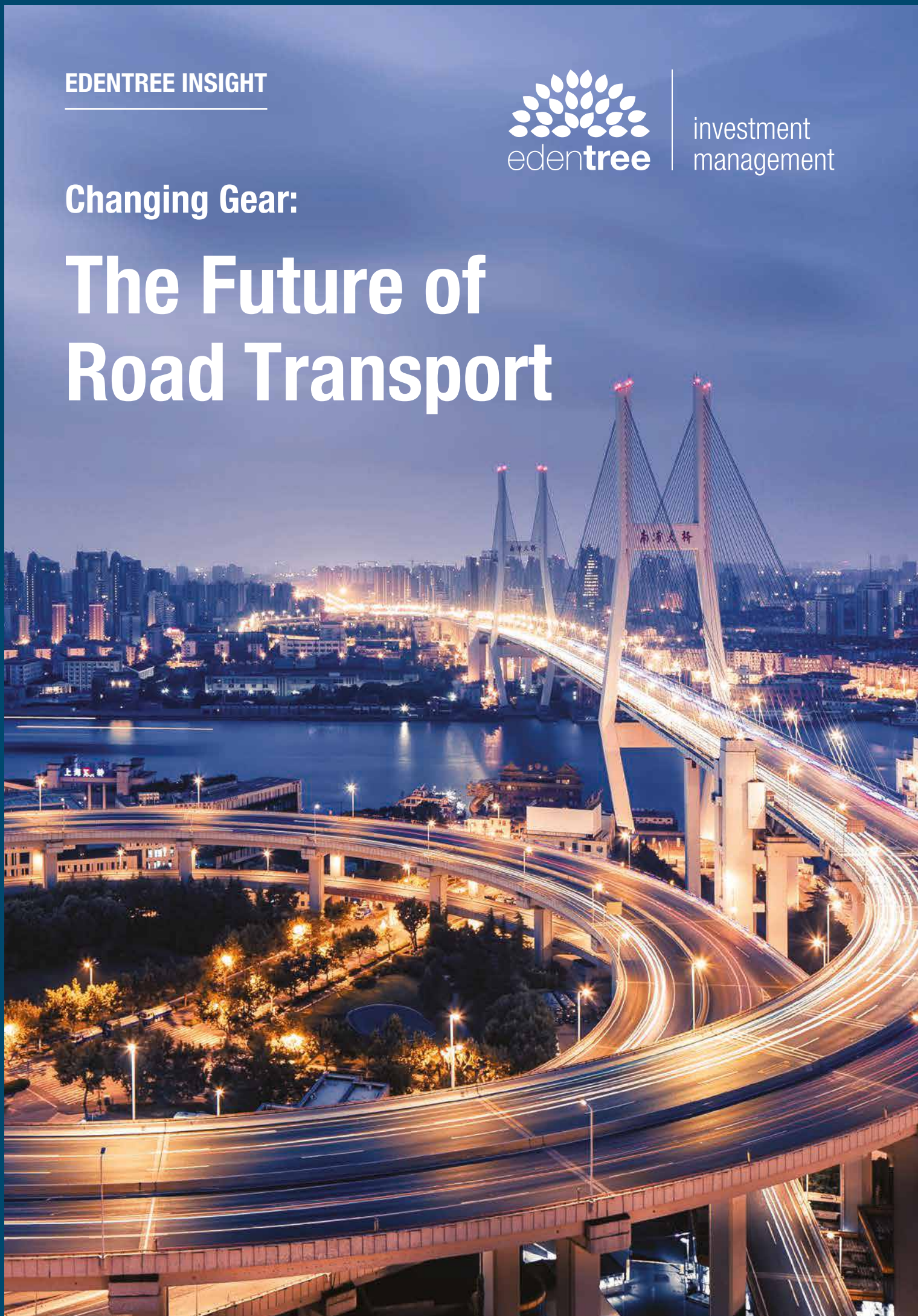
EDENTREE INSIGHT

edentree investment management

Changing Gear:

The Future of Road Transport



Transport is not an end in itself, but rather a means allowing people to access what they need: jobs, markets, social interaction, education, and a full range of other services and amenities contributing to healthy and fulfilled lives."

United Nations Secretary-General's High-Level Advisory Group on Sustainable Transport

Introduction

By Esmé van Herwijnen

Responsible
Investment Analyst

In the midst of the climate and ecological crises, it is increasingly clear that we need to chart a dramatically different course through the 21st century than the one we are currently on. Avoiding catastrophic global warming, of above 2°C above pre-industrial levels will require concerted action from governments, business, and civil society.

Transport represents approximately 24% of global energy-related CO_2 emissions; as a sector, transport has "witnessed faster emissions growth than any other" in recent years.[1] Transport's contribution to the climate crisis is evident. Air pollution from exhaust fumes, traffic congestion, and road accidents are further negative impacts of the sector. Affordability and availability of reliable public transport is another challenge. In this EdenTree Insight, we have focused specifically on road transport. We will discuss the current challenges and look at alternatives to fossil fuels. We will examine how road transport can become smarter, demonstrate the need to decarbonise the sector and explore how to reduce the dependency on individual car ownership.

As always, we welcome your feedback on this EdenTree Insight.

Sustainable Transport

While it is unlikely that we will be travelling by Hyperloop or getting to work in a flying car in the very near future, it is obvious that transport is going through a phase of transformation. Transport is key to providing people with the access they need to lead full and involved lives and therefore plays an important part in allowing people to participate fully in society.

However, in order to be sustainable, transport needs to do more than just provide access to jobs, markets, education or other services. According to the UN, sustainable transport is "the provision of services and infrastructure for the mobility of people and goods – advancing economic and social development to benefit today's and future generations – in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts".[2]

Through the 17 UN Sustainable Development Goals (SDGs), the UN has presented a roadmap for sustainable development by 2030, setting specific targets on a range of issues including improving health, ending poverty, combating climate change and ensuring sustainable consumption and production patterns. Many of these issues are interconnected, with transport no different. There are some specific targets relating to transport – such as halving the number of global deaths and injuries from road traffic accidents (target 3.6), or providing access to safe, affordable, accessible and sustainable transport systems for all (target 9.1) – but sustainable transport will also help achieve some of the other goals. Decarbonising transport will no doubt contribute to progress on goal 13 on climate change, whilst better infrastructure and reliable public transport improves access to education (goal 4) and also has the ability to help reduce inequalities (goal 10).

It is not the first time that we have responded to a challenge and radically transformed the transport sector. For thousands of years, human societies utilised animals as the sole method of mobility and carriage. At the end of the 19th century, horses still dominated the roads. In 1900, there were 11,000 horse-drawn carriages alone in London, causing gridlock and sparking the Great Manure Crisis of 1894. By the early 20th century, cars were gaining in popularity and soon motorised vehicles had taken over the streets. Yet in addressing one problem – manure – we created new ones – namely greenhouse gas (GHG) emissions and localised air pollution. In this Insight, we will reflect on the need to find solutions to our current unsustainable modes of transport whilst seeking to avoid the creation of new issues.

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Road Transport Today

In 2018, the world produced just short of 80 million passenger cars. Whilst this was the first year global production slightly decreased since the financial crisis, over the last decade, production has increased by more than a third.

At the turn of the millennium, Europe dominated global production, with approximately a third of all vehicles produced. More recently, however, there has been a rapid shift in production to Asia, with Greater China accounting for 29% of global vehicle manufacture in 2018. It is no surprise, therefore, that Asia now sees the largest share of new vehicle registrations, at 47%.

