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Study | 16.07.2018

Green light for sustainable mobility

Vision and pathway to 2050

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Executive summary

The need for a truly sustainable mobility sector

Today, life in many areas in Europe is congested, noisy and polluted. Every year, about half a million people in the EU die prematurely due to air pollution. This is more than ten times the number of fatalities from road traffic accidents. In addition, more people than live in Germany and the Netherlands combined are exposed to noise pollution from road traffic at levels at which negative health effects can occur. Increasingly, city authorities recognise that there is a need to change the way in which we use the limited urban space, while reducing pollution and noise. At the same time, keeping rural destinations accessible for people without a private car imposes different kinds of challenges for policymakers. Some steps are being taken towards a sustainable mobility sector, in which the transport system works equally for all of its users and where it does not operate in conflict with the environment. However, in many policy decisions other interests prevail. Too often, policymaking is dominated by cars and aimed at reducing road congestion, rather than at the broader challenge of a transition towards a sustainable transport sector.

Given this current situation, the Greens/EFA group in the European Parliament asked CE Delft and TEPR to explore what a truly sustainable mobility sector in 2050 might look like, and how we might get there.

What do we mean by sustainable mobility?

A mobility sector that protects both nature and human health

The achievement of sustainable mobility requires that a wide range of objectives are met.

It effectively means a transport system that has zero or minimal impact on the environment and which has no – or minimal – adverse social and economic impacts, while at the same time meeting social needs and supporting a sustainable economy. Global warming should be kept well below the 1.5 to 2°C, as agreed under the Paris Agreement, and the environment in cities should change in a way that air becomes safe to breath and that noise levels do not negatively affect health.

A sustainable mobility sector should also be safe and secure, and be designed and operated in a way that people feel safe and secure using all of it. Urban space would be used more efficiently to improve liveability. Natural habitats and wildlife are not negatively affected, ensuring that nature and the services it provides are protected.

A mobility sector that is an integral part of a sustainable economy

From the perspective of resources, a sustainable mobility sector is an integral part of the circular economy, meaning that waste is reduced substantially, through better use of resources and improved recycling, particularly of scarce, or potentially scarce, raw materials. Overall, a sustainable mobility sector reinforces a sustainable economy, while reducing inefficiencies, such as excessive congestion, that damages the economy and the environment. It should continue to provide a varied set of jobs, although these may well be different from those of today.

A mobility sector that provides affordable mobility for all people

A primarily private car-based mobility sector discriminates against those who are too young or too old to drive, or who are unable to drive for reasons of health or income. A truly sustainable mobility sector must therefore be non-discriminative to ensure that it provides all people with the same opportunities. In this way, it will contribute to a cohesive and inclusive society. At the same time, increasing digitalisation of transport, such as cooperative, connected and automated mobility, should be accompanied by mechanisms to ensure that individuals' privacy is protected when we travel.

How to deliver a truly sustainable mobility sector?

The transition towards a sustainable mobility sector in 2050 will not happen by itself; it requires a broad range of policies. By putting an appropriate combination of instruments in place, the various challenges can be tackled. There is more than one approach possible to achieve this, but all should at least include a combination of measures focused on user behaviour on the one hand and on technological change and innovation on the other.

Make sustainable mobility the most attractive, affordable and obvious choice

In order to support people to change mobility patterns and modal choices, alternatives to private car transport should become more attractive and for most trips the obvious and best choice for consumers. This can be achieved by putting policies in place, such as urban planning, developing 'Mobility as a Service', pricing policies and environmental zoning, but also by means of vehicle and energy taxation. Overall, policy measures should result in solid and sound investments for improving the sustainable options in an optimal way, which will benefit all transport users.

Make sure that zero-emission technology is available, affordable and sustainable

Consumers are only able to choose the most sustainable option when there are sufficient numbers of zero-emission vehicles on the market and when there is sufficient infrastructure to fuel these vehicles. This can be realised by putting a mix of policies in place to help to overcome the main barriers associated with the various technologies. Electrification of the car and van fleets can best be accelerated by the regulation of the CO2 emissions of new vehicles, potentially in combination with zero-emission vehicle mandates. For heavy goods vehicles and buses, ambitious vehicle regulation can also be a very powerful instrument for achieving technology change. Sustainable types of advanced biofuels and synthetic fuels require the CO2-based regulation of energy carriers, supported by strict sustainability criteria. Standardisation and support in the development of the required energy infrastructure is important for all technologies. Particularly when prices of new technologies are not yet competitive due to a lower

level of production and the cost of new technology is higher, vehicle and energy taxation, green public procurement and local incentives can help to stimulate demand and make the new technology affordable.

