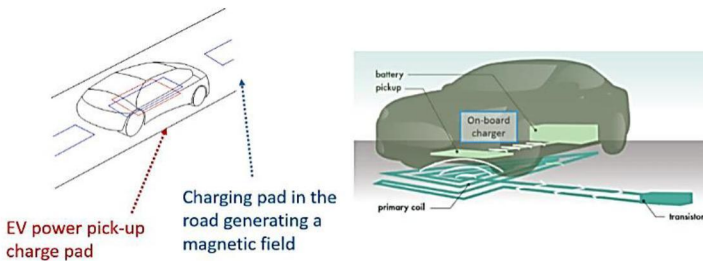


Figure 3 – Wireless charging of EV.

Due to this technology, the electric cars can wirelessly charge while driving. It's a technology that can dramatically reduce the cost of electric cars as they would need a smaller battery and move this cost to the charging infrastructure. Besides, it can provide an effect of so-called perpetual engine, driving "non-stop".

With the increasing amount of EV connected to the grid, some measures needs to be taken in order to balance demand and supply of energy. New technology called Vehicle-to-Grid is becoming more popular [3]. It uses energy management, so the battery of EV may be used not only for charging, but also for discharging when the EV doesn't need an energy, or operates from the solar energy in middays and / or accumulate the excess of energy, returning it into the grid at the evening during the intense consumption hours. In this case, the EV battery is an energy storage for other consumers.

The electric vehicles will change our ordinary life into something new in near future. New technologies seems like a very prospective, nevertheless, production and disposal of the batteries for electric vehicles brings new challenge – pollution

of environment. That's why battery manufacturers along with EB manufacturers should not forget to develop new production technologies with pollution reduction rather than focused on a fantastic one.

LIST OF REFERENCES

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