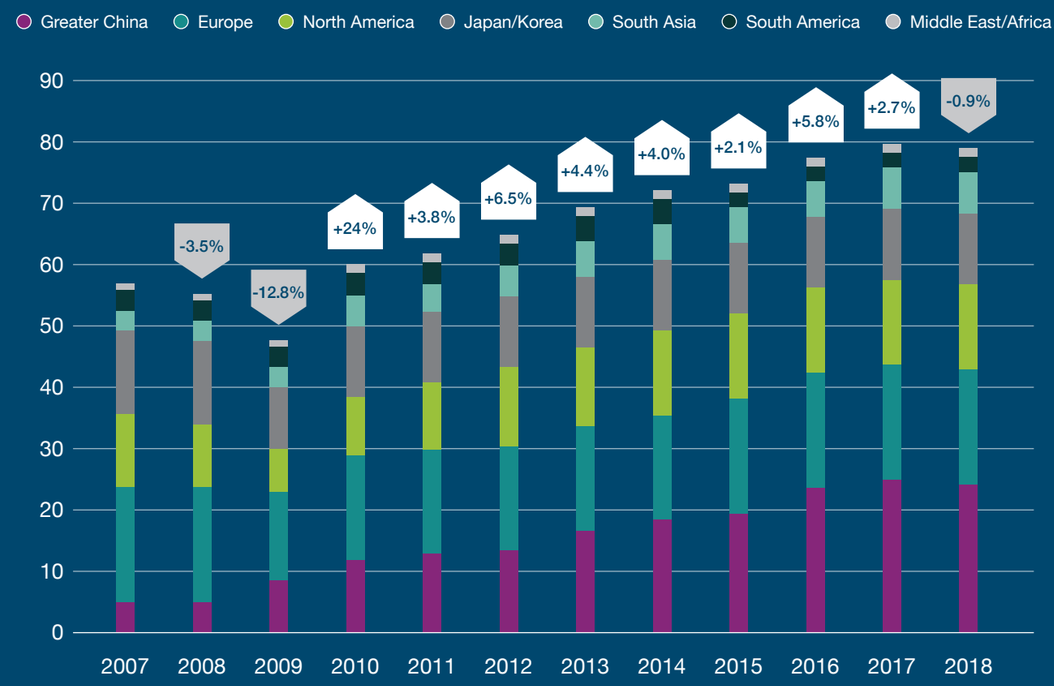
In Europe, petrol vehicles have become preferable to diesel ones in the last five years, but traditional internal combustion engines remain by far the dominant vehicle type for new passenger cars; electric vehicles (EV) still only accounted for a minimal 2% of all new sales in 2018. Globally, EV account for an even lower proportion of vehicle sales, with only 1% of sales being electric vehicles. A handful of countries are leading the way, with Norway seeing the most enthusiastic adoption of electric vehicles.[3] It seems ironic that a country whose wealth owes much to its oil & gas sector should have so heavily subsidised electric vehicles. For example, buyers are exempt from paying VAT on their car purchase and there are no tolls on motorways for electric vehicles. Charging is free in many locations, as is parking. With attractive incentives, it is no surprise that Norway has seen the largest adoption of electric cars per capita in the world.

Transport represents approximately 24% of energy-related GHG emissions and absolute emissions from the sector have significantly increased from approximately 2.8 $GtCO_2$ in 1970 to 8 $GtCO_2$ in 2018.[4]

Within the sector, road transport is the largest contributor to transport related emissions, accounting for 72% of transport emissions overall. In the UK, the majority of sectors have started to decarbonise. For example emissions from energy supply have reduced by 59% between 1990 and 2018, business related emissions have reduced by 41%. Transport emissions however have only reduced by 3%, demonstrating that the sector has struggled to reduce its emissions and impact.[5]

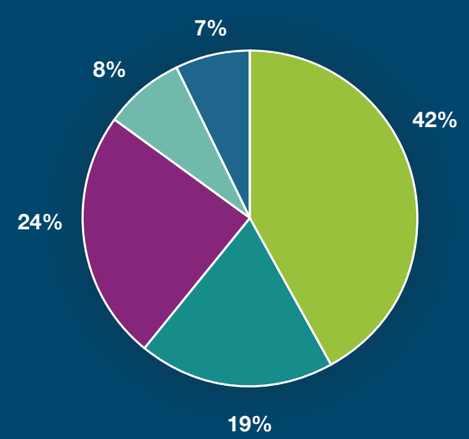
World passenger car production

IN MILLION UNITS, % CHANGE / 2007 – 2018



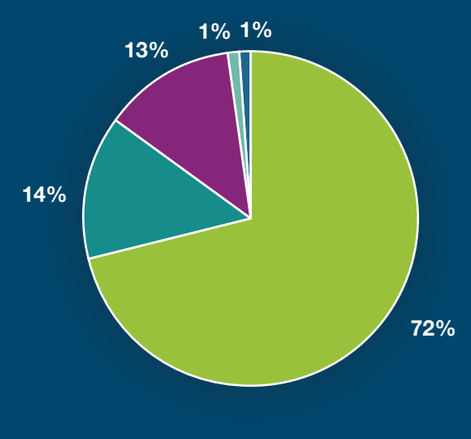
Source: European Automobile Manufactures' Association 2019 - 2020 Automobile Industry Pocket guide

Emissions from fossil fuels



CO_2 emissions from fuel combustion. Source: IEA

EU transport greenhouse gas emissions



Source: European Environment Agency

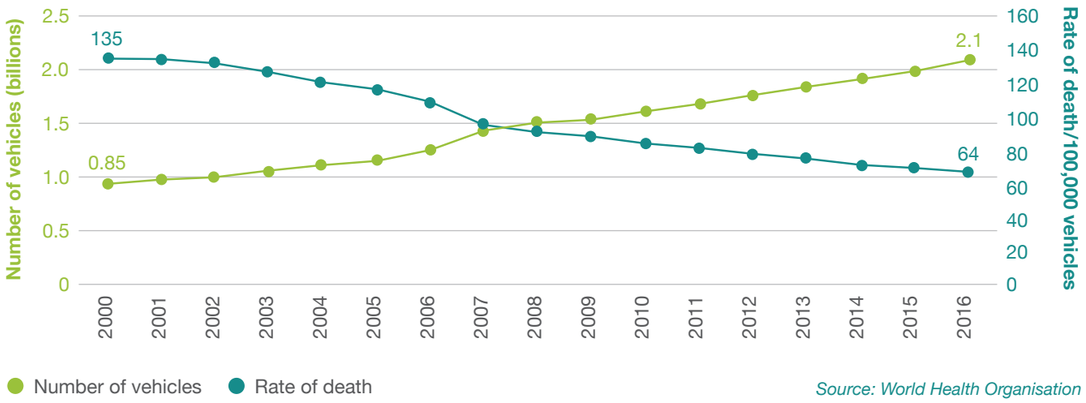
Although it is not the sole contributor, transport also plays a part in the problem of air pollution, causing 4.2 million deaths every year. According to the World Health Organisation, 91% of the world's population lives in places where poor air quality exceeds WHO guideline limits.

Road transport is estimated to be responsible for up to 30% of particulate emissions in European cities and up to 50% in OECD countries – mostly due to diesel traffic – and this is growing.