What are the further considerations in delivering a sustainable mobility sector?

Take care when talking about 'technology neutrality'

It is a misunderstanding that all policies should be 'technology neutral'. Policies aimed at contributing to a more sustainable transport system need to promote low carbon technology and transport modes, and the infrastructure and services that contribute to the transition that is needed. This means that by definition these policies discriminate between technologies. When possible, targets should be set based on the desired end result, e.g. the share of zero-emission vehicles in fleet, or a reduction of urban space available for transport, without specifying what specific technology or solutions should be used. However, even then, they will and are even intended to discriminate between different technologies. Moreover, some policies, such as those targeting energy infrastructure development, are obviously by definition technology specific.

Consider cost-effectiveness only when it is appropriate to do so

In general, it is clear that achieving a sustainable future for the lowest possible costs to society is to be preferred, i.e. that it should be 'cost-effective'. However, this principle cannot be applied in every stage of innovation and for all kinds of policies and even could hinder the timely preparation of a longterm transition.

Involve people to enhance confidence and encourage change

Change always results in losers and winners. The transition to a sustainable transport sector will alsoharm vested interests. Therefore, it cannot be a surprise that many of the policies needed for achieving a sustainable transport sector face strong public and/or political resistance. Ways to tackle this are to involve people in developing alternatives and to ensure that no particular group is unreasonably affected. It also helps to combine 'carrots' and 'sticks', e.g. by using revenues from road charges for improving alternatives and making sure that they affordable for all users.

In addition, by following a step-by-step approach, people have time to adapt and can get used to changes. For large changes, like the introduction of an urban congestion charge system, first starting with a trial, before making it definitive is a proven way to overcome public resistance. It gives users time to see the benefits and to get used to the new situation.

What are the benefits of a truly sustainable mobility sector?

Reduced costs and increased productivity

While changes will require large up-front investments, they will deliver significant cost savings over time as a result of lower energy use, reduced health damage from air or noise pollution, as well as the improved physical and mental health from more liveable and better accessible cities and more active travel. Currently, the health related costs of transport are in the order of € 0.5 trillion a year, which is about the same as the total GDP of a country like Belgium or Poland. A significant reduction of the health impacts will therefore deliver large savings. Many of these savings will be in other sectors, e.g. in the health sector, rather than in the transport sector, but overall there are likely to be benefits to the economy. Many examples show that these benefits could be higher than the costs.

Improved social equity

In general, one can expect that the transition to a sustainable transport system as proposed will generally also improve social equity, because mobility options for people without access to a private car will improve. In addition, urban planning aimed at densification and mixing functions will enable all people, including people who cannot afford to own or drive a car, to more easily access jobs, medical care or other destinations.

Increased number of sustainable and healthy jobs

The many jobs in European car manufacturing and vehicle component industries are often used as an argument against policies like strict vehicle standards. The challenge from the perspective of jobs in transport is, however, not in delivering a low carbon, sustainable mobility sector, as reports suggest that this will increase rather than decrease the number of jobs. Increasing numbers of jobs will be needed for developing and maintaining new infrastructure such as cycling or rail networks, running public services, in bicycle shops and maintenance, the development and operation of multimodal transport planning and payment services, production of renewable energy and putting the necessary charging infrastructure in place (including supporting related services), etc.
A report for the European Climate Foundation estimated that the transition to electric vehicles will result in a net increase of 260,000 jobs in Europe by 2030, as a result of an increase in the number of jobs associated with producing renewable energy and putting the necessary charging infrastructure in place.

With respect to jobs, the main challenge comes from the automation of the transport system, which is likely to happen with or without the achievement of a truly sustainable mobility sector. The extensive automation of the transport system will lead to job losses and some job gains, similar to what is already happening and is expected to continue in many other sectors. The net effect will depend on the scale and impact of automation. This will be a challenge for society as a whole and is not particularly related to transport.

Recommendations

The narrative concludes with a long list of policy measures for achieving the transition towards a truly sustainable transport sector that could be applied at the EU, national or local level (see Page 42 of the report). In many cases, the effectiveness of, and support for, policies increases when they are combined, e.g. improving cycling and public transport combined with parking policies and urban road pricing. Most measures listed can be regarded as ‘no regret’ policies that are beneficial in any scenario.

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Attached documents

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