



Greens/EFA position on electric mobility

Key messages

- Greenhouse gas emissions must be reduced urgently and substantially to halt runaway climate change
- An integrated and holistic electric mobility system could contribute to this goal by achieving both a smart and sustainable transport and energy sector
- Modal shift to collective and sustainable means of transport as well as resource and energy efficiency remain priorities of green policies
- Electric vehicles can be a part of a solution to sustainable mobility with the benefits of demand side management for electricity if they use 100% renewable energy
- The EU must assess electric vehicles throughout their lifecycle, including special attention to recycling and reuse of batteries, and ensure that the most efficient technologies are in place

Introduction

Despite the climate targets and policies in the EU, greenhouse gas emissions from the transport sector keep growing. Unlike the power sector, the transport sector is still almost completely dependent on oil as a source of energy. A shift towards a sustainable transport system must be a priority for the EU if we want to reach our emission reduction targets for 2050.

Electric vehicles can be one part of a solution to cut emissions from the transport sector, and in the longer run, when transport needs to be fully decarbonised, the options available are electric vehicles and sustainable second (or third/fourth ...) generation biofuels. Electricity can also play an important role in improving resource efficiency in transport.

There are however several threats that can turn this opportunity into a greenwashing project for electricity producers and car manufacturers. The Greens/EFA want the following loopholes to be cleared until e-vehicles can be seen as a sustainable part of the future transport and power system:

- the development of electric passenger cars and other light vehicles must be one part of a holistic, systemic approach to sustainable transport and energy sectors; other parts include demand side management via smarter city planning and land use planning, promotion of walking and biking, including e-bikes, trams, trains etc.;
- electric vehicles must run on green power and truly be part of a smart energy system, where they contribute to the demand-side management of electricity;
- development of electric vehicles should be well balanced and conceived within the frame of a future sustainable mobility policy, where inter alia reduction of accidents, space use, reduced congestion, total energy consumption, CO2 emissions, noise and gaseous emissions are crucial;

- the resources, energy and environmental balance of electric vehicles must be assessed throughout their life cycle, from production to disposal, including recycling and reusing of batteries;
- promotion of electric vehicles in the EU must not end up in a counterproductive business environment allowing for the sales of more polluting cars for each electric car sold and/or sidelining the need to develop a sustainable transport policy as a whole.

The case for electric vehicles

Climate change is the greatest global threat of our time and possibly the greatest challenge ever for the human species. The global average temperature has already risen by some 0.8 °C from pre-industrial times and our past emissions have locked us on a path with a further increase of approximately half a degree. The EU has taken as its goal to stop climate change before the temperature increases 2 °C. Several vulnerable countries and environmental NGOs demand the temperature increase target to be lowered to 1.5 °C as catastrophic irreversible changes cannot be excluded with a 2°C average global warming.

This means we should already be cutting our emissions rapidly. However, this is not the case even in the EU. Not all sectors are succeeding in cutting their climate impacts. In EEA countries, greenhouse gas emissions from transport, excluding international aviation and maritime transport, grew by 28 % between 1990 and 2007. This is by no means sustainable and a drastic change needs to happen within a short timeframe.

A shift towards an energy efficient and sustainable transport system must be a priority for the EU. This means we must develop and deploy a wide range of improvements in the way our communities and societies function. The need for motorized transportation must be reduced by better land use and urban planning; people should not need to use a passenger car in order to go to work, grocery shop or kindergarten; passenger and freight transport must be shifted from roads and air to rails; etc.

As part of a long list of improvements that need to take place, electric vehicles can play a part in changing our very unsustainable transport system into a smart and sustainable one. However, several possible pitfalls must be negotiated before the sustainability of electric vehicles can be guaranteed.

Electric vehicles as part of the bigger picture

Electric vehicles can by no means be the only, or even the main solution to reducing carbon emissions in the transport sector. Nor will they solve the problems of congestion and accidents.

There are strong interests among the car manufacturing and electricity industries to promote the increase of electric vehicles on the market; however, these interests may not consider sustainability issues as a priority. The lobbying could at its worst lead to a situation where the consumption of energy, emissions and the use of cars all increase. This cannot be allowed to happen. A key priority must still be the reduction of road transport; even if vehicles run by renewable electricity, cars still use a lot of energy and space and cause accidents and noise pollution.