In 2015, tests revealed that Volkswagen (VW) and several other carmakers were disabling or turning down the exhaust after-treatment systems of vehicles in order to pass vehicle air pollution tests. The 'Dieselgate' scandal is estimated to have involved 43 million cars that were programmed to cheat on emissions tests. This is particularly worrying as research shows that in most OECD countries, death rates from air pollution is higher than the number of fatalities from traffic accidents.[6] Whilst nitrogen oxides, sulphur oxides and carbon monoxides are tailpipe emissions, particulates caused by tyre and brake abrasion also contribute to the problem. Exposure to these pollutants can have severe health effects ranging from cardiovascular diseases, to asthma, and other respiratory problems as well as poor brain development in children.

Traffic accidents are another unfortunate consequence of road transport. Approximately 1.3 million people die each year as a result of road traffic crashes. Whilst the number of deaths per 100,000 vehicles has reduced over the last two decades, the overall road traffic death toll has continued to rise. It remains the 8th leading cause of death for people of all ages and the leading cause of death for children and young adults aged 5-29 years.

Number of motor vehicles and rate of road traffic death per 100,000 vehicles: 2000–2016



Source: World Health Organisation

Fossil Fuels are not the Future

Growth in electric vehicles

Given the challenges caused by existing transport modes – which rely heavily on internal combustion engines – it is no surprise that alternatives are being developed.

However it is worth remembering that some of these have existed for a long time. The first electric battery powered taxis, for instance, were introduced in London in 1897, but it has taken more than 120 years for electric vehicle sales to gain significant traction. It was not until 2015 that the global electric car stock exceeded a million vehicles on the road,[7] and by 2018 this figure had surpassed 5 million. In line with the wider market for cars, the largest share comes from the Chinese market.

Similarly, the installation of electric charging infrastructure has only seen a significant increase in the last four years. Whilst electric vehicles still represent a minority of vehicle sales, it is clear that the move away from conventional vehicles will impact both car manufacturers and oil & gas majors wedded to conventional fossil fuels. Interestingly, some oil & gas majors have actively been looking to diversify their businesses. Many of the European players have been acquiring charging networks. Notable deals include the acquisition of Chargemaster, the UK's leading electric vehicle charging network, by BP. Shell and Total have also entered the EV charging market.

In addition, many traditional car manufacturers have made commitments to electric vehicle production and announced plans to invest in EV and battery technology. Whilst manufacturers are showing interest, this is still only a small part of their revenues. For instance, with 7.2% of its sales coming from electrified vehicles, the BMW Group was the market leader in Europe, delivering approximately 75,000 vehicles across Europe in 2018.[8]

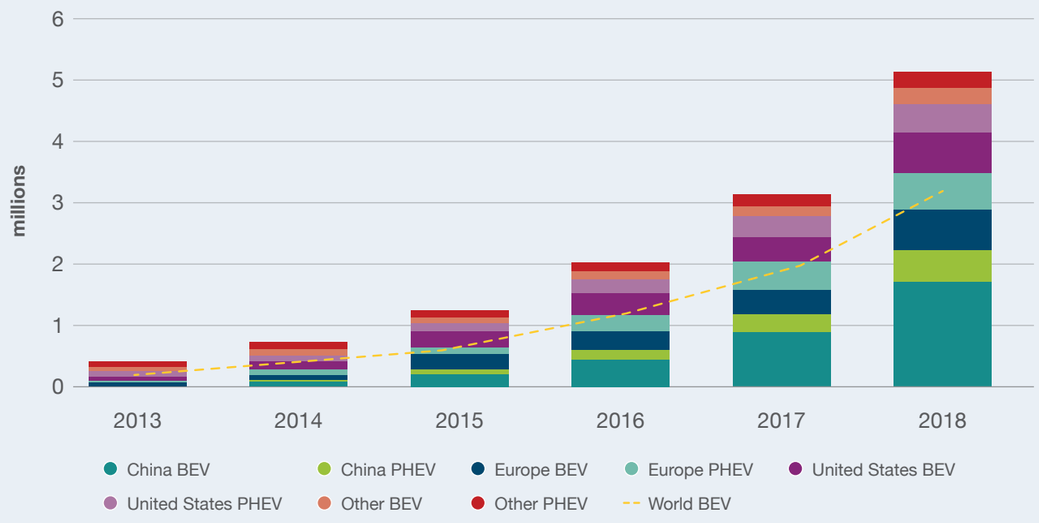
Based on the announced targets by several manufacturers, the share of electric vehicles in total sales should increase across the sector: Volkswagen expects electric cars to account for 5% of sales by 2025, whilst Nissan aims for 20% of sales to come from zero emission vehicles by 2020.

Although customer demand might be drifting towards environmentally-friendly vehicles, regulation will have to be a key driver in this transition. More and more countries are announcing the phase out of combustion engines, municipalities are banning diesel vehicles from city centres and low emission zones are becoming more frequent.

Norway already has the highest adoption of electric vehicles and has the earliest target to ban new sales of petrol and diesel cars – by 2025.

Germany, the Netherlands and India are examples of countries that will ban new sales by 2030. Cities around the world have also announced bans on diesel cars and trucks. Paris, Madrid, Athens and Mexico have all declared their ambitions to ban diesel vehicles by 2025. In the UK, the city of Bristol has also announced plans to ban diesel cars from entering the city centre during most parts of the day, with the Government proposing a final phase out of fossil fuel vehicles by 2040.

Evolution of the global electric car stock



Evolution of the global electric car stock. Source: IEA Global EV Outlook 2019

Environmental, social and economic challenges of EVs

At first sight, electric vehicles provide an attractive, clean alternative to internal combustion engines. However, the environmental and social impact of this promising alternative is far from neutral.

Whilst tailpipe emissions certainly disappear, the full environmental and social impacts of EVs need to take into account production, sourcing of materials, the electricity that powers the vehicle and end-of-life recycling. The supply chain for electric vehicles is extremely complex and presents many challenges. Indeed, some of the minerals present in lithium-ion batteries (which power electric cars and electronics), are linked to human rights abuses, including child labour in the Democratic Republic of Congo (DRC), as evidenced by Amnesty International.[9]

The metal resource needed to make all cars and vans electric by 2050 and all new sales to be purely battery electric by 2035 presents a challenge. According to a study by scientists from the UK's Natural History Museum, to replace all UK-based vehicles on the road today with electric alternatives would require 207,900 tonnes of cobalt, 264,600 tonnes of lithium carbonate (LCE) as well as 2,362,500 tonnes of copper. Broadening that experiment to a global scale (approximately 2 billion cars), copper output would need to more than double and cobalt output would need to increase at least three and a half times for the entire period from now until 2050 to satisfy demand.[10] The vast amounts of materials needed – and the negative environmental and social impacts of the extraction process – will clearly need to be taken into account in any sustainable transition.

