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# THE FUTURE OF ROAD FREIGHT TRANSPORT

REPORT



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## INTRODUCTION

Road freight vehicles such as vans and long-haul trucks are major and essential drivers of the global economy, yet the environmental and economic impacts of the sector are little understood.

**Fatih Birol**, Executive Director of the International Energy Agency (IEA), noted that his agency's new report on road freight transport is an important first step towards understanding and fixing the complex issues in this area.

Birol launched the report, 'The Future of Trucks – Implications for Energy and the Environment' at a Friends of Europe high-level conference on 3 July in Brussels.

He said that as the second-largest source of all global oil demand, trucks consume half of the diesel produced in the world, and the sector is the fastest-growing in terms of oil demands. In terms of emissions, road freight transport – approximately 60 million trucks worldwide – is responsible for 35% of all transport-related CO2 emissions worldwide, compared to 40% of transport-related emissions from one billion cars. Compared to two other emissions-heavy industries – aviation and coal use in power production and industry – the growth of truck emissions is set to be higher than both by 2050.

The road freight sector has a particularly damaging effect in cities, stressed **Maroš Šefčovič**, European Commission Vice-President for Energy Union, noting that air pollution and congestion from trucks has become a logistical nightmare in cities all around the world.

Policy efforts to curb truck emissions are not widespread, Birol noted. While forty countries have mandatory fuel standards for cars, only four – the US, Canada, Japan and China – have fuel efficiency standards for trucks.

"The IEA vision for modernising trucks requires a near-term focus on introducing vehicle efficiency standards, improving logistics and research and development into alternative fuels," he said.

Improving fuel economy requires efficiency standards as well as differentiated taxes, while improving logistics aims to use data and technology to optimise trips and avoid empty loads. The third element requires political, scientific, and business leaders to support the development of fuel alternatives and the necessary infrastructure.

"If we are to achieve our goals, we need to consider road freight at the policy, system and sector level," noted moderator **Dharmendra Kanani**, Director of Strategy at Friends of Europe. "We must find ways to address the future of this sector in a way that sustains economic growth while adapting to the needs of our climate change goals."

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Maroš Šefčovič  
European Commission Vice-President for  
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John Cooper  
Director-General at FuelsEurope

## **EFFICIENCY IN LOGISTICS AND FUEL ECONOMY – THE LOWEST COST SOLUTION**

The IEA report on the future of the road freight sector has determined that improving logistics and fuel economy will be responsible for the majority of reductions in the sector’s emissions by 2050.

“Efficiency is always the lowest cost solution,” stressed **John Cooper**, Director-General at FuelsEurope. “Improving logistics is an essential part of this; it is amazing how many empty trucks there are on the roads.”

In Europe right now, Sefčovič said, there is a real revolution in progress towards a systemic improvement in road freight systems. Using data, RFID tags, artificial intelligence and other technological advances, supply chain management is becoming more efficient, with knock-on effects for fuel efficiency.

“Data is the new fuel for our transport sector, driving the development of innovative services,” he said. “The data revolution is happening right now in Europe in all spheres of industry, including trucking.”

Better information on traffic and truck routing infrastructure, coupled with automated and connected vehicles, will enable speed and route adaptations and decrease fuel consumption. Improved supply chain management will help facilitate freight bundling and asset sharing to avoid empty runs in the EU.

Combining trucks with other modes of transport to deliver freight is particularly effective in cities, as can be seen in the case of Jumbo, a retail company in the Netherlands that was able to reduce fuel costs and emissions by 35% through by combining loads with other companies, noted **Sophie Punte**, Founder and Executive Director of the Smart Freight Center.

The challenge is in how to organise transport systems in such a way that cities could perform without being overwhelmed by congestion and air pollution.

To improve logistics, policymakers and industry leaders need to move past the technical and administrative bottlenecks to develop well-functioning digital and physical infrastructure, added Sefčovič.

