



5 Reasons the Automobile Has No Future

Greenpeace briefing based on "Why the Automobile Has No Future. A Global Impact Analysis" by Robin Hickman, PhD

Summary

The automobile industry is facing fundamental change. In its current form - as a supplier of ever heavier cars equipped with ever more powerful, polluting petrol and diesel engines - the car industry has no future. It will only survive if it starts rapidly offering sustainable solutions that accelerate the phase out of fossil fuels, put an end to the rampant loss of space due to car-related infrastructure, and improve air quality in our cities.

In the course of this change, the internal combustion engine will quickly disappear and be replaced by electric vehicles. Cars will become smaller and lighter and will increasingly be driven autonomously. They will be shared by several people, meaning that altogether there'll be less vehicles on our roads.

Automobility as we know it today will transform from a form of private ownership that reaches its ecological and social limits to a service that only constitutes a small part of an integrated, efficient and clean mobility system.

Based on Robin Hickman's study, Greenpeace sees five reasons why the end of the era of private cars powered by fossil fuels is near:

1. Cars as the dominant means of transport are incompatible with action on climate change

Between 2000 and 2015, the global transport industry's consumption of energy rose by 35 percent – an average annual growth of 2 percent. In 2015, the consumption of oil (or oil equivalents) amounted to 2,200 million tonnes, which corresponds to 23 percent of global energy consumption. Growing oil consumption is closely linked to a rising rate of motorisation worldwide. In 2014, there were on average 180 passenger cars per 1,000 inhabitants globally. Whilst this rate is still very high in many industrial countries (USA: 809, Australia: 714, Japan: 607, Germany: 578), it has been growing more slowly or even stagnating in recent years. On the other hand, it shows significant growth in regions such as Eastern Europe, Russia, South America and China.

The huge volume of emissions that cars pump out around the globe each year is one of the main drivers of climate change. With the exception of countries that have particularly high industrial emissions such as China and India, the transport sector now accounts for 20 percent or more of CO₂ emissions in almost every country in the world, making it the most important source of greenhouse gas emissions besides the energy sector. At the same time, no sector around the world is failing so dramatically to do its bit to protect the climate. In 2013, even European road transport emissions were nearly 16 percent higher than in 1990, not to mention other regions where the rate of motorisation has been growing more rapidly.

It is also often forgotten that car-dominated transport systems require gigantic infrastructure – roads, bridges, parking space etc. – that cause large amounts of emissions of CO₂ due to the cement and steel required for construction. If the private ownership of cars continues to be the dominant means of transport around the globe, road construction will result in enormous additional greenhouse gas emissions.

All of these developments are at odds globally and nationally with the targets to which nearly 200 countries have committed themselves by signing up to the Paris Climate Agreement.

The targets Europe has set itself for reducing emissions by 2030 already lack ambition, but even these targets won't be met – unless regulations on the transport sector are radically reformed.

The Paris Agreement effectively means Europe's road transport must soon be decarbonized. With production and utilization cycles in the automobile industry taking a substantial amount of time, the planning for the transition away from the internal combustion engine must start immediately.

2. The ecological impact of cars - and the associated infrastructure - bursts planetary boundaries

We are currently experiencing the greatest urban growth in the history of humankind, with unpredictably high increases in traffic, resources and surface use. According to the IPCC, world population will increase by up to 3 billion people by 2050 – increasing the total population of the planet to 10 billion – with about two thirds of people set to live in cities. Connected to this is an enormous urban growth – the number of so-called megacities with a population of 5-10 million people is expected to rise to 63 by 2030 (in 2014, this number was 43). For the future of the planet, crucial questions will be how should these cities and city districts be designed, and what transport and infrastructure patterns should they follow? As cities expand, the related infrastructure alone, including massive road construction, has the potential to jeopardise global efforts to protect the climate. Future city and traffic planning must follow the pattern of cities with lower motorisation rates.

In addition, there is a massive and unrestricted land use in cities and by cities, which is reinforced by car traffic. In most cities, 20 to 30 percent of urban areas are taken up by roads and parking spaces for cars. In some cities this share is even higher. The stresses of population growth, an increasingly urbanized society, housing shortages and ever-higher rents, and the destruction of precious habitats are already escalating in many cities. Overall, the unabated increase in land use represents a huge environmental and economic threat – while cities today claim only 1 to 2 percent of the earth's surface, they will occupy about 4 to 5 percent in 2050, an increase of 250 to 420 million hectares.

3. Air pollution caused by passenger cars is a serious environmental health risk

Due to the sheer number of vehicles with combustion engines and due to the fact that car companies have neglected the topic of exhaust gas cleaning in a fraudulent manner, the transport sector is today one of the most important sources of air pollution globally. In Europe, almost 500,000 premature deaths occur annually due to air pollution such as particulate matter, nitrogen oxides and ozone.

According to the German Federal Environment Agency, road transport is responsible for about two thirds of the nitrogen dioxide emissions in German city centers - and 72.5 percent of this comes from diesel cars. While the numbers in Europe already lead to extremely high health costs caused by our transport system, the situation is even worse in other parts of the world. The number of premature deaths from particulate matter alone is estimated to be more than one million in China and India. It is therefore not surprising that the governments of these countries have opted for emission-free vehicles – India plans to ban the sale of combustion engine vehicles by 2030, and China wants to introduce a quota for electric cars in 2018.

4. The number of accidental deaths and injuries caused by road traffic is unacceptably high

Every year, road traffic accidents lead to around 1.25 million deaths – that's around 3,400 lives lost every day. Among the 15-29 year olds, traffic accidents are the most frequent

cause of death. By comparison, in 2015, 429,000 people died of malaria worldwide. In addition, 20-50 million persons per year suffer injuries, with often permanent effects. Despite these drastic figures, the deaths and injuries have so far been condoned, but our car-centred transport system has hardly been questioned.

5. The first indicators of a shift away from privately used passenger cars are already visible

While the motorisation rate is still growing globally, a shift away from the dominance of private cars is emerging, especially in cities. In combination with rapidly growing urbanization and accelerated digitization, this trend can be characterized as disruptive.

In most industrialized countries, the number of kilometers driven by passenger cars has stagnated or declined significantly since the year 2000. Although they have grown slightly in Germany, they have fallen significantly in Great Britain, Italy, Japan and the USA. In the US, they have even declined by around 20 percent between 2004 and 2013 (see Figure 7). At the same time, car density is stagnating or declining in many metropolises and cities around the world. Examples of this trend since the beginning of the 1990s are New York, Vancouver, Brussels, London, Frankfurt or Hamburg (see Figure 3). The current trend toward so-called car-free zones and "bicycle cities" – that has emerged in cities including Copenhagen, Amsterdam and, most recently, Berlin – looks set to cause further disruption to the car's dominance.

Other factors that are likely to drive a shift away from private cars include:

- More and more people will be living in cities where there are attractive alternatives to owning car.
- Digitization creates new opportunities for linking the different parts of the eco-mobility network, making it more attractive for users and adding new elements such as car- and ridesharing.
- In many industrialized countries, especially in cities, cars are losing their importance as a status symbol, particularly among young people. While, for example, around 73 percent of the 25- to 29-year-olds were driving in Germany in 2005, the figure was only 60 percent in 2016.