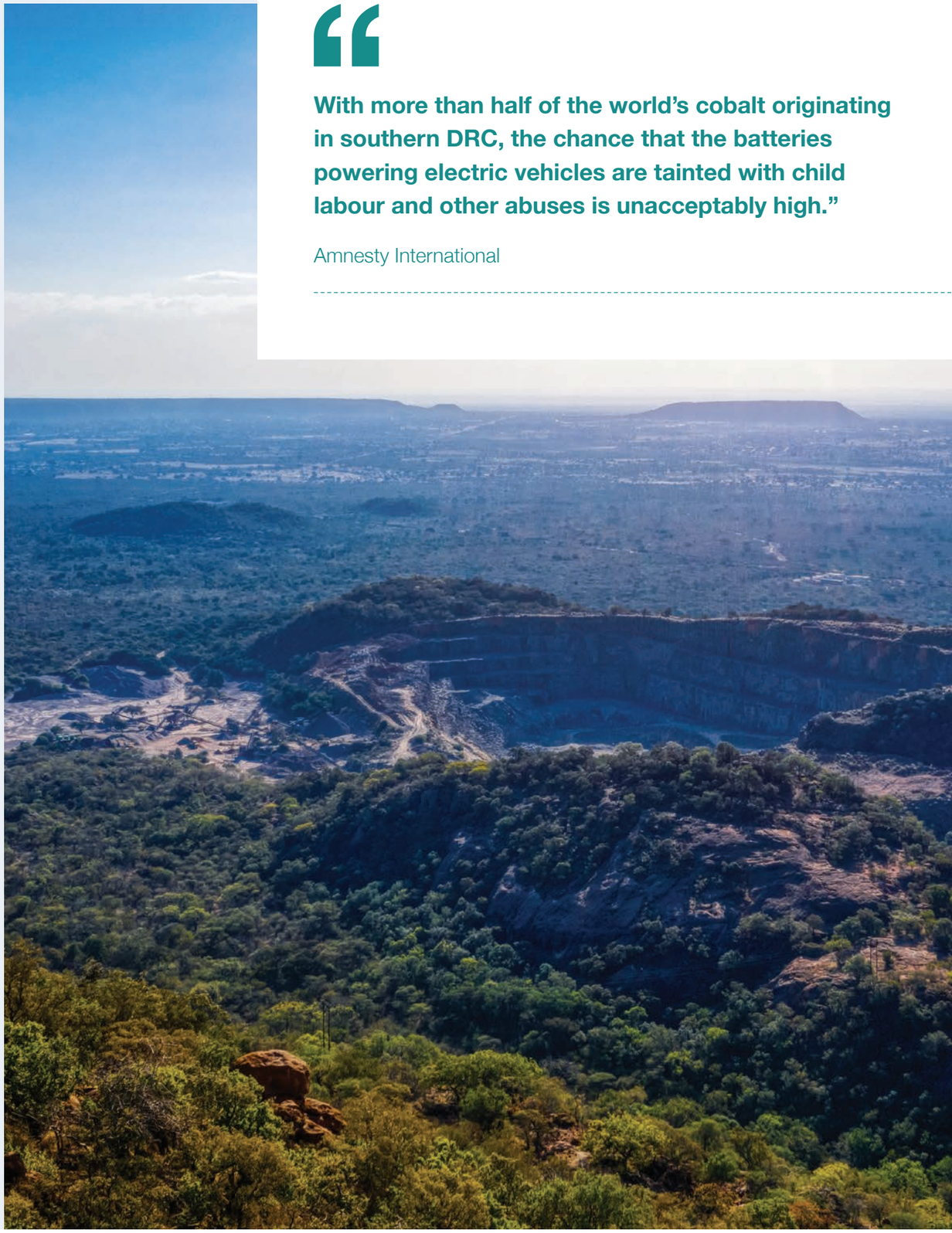
In addition, the technology remains difficult to scale in commercial vehicles operating over long distances. In addition to the higher cost of electric buses for instance, the weight and size of batteries as well as the long charging times have slowed down their adoption. In London, electric buses are still a minority, with fewer than 200 electric buses circulating in the capital (although over three thousand operate as hybrids). In contrast, China has a fleet of 150,000 electric buses, representing 98% of electric buses globally. In fact, the leading city when it comes to electric buses is Shenzhen in China, which converted its entire bus fleet to 100% electric and has been able to do so only with the help of generous central and local government subsidies.

Other alternatives

Other alternatives to fossil fuels do exist, and biofuels and hydrogen are two possible options.

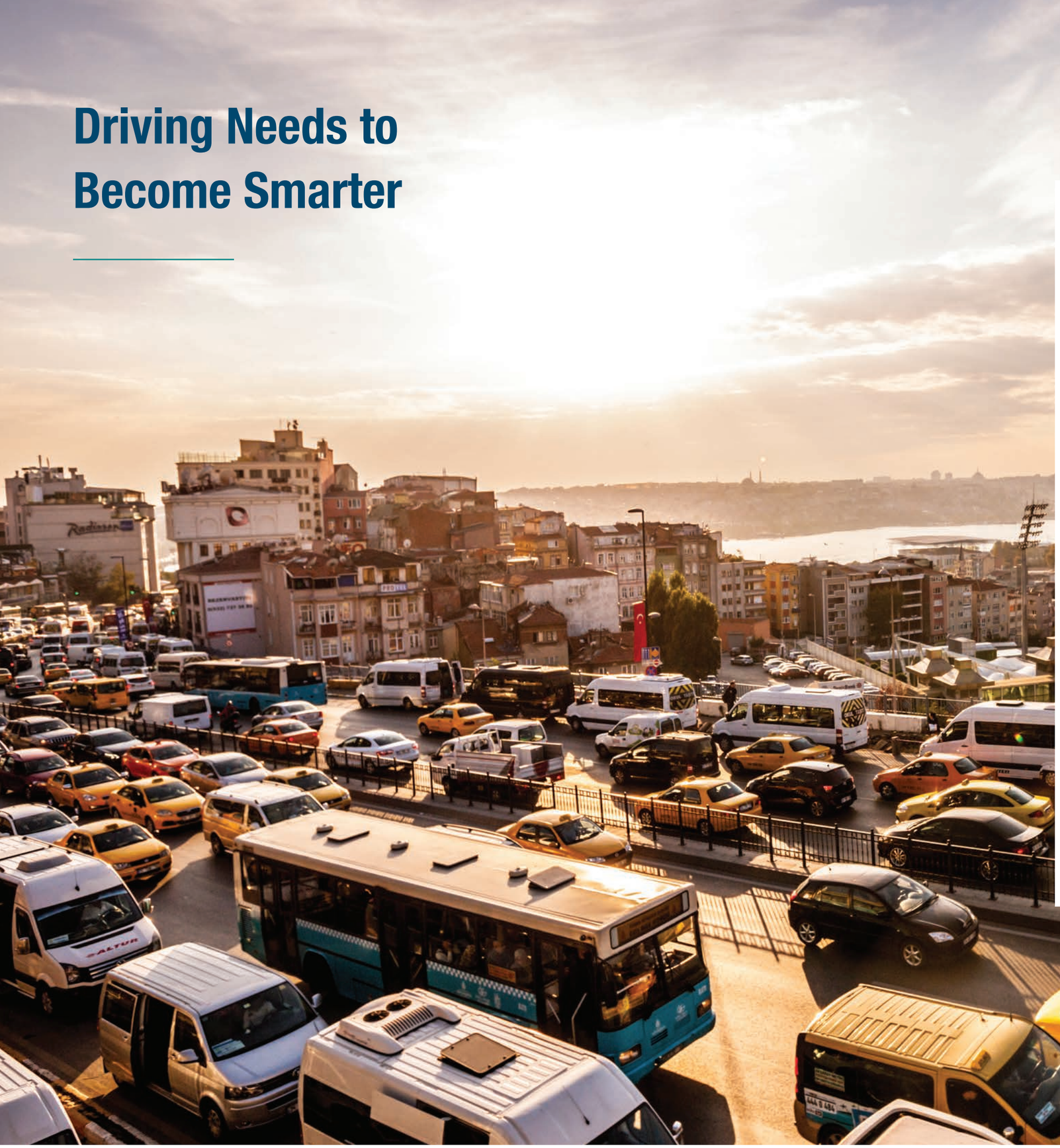
Biofuels present several challenges. 'First generation biofuels' refer to fuels produced from food crops such as sugar, starch or corn, which divert land from food production to crops for bio-ethanol fuel production. 'Second generation', 'advanced' fuels, by contrast, are produced from non-food, sustainable feedstock products such as non-edible plant material or animal fats. Whether they are sourced in a responsible way remains an issue.

