

ELECTRIC, SHARED AND AUTONOMOUS VEHICLES WILL REVOLUTIONISE TRANSPORT IN THE WORLD'S CITIES OVER THE NEXT 15 YEARS

**Some cities could see fuel consumption from light-duty vehicles
fall by 75% and four in 10 cars being autonomous by 2030**

Changes in urban transport, including the switch from gasoline to electric cars, the growth of ride sharing and the arrival of autonomous vehicles, are likely to have far reaching yet contrasting effects on the world's great cities, according to a study by Bloomberg New Energy Finance and McKinsey & Company.

An Integrated Perspective on the Future of Mobility, published today, examines the effect these new technologies will have on transport in 50 of the world's cities, home to half a billion people, and finds that these urban centres are likely to take one of three routes:

- The **'clean and shared'** model, in large emerging economy cities like Mumbai, Delhi and Mexico City where shared vehicles could account for almost half of passenger miles by car by 2030.
- The **'private autonomy'** model, in high income suburban sprawl, where passenger miles travelled could grow by 25% by 2030, due mostly to autonomous vehicles.
- Or the **'seamless mobility'** model, in densely populated high-income cities like London and Singapore where electric vehicles (EVs) could represent as much as 60% of all vehicles on the road by 2030, the result of low-emission zones, consumer interest and favorable economics.

Colin McKerracher, head of advanced transport at Bloomberg New Energy Finance, said:

"Vehicles and the way they are used will change more in the next two decades than they have in the last 100 years, due to falling battery costs and the advance of connected technologies. This study shows that the impact on cities will be particularly profound, and will differ from one metropolis to another."

Surya Ramkumar, partner at McKinsey & Company, and who co-leads McKinsey & Company's Future of Mobility Initiative, said:

"Sectors along the mobility value chain face disruption. We believe that value pools will shift and we will see emergence of new business models and service opportunities. The power sector could see a 3% increase in demand globally. Gasoline retailers could explore new ways to monetise assets through electric charging, connected car, fleet or non-fuel services. As connectivity and autonomy increases, so does the need for sensors and software. The data generated could itself be hugely valuable."

Stefan Knupfer, senior partner, who leads McKinsey & Company's Sustainability and Resource Productivity practice, said:

“The coming decade will be a once-in-a-generation opportunity for automotive players. Market dynamics, business models, and customer requirements all have the potential to drastically change in those cities that will be on the leading edge of this transformation.”

The societal gains in densely populated developed cities will be largest, amounting to \$7,400 per person cumulatively between now and 2030. Even in urban areas, where private car ownership continues to dominate, societal benefits will be \$2,800 per person, in the form of improved safety, reduced vehicle emissions and less congestion.

Autonomous driving, connectivity, car sharing, electric vehicles and the rise of renewables will all have strong mutually reinforcing effects. For instance, the advent of autonomous driving in the 2020s will boost the use of EVs in high-use services such as ride-hailing as lower operating costs offset higher up-front costs of these vehicles.

Another benefit will be cleaner air. The growth in EV battery demand looks likely to drive down costs and help integrate more renewable energy generation into the electricity mix through distributed energy storage, and this would cut emissions linked to EV charging.

The change in how people move around cities will challenge the automotive and energy industries and governments. Fuel consumption from light-duty vehicles could drop by as much as 75% by 2030 in some cities, leading governments to look for new ways to recover lost fuel taxes. In some cities, as many as four in 10 vehicles could be autonomous by 2030, accelerating the rise of 'mobility as a service'.

The BNEF-McKinsey & Company study follows Bloomberg New Energy Finance's own analysis in February this year of the cost dynamics for battery costs and electric vehicles. That pioneering work produced a forecast that EVs are on course to take 35% of new light-duty vehicle sales worldwide by 2040. Click [here](#) more details.

BNEF also looked at the potential effects of the EV revolution on the wider economy, including the auto supply chain, retail, the energy sector, construction and government, in a paper published in August – [Electric Vehicles: It's not Just About the Car](#).

McKinsey & Company published a report in August 2015, Urban Mobility at a Tipping Point, presenting a framework for thinking through the evolution of urban mobility, to help cities to design and implement solutions that can keep cities moving cleanly and efficiently. Click [here](#) for more details. In another report published in January 2016, it details how technology-driven trends will revolutionise the way how industry players respond to changing consumer behaviour, develop partnerships, and drive transformational change. Click [here](#) for more details.

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