Furthermore, better information on emissions from transport services can facilitate benchmarking and drive efficiency measures overall.

“My conviction is that carbon is a better measure than cost when looking at efficiency,” Punte said. “Companies need consider not only costs but their carbon footprint as well in order to curb emissions and ensure competitiveness in global markets.”

The European Commission’s mobility package from May 2017 includes a proposal on monitoring and reporting of CO2 emissions that would oblige manufacturers of large trucks to calculate emissions and fuel consumption from January 2019, Sefčovič said.

With this information, transport operators will be able to make better-informed decisions on fleet purchases and reduce fuel bills, which can represent up to 30% of operating costs, particularly for small and medium-sized enterprises.

## LEAVING OIL BEHIND – THE SWITCH TO ALTERNATIVE FUELS

In addition to improving logistics and fuel efficiency, switching from oil-based products to alternative fuels for use in the road freight sector will play a role in reducing emissions in line with global climate change goals.

“There is a need to support efforts in research and development and infrastructure development to make better use of alternative fuels,” Birol stressed.

Alternatives to oil-based fuels include advanced biofuels, natural gas, and hybrid and electric engines, though Sefřoviř noted that “there is no single fuel solution that will resolve all the problems in each mode of transport”.

Indeed, prospects for low-emission alternative fuels differ among transport modes. In freight, further improvements in internal combustion engines will still be needed, alongside accelerated advances in alternatives.

Advanced biofuels and low-carbon fuels can reduce reliance on fossil fuels with similar costs in the medium-term, though at the moment these alternatives remain significantly more expensive than the diesel used in trucking.

“It is clear that we will have to make liquid fuels work in the long-term,” Cooper said. “Trucks are intrinsically linked to global GDP growth, so we have to work to maintain a balance between the pros and cons of diesel and alternative energy sources.”

One of the strongest arguments for increasing the efficiency of oil-based fuels rather than replacing them with alternatives is that infrastructure for these fuels already exists, he added.

As it stands, very little energy is required to get fuel to the point of use, while investing in and creating new infrastructure for electric vehicles and those that run on alternative fuels will be costly both in financial terms and in terms of emissions.

In the second half of 2017 the European Commission will propose initiatives to stimulate demand for low-emissions vehicles and accelerate the electrification of transport in the EU – including infrastructure development for electric, hybrid and vehicles using alternative fuels – within the frameworks of the Clean Vehicle Directive and the upcoming mobility package.

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Executive Director  
of the International Energy Agency (IEA)

## THE OUTLOOK ON ELECTRIFICATION IN THE ROAD FREIGHT SECTOR

The issue of electrification of road freight transport is divisive. Though it appears to be possible and worthwhile in the long-term, with current technology and infrastructure it remains a distant goal.

In keeping with its image, the EU will introduce new emissions standards in 2018 to aid in the fight against climate change. But Europe represents only 14% of global emissions, Birol stressed.

“In some parts of the world, natural gas may be a cheaper and more efficient alternative to diesel, while electric or hybrid engines may be a better bet elsewhere,” he said.

**“Ultimately, it will be businesses delivering solutions, not politicians. The discussion we need in the EU is not only about solutions for Europe but what can Europe do to take a leadership role?”**

**John Cooper**  
Director-General at FuelsEurope

As it stands, the rate of penetration of electric personal vehicles in global markets is quite low. Although 2016 was a record year for the sale of electric cars, with more than two million sold worldwide, this figure represents only 0.2% of the global car fleet.

In the road freight sector, which trails behind passenger transport in terms of electrification, natural gas may play a transitional role until new technologies are ready and efficient enough on the required scale. “While we believe that electric trucks are essential to a low-carbon future, they will not arrive tomorrow,” Birol said.

Until they arrive, the European Commission is preparing incentives for the development of clean trucks, including differentiated taxes, reductions on road tolls, and support for industry-led research and development into a full battery value chain in the EU, noted Seřčovič.