Hydrogen could also potentially contribute to decarbonising transport. Where hydrogen is produced using renewable energy to electrolyse water, it can be a low carbon option, but hydrogen-powered cars require hydrogen refuelling stations, and this presents further infrastructure challenges. The technology is arguably more applicable to vehicles such as buses, taxis and trucks, which often operate on defined routes in local settings. Practicality and cost probably means that battery-electric cars continue to be the preferred option when moving away from fossil fuels. We have published two RI Expert Briefings looking separately at the potential for these two technologies, which you can find at www.edentreeim.com.



> **"With more than half of the world's cobalt originating in southern DRC, the chance that the batteries powering electric vehicles are tainted with child labour and other abuses is unacceptably high."**
>
> Amnesty International

Driving Needs to Become Smarter



Whilst we have argued that shifting away from fossil fuels will be necessary in order to decarbonise road transport, we still face the question of what to do with existing fleets. Whilst electrification of all vehicles will not happen overnight, traditional cars will likely continue to dominate sales for the next few years. Therefore using technology to reduce the impact of that fleet and making it more efficient will be necessary.

Efficient fleet management has to be part of the equation, and in-vehicle technology can help with this. Companies with large fleets in particular will benefit from tracking their vehicles on the road, optimising driving routes and maximising vehicle capacity. For logistic purposes, businesses could also collaborate to ensure vehicles don't 'transport air'. Reducing the overall size of a corporate fleet can also help. For example, French telecoms operator Orange has adopted a shared fleet model, thereby reducing the size of its fleet by 4% annually over the last three years.[11] Eco-driving training as well as monitoring driver performance can also contribute to reducing the impact from road fleets.

Retrofitting existing vehicles will also contribute to better air quality in the coming decade. With many cities applying low emission zones, vehicle operators are increasingly using this option to maintain their fleet on the road. Retrofitting means equipping a vehicle or machine already in traffic with an effective exhaust after treatment device. This can be used to reduce air pollutants: diesel oxidation catalysts, particulate filters or engine changes are compelling examples. Retrofitting buses and coaches works particularly well because the vehicles tend to be standardised and retrofitting is cost efficient compared to replacing the entire vehicle. However for smaller vans and passenger cars, replacement might be the best choice.

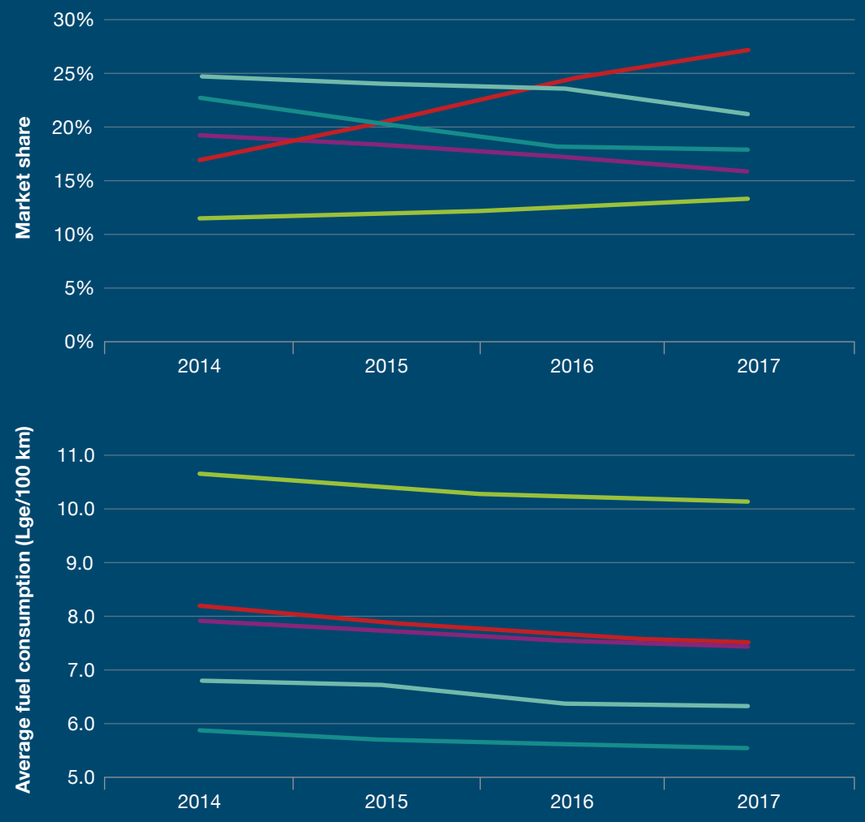
Connectivity is another promising development for logistics. Using inter-vehicle communication, driverless cars can increase fuel efficiency. Connected trucks can take efficiency gains to the next level. The technique of 'platooning' allows heavy vehicles to form fuel-efficient, aerodynamic formations on motorways. A lead truck at the front of the convoy is followed by a group of driverless trucks closely behind it. The reduced drag created by the aerodynamic formation helps to reduce fuel consumption, and vehicle connectivity allows them to drive closely together without the risk of collision. Trucks in the convoy can reduce fuel consumption by as much as 12%.[12] 5G and the 'Internet of Things' will help accelerate autonomous driving and connected vehicles allowing platooning to become easier. In Sweden, the telecoms company Ericsson and truck manufacturer Scania are working on a joint research effort to accelerate the connectivity of commercial vehicles and related infrastructure. Successful tests on a 520-kilometre route between two Swedish cities are already happening.

Making the most of the existing though ageing fleet is necessary, however the existing petrol and diesel fleet also continues to expand.

Whilst vehicles are becoming more efficient, the growing market share of sport-utility vehicles (SUVs) and pick-ups is diminishing the progress made in fuel efficiencies elsewhere.

SUVs now represent nearly 40% of the global car market. North America and Australia have a particularly high market share of SUVs (reaching almost 60% in 2017) – a market that is simply not sustainable if we are to achieve rapid decarbonisation. As a result, 27 countries including Sweden, Canada and the UK saw the fuel economy of their fleets stagnate or worsen between 2015 and 2017.

Global average market share per vehicle segment and average fuel consumption per segment, 2014-17



Source: IEA.

