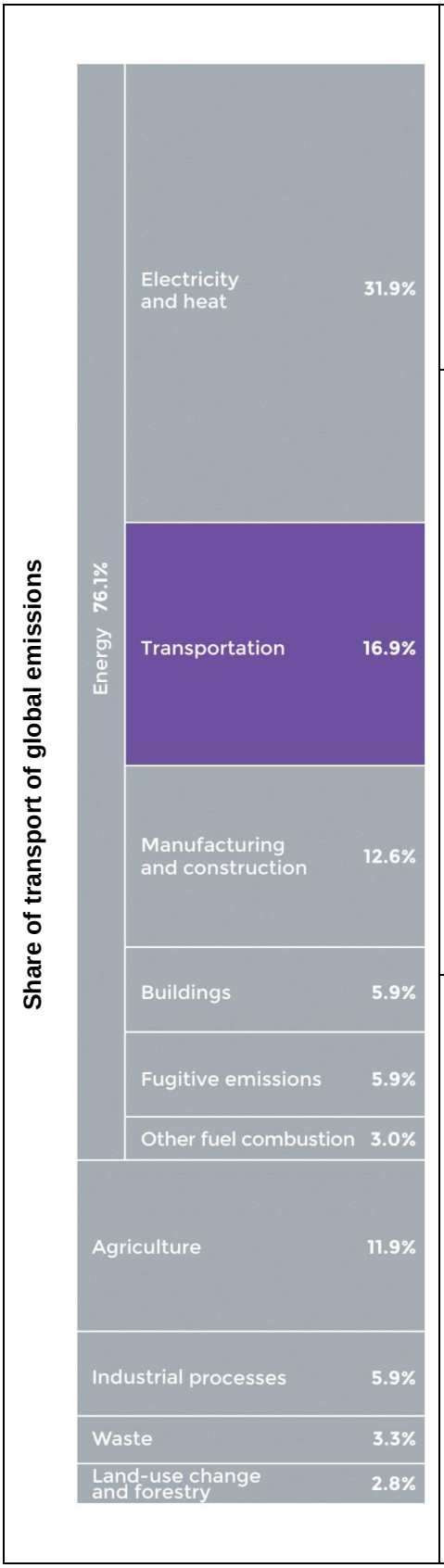
State of Climate Action 2021

Summary of the assessment of climate action in the transport sector - This factsheet is an excerpt from State of Climate Action 2021. All references, data sources, authors and methods can be found in the full report.



Key features of the transport sector in climate change mitigation

Transport is the fastest growing source of emissions after the industry sector.

Road transport is responsible for the lion's share of these emissions, with rail, aviation, and shipping all comprising a much smaller proportion, each around 1% or less of global emissions but **growing at a faster rate**.

Required emissions reductions **cannot be achieved solely by a change in technology** but will also need **modal shift** to more efficient and less emissions intensive modes of transport, and the introduction of low-carbon fuels.

The Paris-compatible benchmarks for the transport sector:

1- People around the world reduce the percentage of trips made in private LDVs by between 4 and 14%, relative to business-as-usual levels by 2030
2- The carbon intensity of land-based passenger transport falls to 35–60 gCO2/pkm by 2030 and reaches near zero by 2050
3- Electric vehicles account for 75–95%of total annual light-duty vehicle sales by 2030 and 100% by 2035
4- Electric vehicles account for 20–40% of total light-duty vehicle fleet by 2030 and 85–100% by 2050
5- Battery electric vehicles and fuel cell electric vehicles make up 75% of global annual bus sales by 2025 and 100% by 2030 in leading markets
6- Battery electric vehicles and fuel cell electric vehicles make up 8% of global annual medium- and heavy-duty vehicle sales by 2025 and 100% in leading markets by 2040
7- The share of low-emissions fuels in the transport sector reaches 15% by 2030 and 70–95% by 2050
8- Sustainable aviation fuel comprises 10% of global aviation fuel supply by 2030 and 100% by 2050
9- The share of zero-emissions fuels reaches 5% for international shipping fuel supply by 2030 and 100% by 2050

Enablers of climate action in the transport sector:

- Shifting investments from road to infrastructure to support modal shift
- Adoption of enabling policies to discourage motor vehicle usage
- Pairing supportive policies with increased public finance to scale low-carbon transport technlogies
- Supporting R&D for new technologies to reduce the cost of already commercialied low-carbon technologies and to further develop new technologies where existing technologies are not suitable
- Scaling up charging and refueling infrastructure
- Combining supply- and demand-side policies to promote the shift to EVs, establishing strong purchase incentives and standards to send a strong signal to manufacturers
- Setting ambitious targets in terms of electrification and to phase out ICE vehicles
- Demonstrating corporate and government leadership on fleet transitions
- Establishing supportive policies and increasing public finance for low-emissions fuels
- Improving global coordination to create a green hydrogen market
- Increasing access to production inputs for zero-emissions avaition fuels

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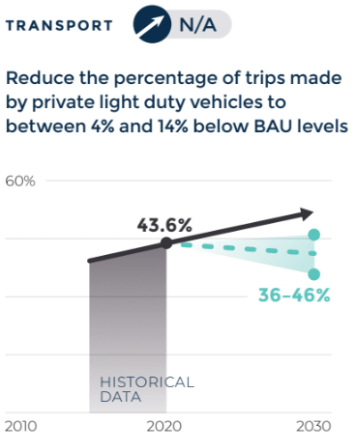
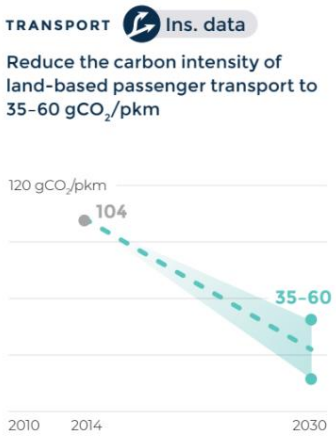
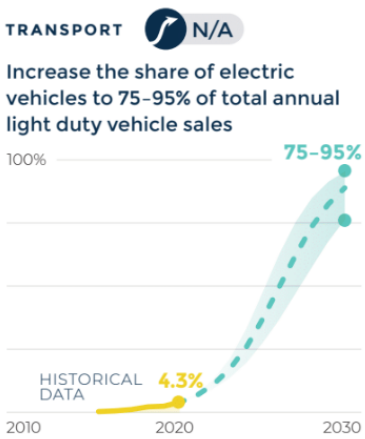
Historically, the percentage of **people who use private motor vehicles** as their primary mode of transportation has increased worldwide. This trend needs to shift to the decreased use of private vehicles, which could be addressed through investments in public transportation, walking, and cycling infrastructure, as well as policies to encourage use of non-private modes of transport.



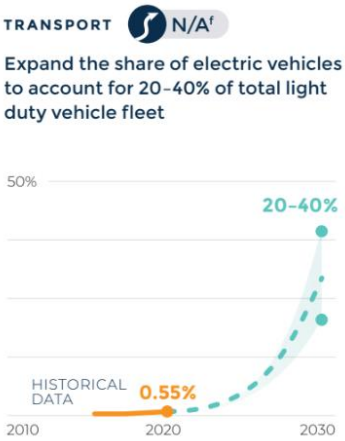
The **carbon intensity of land-based transport** varies dramatically across countries, largely depending on the most frequently used transport mode. Due to the lack of data, recent trends in the global carbon intensity are unavailable, but need to decrease by 42-66% compared to 2014 levels by 2030 to be Paris aligned. Achieving this benchmark will require different approaches in individual countries.



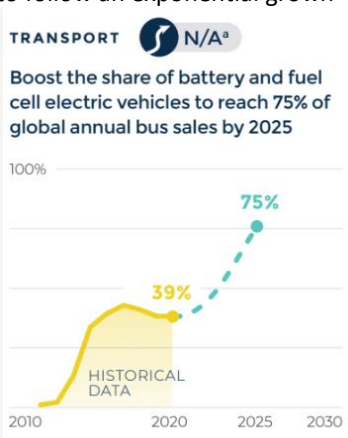
Electric vehicle sales have been **growing rapidly**, reaching 4.3% of global LDV sales in 2020. Global sales of electric vehicles grew at a compound annual growth rate (CAGR) of 50% from 2015 to 2020. There was some slowdown in 2019, when the CAGR was only 13%. In 2020, during the COVID-19 pandemic global sales increased 67% globally. The future trajectory of electric vehicle sales depends on whether they continue to experience high rates of growth, but recent data suggest the potential start of exponential growth.



