(DIS)ADVANTAGES IN USING OF FOSSIL FUEL AND GREEN ENERGIES FOR ELECTRICAL VEHICLES

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internal combustion motor, electric & hybrid vehicle, pollutions, waste materials
is a key element for mitigating the risks of climate change.

Vehicles based on internal combustion engines have been perceived as close to their development limits,

While the electric power devices are in developing.
At lot of academic and public discussions put the focus on alternative vehicle technologies (e.g. electric cars) and fuels (fuel cells and hydrogen).
The fossil fuel motors were developed at second half of XIX century, as the revolutionary invention. These motors exist as Otto or Diesel engine. Both of them produce high emission of carbon dioxide (CO₂). In nowdays, one of the main disadvantage of these motors is considered to make high emission of CO₂.
MOTOR WITH INTERNAL COMBUSTION AND EXHAUST OF GASES
Exhaust gases from combustion engines almost consist of: CO, CO$_2$, nitrogen, moisture (in vapor state), various hydrocarbons, etc.
AIR POLLUTION

One smoggy day over New York a) and contribution on air pollution from jet engine b)
THERE ARE SOME OPINIONS THAT BALGRADE HAS PRETTY POLLUTED AIR
The electric vehicles (EVs) may be powered as electrically only or hybrid system. The initial design of EVs is patented at the end of XIX century.

There are two principal solutions for EVs design, next slides, which design (construction) continuously is in development.
The engine powers the battery, battery powers the motor, and motor is connected to the driveshaft, thus providing necessary power to wheels,
In parallel hybrid system, Fig. 3b), the motor and engine, both simultaneously power the drive-train.
BATTERY ELECTRIC CAR (BEV) runs only on a battery

Scetch of battery in an electric car a) and positions of batteries at bottom of car b)
Weight of batteries (over 400kg) is a serious problem!
➢ Renewable energy sources coming from wind, solar or hydropower, and according that charging systems for EVs were developed.

➢ Generating the electricity for EVs does not presents a serious problem, at the contemporary level of technology.

➢ There are some estimations that wind energy alone could power all the cars in the world, if they were all fuelled by electricity.

➢ Much better situation is with solar energy.
KIND OF BATTERY today are from nickel hydroxide or Li ion; two examples are shown here.
Each battery consists of an anode and a cathode into an electrolyte containing dissociated lithium salts.
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The main question about (dis)advantage about using of fossil fuel and green energies for battery electric cars is: are the exhaust gases from combustion engines (CO, CO$_2$, nitrogen, moisture and various hydrocarbons) represent more danger to the environment than electrolytes from waste batteries on basis of lead, nickel, lithium, etc, and their hydroxides, acids or salts?