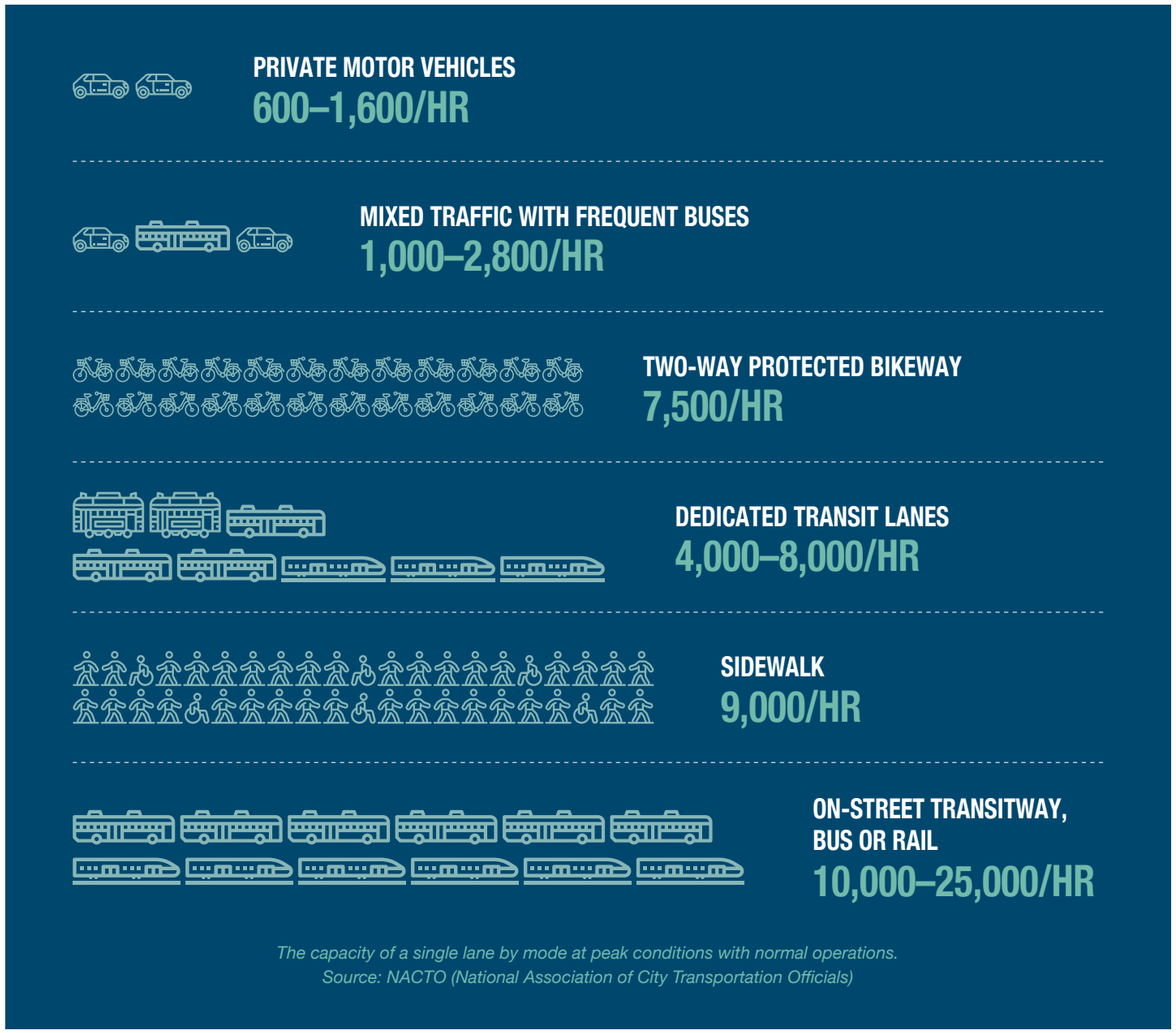
Research by the IEA confirms this trend: "the overall fuel consumption is affected by the growing market share of more energy intensive cars." This is counter-intuitive in tackling the emissions from road transport – common sense and behavioural changes are needed in addition to efficiency gains, technological innovations, and public policy responses.

Fewer Cars and More Public Transport

Whilst electrification and efficiency gains have to be part of the solution, on their own they cannot solve the crisis we're in. Traffic congestion is a significant burden on the economy and we have explained before how widespread individual electric car ownership will put increased pressure on resource availability and will bring environmental and social challenges of its own.

The UK House of Commons Science and Technology Committee recently warned that the UK is "far off course to meet its legally-binding net zero emissions goal" and argued that "widespread personal vehicle ownership is incompatible with significant decarbonisation". The Committee recommended very clearly "the government should not aim to achieve emissions reductions simply by replacing existing vehicles with lower-emissions versions."[13]

Research shows that individual private vehicles are by far the least efficient way to transport people.



The capacity of a single lane by mode at peak conditions with normal operations.
Source: NACTO (National Association of City Transportation Officials)

Buses and rail as well as cycling and walking are all more efficient ways to transport people in cities than private cars. Well-functioning, low carbon, affordable public transport only works if public policy fully supports this. Similarly, walking and cycling can only thrive if the right support is in place: for example, cycle lanes and pedestrian areas that are safe, good connectivity between pedestrian areas and cycle routes, safe cycle storage and better signposting of cycling and pedestrian routes.

Increasing public transport use is a priority for many cities. Hong Kong has already among the highest rates of public transport use in the world: 90% of travel is completed on public transport. Its public transportation system oversees approximately 12.6 million passenger journeys every day and the Mass Transit Railway (MTR) is recognised as among the most efficient in the world. London is not quite there yet, however the city's strategy includes a target for 80% of all trips in the capital to be made on foot, by cycle or using public transport by 2041 – health and personal experience are at the heart of the city's long term plan. Whilst the number of Londoners cycling has more than doubled since 2000,[14] on average people in Britain only cycle 46 miles per year, versus an average of 120 miles in the rest of the EU and an impressive 600 miles a year by the Danes.[15] Street layouts and cycling safety seem to be key for an uptake in cycling. Similarly, in the Netherlands where streets have been designed with cyclists in mind, 43% of people cycle at least once a day compared to only 4% in the UK.[16]

Rail provides a low-carbon alternative to transport by private car. In the UK, rail usage has increased significantly over the last 20 years[17] and in 2018-19 there were 1.7 billion passenger journeys by rail. Globally, almost 1,500 rail infrastructure projects worth at least $2.1 trillion are planned or under construction, amounting to a total of 140,000km.

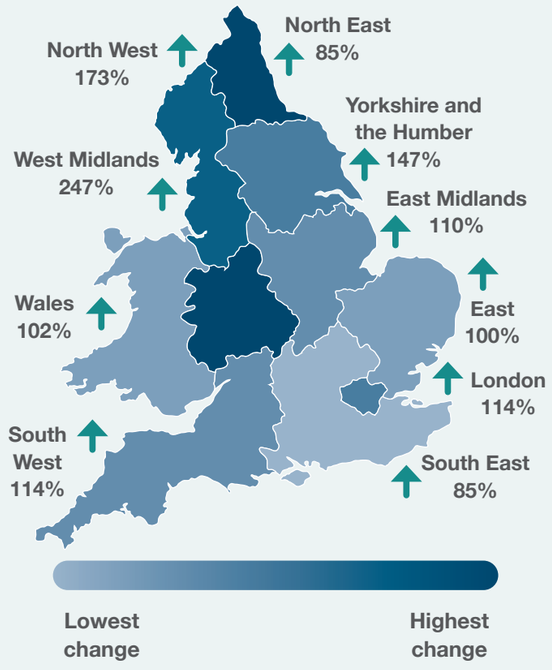
China dominates current track under construction with 37% of all heavy rail, 61% of high-speed, 66% of metro and 21% of light rail track being built there. Since 2008, China has put into operation 29,000 km of dedicated high-speed railway lines, far more than the total high-speed lines operating in the rest of the world.[18] Most major metropolitan regions in China are now either connected or in the process of being connected to high-speed railway lines. The World Bank in a recent report commended the success of Chinese high-speed rail which is based on a long term plan, standardised designs, a competitive supply industry and partnerships with local governments, high punctuality and frequency whilst keeping pricing affordable.[19]

Outside of urban areas, the use of public transport is more challenging, however several solutions and good practices are already in place to connect rural areas and cities with each other. Buses are a more efficient way to transport large volumes of people in preference to individual vehicle use as one bus takes approximately 75 motorists off the road. In 2018 over 4 billion journeys were made by bus in England and buses remain a vital complement to rail, especially in rural areas. However, 95% of buses still use diesel fuel. The recently announced UK National Bus Strategy will seek to reinvest in the service and increase funding to rural bus networks as well as creating Britain's first all-electric town.