Electrification of trucking requires more than the right technology. It is also important to consider the economic and environmental impact of infrastructure development, the value chain, and the entire life-cycle of batteries.

“Electric vehicles have an important role in the world,” noted Cooper, “but we have to look at the costs and emissions of the whole system of production, of infrastructure, battery life-cycles, and power demand.”

Currently, power capacity in Europe would be incapable of supporting the electrification of the sector and the costs of developing the required recharging infrastructure alone are an investment that many companies consider prohibitive.

Furthermore, Cooper noted that discussions on electrification all too often focus on the fact that electric vehicles produce zero emissions while ignoring the emissions created by the production process, which can be as high as seven tonnes of CO<sub>2</sub> per battery.

In terms of infrastructure, it is important to invest in the long-term, Punte stressed. Investments in infrastructure and development of electric passenger vehicles are currently underway, so it makes sense to bring freight along and to prepare infrastructure investments now for what trucks will be using after 2030.

## **CREATING THE RIGHT POLICY FRAMEWORK THROUGH PUBLIC-PRIVATE COLLABORATION**

“The most important part of finding solutions to this issue is leadership,” Punte said. “Business leaders in particular need to step up and have companies measure, report on, and verify emissions.”

Investments in alternative fuels and fuel efficiency will be counted in the tens of billions of euros and stretch over years, Cooper stressed. “In order to make a business case for alternative fuels we need a consistent policy vision for the long-term, unaffected by the fluctuations of normal political cycles,” he said.

While the greatest opportunity for change lies outside of Europe, the EU has a global advantage in terms of intellectual property in truck engines and liquid fuels. This advantage can be leveraged to support technologies and policy pathways that can be exploited internationally and make a difference globally.

“Ultimately, it will be businesses delivering solutions, not politicians,” Cooper said. “The discussion we need in the EU is not only about solutions for Europe but what can Europe do to take a leadership role?”

The trucking sector is a commercial endeavour, Punte stressed. If the right policy framework can address business interests, it is possible to decarbonise the sector more quickly than passenger transport. The key is to combine profits for companies with social concerns.

“We need look past CO2 and consider the broader context. The Paris climate agreement and European mobility strategy provide us with an opportunity to really do something together,” she said.

Businesses need to be more proactive in providing policy input, while government must focus on planning and legislation and ensuring that once a policy decision is made, there is no backpedalling.

“Without government certainty on policy, it is difficult for businesses to invest. Politicians and the political process have a key role in establishing a long-term vision and deciding on the types of investments required to find solutions,” Cooper added.

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**Sophie Punte**

Founder and Executive Director  
of the Smart Freight Center

## CONCLUSION

“Freight is the Cinderella of the transport sector,” noted Punte, “it is hugely impactful and full of opportunities but is always forgotten by policy, civil society, and business.”

To make freight sustainable, industry leaders and policymakers need to work together to tackle the three issues of improving logistics, promoting fuel efficiency, and developing alternatives to oil-based fuels.

Freight transport is, and will continue to be, a huge contributor to the growth of oil demand and an increasingly important determiner of environmental factors including climate change and local pollution.

“Trucks are doing important work to make our economic lives more productive and easier yet there is not enough awareness, measurement and policy being developed. We must work locally and globally to preserve the economic benefits of road freight transport and reduce the environmental impact,” Birol concluded.

“Addressing problems in the road freight sector is challenging but possible,” Sefčovič said. “What is missing is a sense of urgency. There is no single solution but a combination of practical, technological, policy, and business-related responses will work to ensure the future of this very important sector.”



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Connect. Debate. Change.

Rue de la Science 4, 1000 Brussels, Belgium

Tel: +32 2 893 98 23

Fax: +32 2 893 98 29

Email: [info@friendsofeurope.org](mailto:info@friendsofeurope.org)

[friendsofeurope.org](http://friendsofeurope.org)

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