EV's pollution

A sharp increase in the number of cars in the world, and large amount of exhaust gas led to the problem of environmantal pollution. Around the world motor traffic becomes enlarged. In 1950. there were about 53 million cars in the world and 44 years later the world's automotive fleet has grown to 40 million. Averagely, the fleet has grown to 9,5 million units per year.

The transport sector is one of the fastest growing economic sectors in Croatia. The growth of total number of registered cars in the last 10 years was almost constant 5% per year. Data on average 439 passenger cars per 1000 inhabitants in Croatia compared to an average of 480 in the EU, indicate the great potential for further growth of the market (in the Republic of Croatia, until 2020., is expected over 2 million passenger cars compared to todays 1,8 million). The transport sector is also the most important consumer of energy (over 30% in the structure of final consumption) and in the future we expect even faster growth in consumption than in other sectors.

Picture 1 and 2 – Trend of the growing number of cars in the world

City traffic, especially the use of cars in city traffic is one of the largest sources of air pollution in major cities. Bringing the quality of air in the first category for larger cities wil not be feasible without major interventions in urban transport system. The solution will have to be sought into: strengthening of urban public transport, the introduction of environmentally acceptable vehicles and fuels for public transport, intensive promotion/education on how to use environmentally acceptable vehicles – eco-driving, and promoting new concepts of urban mobility, for example „car sharing“.

To actualize this goal, Europe has adopted Directive 2009/33/EC promoting the

establishment of a road traffic system based on clean and energy efficient vehicles and on their intelligent way to use, while most countries are committed to encourage the use of alternative fuels and the production of energy from renewable sources. In the uses of the car in Europe there are visible signs of the beginning of the electric revolution. EU provides very clear limits of emissions of CO2 of the cars that will have to fall below 95 g/km. by 2020. As an example we can take the emissions of a hybrid car Toyota Prius that produces one of the lowest emissions, and those amount 105 g/km. But this value depends on the overall energy production of a country, the energy used more from renewable sources will reduce the value of CO2 emitted by electric vehicles.

The main issue today is: Are electric vehicles completely ecologic or do they pollute the environment?

Electric cars during the operation do not emit harmful gases and can be considered ecological while hybrid vehicles emit significantly lower emissions than vehicles with conventional drive, but overall these vehicles polullute less significantly than cars powered by gasoline or diesel engine, these represent only technological solutions which can achieve the intended goals of reducing air pollution and the environment.
Unfortunately, it should be noted that current electric cars in a large percentage are not vehicles with zero emissions. First of all, the components of these cars have been created in factories most likely powered by fossil fuels. Electric cars use electricity still largely derived from coal or natural gas, therefore fossil fuels, which is not a renewable energy and this electricity is consumed during the drive. Electric car power plants emit a considerable amount of harmful gases in the environment. It should be noted that just increased production of electric cars requires greater production of electricity, which in a high percentage comes from coal and natural gas, thus contributing to a greater environmental pollution. Ecologically, coal is the most dangerous source of energy and currently 38% of electricity generated in the world is obtained from coal.

Pictures 3 and 4: Thermo-electric power plant

Experts warn ,that today one of the greatest problems in the manufacture of electric car, are the batteries ,that store the electricity and for their development a lot of energy is used.The biggest problem at the end-of-life is to take care of them, since they contain dangerous elements and substances. For their safe disposal again we waste energy and release certain harmful gases.

When we speak about electric cars, the problem is the energy source. If the source is coal power plant, then these cars affect the production of 3,6 time more soot than those on petrol, and for that value increases mortality caused by air pollution.

However, if electric cars use electricity from renewable energy sources (wind, water, sun, biomass), it can reduce mortality caused by air pollution no less than 70%.

Picture 5: Electric cars and renewable energy sources