Ultimately, this transition must consider the end of individual car ownership and the adopting of transport as a service, especially in urban areas. According to research by RethinkX[20], moving to transport as a service will bring many advantages: reducing traffic congestion and infrastructure costs, improving air quality with lower emissions from transportation in addition to savings for customers.

A very recent trend has been micro mobility: e-scooters and docked and dockless bicycles are appearing in many large cities around the world as a new convenient way to cover short distances in urban areas. Companies including Lyft, Lime, Uber and Bird are competing in this space creating a colourful display of well aligned or abandoned objects on the pavement. Whilst they provide an appealing solution to the first mile/last mile problem, safety concerns have also been raised, especially for the blind and visibly impaired.

Change in rail usage 1997-98 to 2017-18



Source: UK Department for Transport

With 4.4 billion journeys made by bus each year, buses are the backbone of transport networks across the country. But in recent years, falling passenger numbers and cuts to services have left many communities disconnected. Following the Chancellor's announcement of £200m this week to "put the wheels back on the Great British Bus".

Campaign for better Transport – September 2019

Case study: Nottingham trams

Nottingham previously suffered from traffic congestion in the town centre. The arrival of the tram has helped reduce this problem. The Nottingham Express Transit now accounts for over 16 million annual journeys. In addition, the city introduced the Workplace parking levy, charging employers who provide workplace parking: a further incentive not to drive and an innovative way to finance the extension of the tram system.

Case study: Bwcabus in Wales

Low population density makes public transport more challenging economically and often means that costs per passenger trips are higher and timetables are not practical. In response, Bwcabus assessed patterns of demand and now runs pre-booked local bus services in Wales in addition to fixed timetable services. Bwcabus has reduced average journey time to nearest employment centre from 52 to 27 minutes.

How to Invest in the Future of Road Transport?

The low-carbon transition presents new investment opportunities. As road transport evolves to become more sustainable, environmental, social and governance risks in the automobile sector and the wider transport value chain are changing.

Carbon intensity remains a key issue for investors, however new risks such as sourcing of minerals for EV batteries as well as cybersecurity in connected vehicles are new issues that need to be taken into account. The investment value chain is vast and investors can seek exposure via a range of businesses. Car manufacturers are the obvious option given many have set ambitious targets to increase EV sales. Automobile components companies offer exposure to innovative products ranging from lighting, tires, safety or batteries. The electrification and automation of vehicles means there are also opportunities to invest in technology such as sensors or semiconductors.

However, as responsible investors, many companies in the sector present significant ESG risks and include no-go areas from an ethical perspective. For instance, the global leader in EV disruption has a track record of poor working conditions and weak corporate governance. The manufacturing of batteries depends on a highly complex supply chain with mineral sourcing linked to human rights violations and a lack of good health and safety standards.

The investment value chain

Car manufacturers

Volkswagen, Renault, PSA Groupe, BMW, GM, Toyota, Honda, Tesla, Daimler

Automobile components

Valeo, Denso, Hella, Autoliv, Pirelli, Faurecia, Michelin

Smart technology

elmos, ST, Aptiv, Ericsson, Intel, Veoneer, Sony, NXP, Infineon

Batteries

Umicore, Samsung SDI, BYD, LG Chem, Panasonic, Johnson Matthey

Public transport operators

National Express, First, SNCF, Go-Ahead, Stagecoach, Transport for London, JR Central Japan Railway Company

Public transport infrastructure/equipment

Siemens, Alstom, Bombardier, Hitachi

Charging and renewables

BP, Shell, ABB, Siemens, Eaton, Hyundai, Tesla, RWE

Cycling

Giant, Shimano, Accell Group, Merida, Globeride, Halfords

Responsible Investment Challenges in the Investment Value Chain

Whilst investment in EV and electric charging infrastructure is positive, very few pure players exist and the same companies might also be involved in continuous exploration and production of fossil fuels and/or the production of traditional diesel and petrol vehicles.

For instance, BP has developed an interesting portfolio of charging infrastructure through its acquisitions of FreeWire, StoreDot and Chargemaster. Yet ClientEarth, a non-profit environmental law organisation, states that "in reality, more than 96% of the company's annual capital expenditure is on oil and gas. According to its own figures, BP is spending less than four pounds in every hundred on low-carbon investments each year. The rest is fuelling the climate crisis."[21]

Public transport operators are still, for the most part, state run entities (e.g. France, Germany, Italy, Spain and the Netherlands), whilst some of the companies involved in the development of public transport infrastructure also have large defence and aeronautics divisions which do not pass our Amity exclusion criteria.

Whilst the investment value chain is vast, as responsible and sustainable investors it might be difficult to get exposure to all areas.

Automobile components

- Interesting part of the value chain
- Offers solutions for retrofitting, light weight, safety and automation
- Products continue to support ICE too

Smart technology

- Sensors for automation, fleet management, platooning, connected vehicles are part of the necessary changes
- Data privacy and cybersecurity risks are new to transport

Car manufacturers

- EV production mostly from traditional manufacturers which also make traditional ICEs and are part of the problem
- The 'Dieselgate' scandal involved many of the main players
- Concerns about working conditions and governance at EV leader Tesla

Batteries

- Players in the EV battery market face problems related to cobalt supply chain
- Recyclability of batteries remains a problem
- Manufacturing impact – life cycle needs to be taken into account

Public transport

- Buses still heavily rely on diesel
- Mostly state owned
- Some parts of the market only accessible through fixed income

Public transport infrastructure/ equipment

- Corruption to win contracts remains a challenge for the industry
- Defence exposure in some cases
- Presence of conglomerates means it is difficult to find pure plays