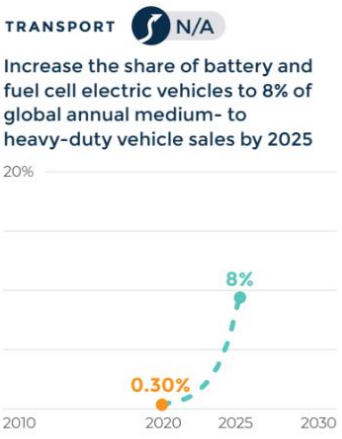
The **rapid growth in EVs' share of annual LDV sales** began only recently, so the share of EVs in the global LDV fleet remains very low, at less than 1 % in 2020. Supported by amix of regulatory and supporting policy across numerous countries in recent years, we expect to see EVs constituting a significant proportion of the total LDV stock in this decade, likely to follow an exponential growth trend.



In 2020, the **share of BEVs and FCEVs in global bus sales** was 39%. This strong level of demand comes primarily from China, where sales of these types of buses were almost 50% higher than sales of fossil fuel equivalents. The dip in the global share of BEVs and FCEVs is due to what is expected to be a temporary fall in Chinese sales. To reach the benchmarks, sales across countries globally need to increase further and is likely to follow an exponential growh trend.



In 2020, the **share of BEVs and FCEVs in global MHDV sales** was 0.3%. This was entirely made up of BEVs as fuel cell MHDVs are so far not commercially available. As with buses, the bulk of global demand in 2019 came from China. To achieve the 2030 and 2040 benchmarks, the rate of sales need to increase drastically. There is an urgent need to bring FCEVs to commercial maturity and stimulate their adoption across the world.



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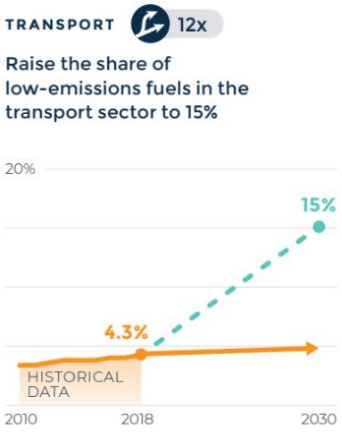
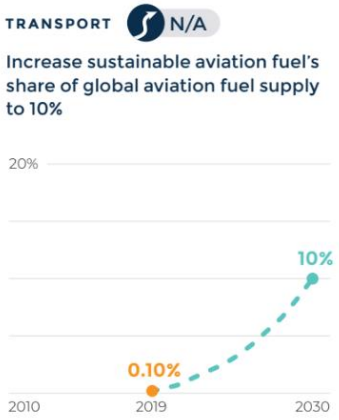
The global share of **low-emissions fuels** in the transport sector **remained stable** between 1 and 2% throughout the 1990s, before beginning to rise early in the new century due in large part to the introduction of biofuel-blending mandates. Between 2014 and 2017, increases in both biofuel and electricity demand did not outpace the increase in demand for fossil fuels. In 2018, the global share was 4.3%, however much of this share consisted of unsustainable conventional biofuels, highlighting the urgency of transitioning to advanced biofuels, and scaling up.



Today, **SAF comprises under 0.1%** of global aviation fuel supply, as only one of four potential pathways has reached commercial deployment. However, it has been estimated that global SAF uptake could reach 10% by 2030 and 100% by 2050. Reaching these targets will require a significant acceleration in the development and deployment of all technologically viable SAF pathways, and is likely to follow an exponential growth trend.



There are various zero-emissions fuels **under development** for international shipping, among which ammonia is currently viewed as the lead candidate. Most of the zero-emissions fuels, however, are not yet commercialized and need to go from pilot and demonstration to commercialization in the near term to achieve the 2030 benchmark, and to scale significantly to meet the 2050 benchmark. This will be highly reliant on the cost-effective supply of green and blue hydrogen.