If electric vehicles are to be part of a sustainable solution, it must be planned as part of a holistic scheme that takes into account both the mobility and power sectors. **Demand side management must remain the priority in mobility policy.** Mobility should be seen as a means to an end, i.e. providing access to goods and services, instead of being an end in itself. Land-use planning must be guided by sustainability objectives.

Globally, the need to reduce road traffic is even more compelling due to a rapid increase in cars in many developing countries. The number of cars has already reached 800 million and is expected to increase rapidly. EU development policy will therefore also have to take into account the implications of increasing car use on resources.

Where motorized mobility is needed, its energy efficiency must be optimized via a modal shift from cars and airplanes to bicycles, public transport and rails. The development of electric vehicles should also be promoted. In addition, a shift from liquid fuels to electricity will be necessary, accompanied with the development of sustainable second generation biofuels, which do not use food or feed as their raw material. The energy consumed must be sustainably produced and renewable.

As regards the power system, electric vehicles should not only be seen as a means of transportation but as a part of a smart power system with flexibility in the demand side offered by the constant connection of electric vehicles to the grid. In a best-case scenario, electric vehicles can serve as back-up storage of electricity during times when not enough wind or solar power is available, and the charging systems can smooth the peak loads by choosing the optimal times to charge the car batteries. This will help to integrate significantly bigger shares of RES into our power system. The smart load management needs revisions of the grid and strong ICT support, which reinforces the need for a systemic approach.

Policies based on real impacts

As stated, there are certainly opportunities but also potential pitfalls in the increase of electric vehicles. A key principle for the Greens must remain the overall sustainability of the transport and power sectors, which must be assessed by the real impacts of different solutions.

Related to electric vehicles, the most obvious impact comes from the production method of the electricity needed. At worst, the increase of electric vehicles could lead to an increased use of highly polluting peak-load production units and problems with the grid management. This can be prevented by holistic planning of a smart power system. The Greens consider it absolutely essential to build the e-vehicles infrastructure in a way that ensures the best possible support for a 100% renewable power system and demand side management. Continuing inflexible base-load electricity generation such as nuclear energy could clearly not reap the benefits of a smart energy system and can hence not be part of a sustainable transport and energy economy.

Another issue with electric vehicles are their lifecycle impacts. Especially in the batteries, prevalent technologies have so far used rare metals that are often mined under extremely problematic circumstances. R&D investments in battery technologies are needed to ensure an improvement in the sustainability of batteries in the future. Also the resource and energy efficiency of the other parts of the vehicles, as well as their end-of-life phase and the necessary infrastructure, must be considered when assessing the environmental integrity of electric vehicles.

Electric motors are more energy efficient than current internal combustion engines. The energy conversion efficiency is, however, somewhat offset by battery losses.

In no case should the EU policies encourage an increase in total car sales. Any policies and measures to encourage cutting GHG emissions in the transport sector must be designed in a coherent way, focusing primarily on their real impacts. If an EU policy scheme ended up clearing the sale of more polluting cars for each electric car sold, it would clearly show that the scheme is flawed and must be revised. An important consideration here is the energy

efficiency of the different means of transport. A sole CO2 limit for cars can have an adverse effect on the sustainability objectives, if the energy efficiency factor is not considered. Therefore, a technology-neutral way to improve the sustainability of cars might be to add kWh/km limits to the CO2/km limits.

In general, the EU must remain open to new technologies and avoid dictating the best technologies for the future. As new, more efficient technologies emerge, these should be prioritised.

The role of industrial policy

In the framework of the Green New Deal, a green industrial policy must help the European automotive industry transform onto a more sustainable footing. We want to secure a future for the automotive sector in Europe by helping to transform it. We do not want to lose the competition with other regions in the world over the new technology that will increasingly constitute the basis for this sector and the millions of jobs it provides.

Such a policy needs to take into account all of the necessary industrial and service sectors surrounding EVs as each missing piece in the supply chain would impede their development. These include the battery industry, car manufacturing industry (OEMs, etc.), electricity grid and energy companies, European standardisation organisations (ESO's), EV recharging stations, and many others.

We should also ensure that adequate training and re-training is available for workers to join this up-and-coming sector.

Standardisation would also be of crucial importance to ensure that EVs can be easily recharged all over Europe using the same standards. The same holds true for the international arena as, for example, transatlantic standards would ensure access to transatlantic markets.

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