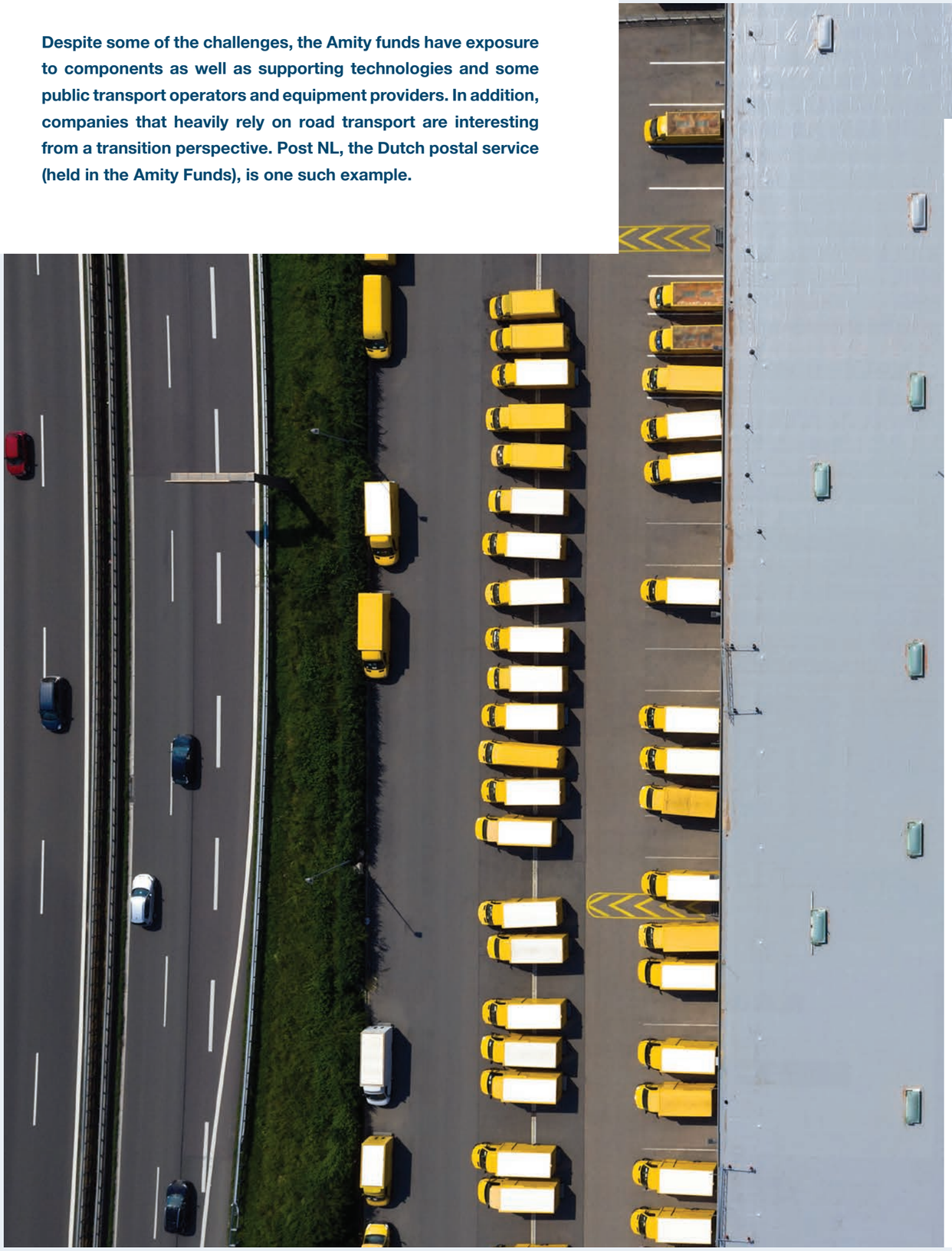
Charging and renewables

- Many unlisted players
- Oil majors are investing in this area
- Presence of conglomerates means it is difficult to find pure plays

Cycling

- Niche part of the market
- Some players are also active in traditional car markets or non-related activities such as fishing or golf

Despite some of the challenges, the Amity funds have exposure to components as well as supporting technologies and some public transport operators and equipment providers. In addition, companies that heavily rely on road transport are interesting from a transition perspective. Post NL, the Dutch postal service (held in the Amity Funds), is one such example.



Case Study: Post NL – Delivering Transition

For 220 years Post NL has provided the comprehensive postal service across the Netherlands, delivering 800,000 parcels and over seven million letters every week in 2018. Three of the mega-trends Post NL identifies affecting its business are urbanisation, an ageing population and climate change. At the heart of Post NL's response to these challenges is its exciting transition agenda focused on its vehicle fleet.

In late 2018, Post NL announced a long-term goal to deliver emission-free in 25 Dutch cities by 2025 and last-mile-emission-free throughout the Benelux region by 2030; this includes GHGs, NOx and particulates. Since 2007, Post NL has reduced its relative emissions by over 60%.

In February 2019, the company set and had approved a Science Based Target (SBT) in line with the Paris Agreement to reduce emissions by 78% by 2030 compared to 2007. It will achieve this by focusing on transitioning its entire fleet to electric. Post NL typically uses a leasing model, so as leases run out, vehicles will be replaced automatically for greener alternatives. By 2028, their ambition is to have transitioned the entire fleet away from diesel, with LNG an interim 'transition' fuel for larger vehicles. The company is replacing older, dirtier vehicles at the rate of 150 a year in both its managed and contracted fleets of 1,200 small vans. For larger trucks, Post NL is piloting hydrogen as an emission free alternative to diesel and LNG. The company has additionally introduced 263 e-bikes, 65 electric cargo bikes, and 828 buses converted to bio-gas.

To provide the necessary infrastructure for a fully transitioned fleet, Post NL is investing the proceeds of a €300m Green Bond in depot retrofit by installing solar panels and charging points for the fully electric fleet. Up to 40% of energy needs at each depot will be met from installed solar capacity. Its model has never been to have diesel refuelling within depots, and so there is no wider environmental risks arising from long-term pollution or leaching.

Under its ambitious plans to 'deliver transition' Post NL is showing what is possible by investing in electric vehicles, e-scooters and bikes to decarbonise at scale and to play its part in helping improve urban air quality.

Source: Post NL Annual Report & Accounts 2018/Post NL

Conclusion

This EdenTree Insight makes a case for sustainable road transport. It is clear that how we move around and transport our goods needs to transition to become more sustainable.

- We need to decarbonise, and electrification and automation can help with this.
- We need to make our current fleets smarter and more efficient.
- And thirdly, less individual driving and less personal car ownership will be essential.

These different options are not easy to implement; they will require behavioural change and strong political leadership.

Given the climate emergency, record levels of air pollution, traffic accidents and time lost in traffic congestion, it is time for change! Especially in cities, we are at a crucial moment in the transition to sustainable mobility, however we need to recognise that access to transport outside cities also remains a challenge and is linked to wider social issues among marginalised and vulnerable groups – which are harder to solve. We believe innovation in sustainable road transport is an enabler, but public policy has the ability to drive change faster. No doubt, individual behaviours need to switch too. As investors, we will seek to invest in responsible companies that support sustainable transport so as to effect the next smart transition in mobility.

View from the Top

By Thomas Fitzgerald

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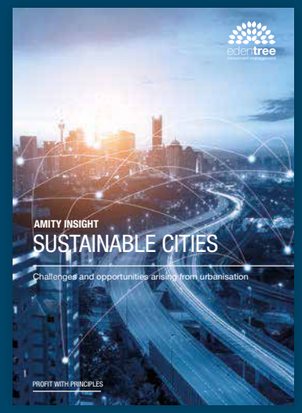
The incumbent system of road transportation, based primarily on the internal combustion engine, in its current form is unsustainable. As this Insight highlights, while this system has facilitated vast improvements in the movement of people and goods throughout the 20th century, it has also resulted in a significant number of negative externalities related to the environment, public health and safety, as well as economic prosperity. In an increasingly urbanised world, these direct and indirect costs are rising and placing greater pressures on the planet.

However, as the current system is increasingly challenged, a more sustainable form of road transportation is emerging. Through a confluence of innovations in engineering, technology and regulation, an electrified system has the potential to eliminate many of the negative externalities of the past while delivering a considerable amount of opportunity and value to consumers and society more broadly. Nevertheless, this transition remains in its infancy, and as outlined in this Insight, a number of environmental, social, economic and technological challenges still need to be addressed in order to ensure that this revolution is both sustainable and inclusive.

For investors, this transition could present an opportunity to deploy capital for the long-term. However, it also highlights a period of increased risk, as a large and complex global transportation network is disrupted indefinitely. In our view, given the pervasive nature of this structural trend, it is critical to view this transition holistically and outside of the bounds of any single industry or technology. We also believe that our responsible investment approach should allow to identify those companies that are enabling the transition in a truly sustainable manner.



You may also like to read a companion Insight published in 2018, Sustainable Cities. This is available at **www.edentreeim.com**

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