Electric Vehicles Pros and Cons

Lots to Consider

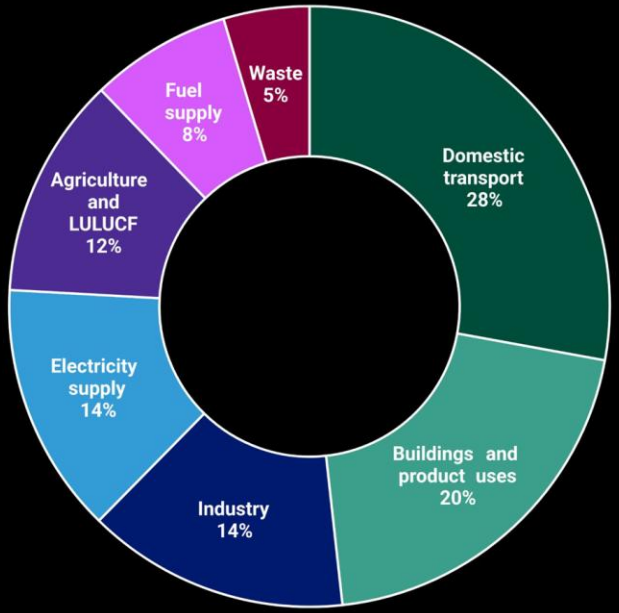
Pros

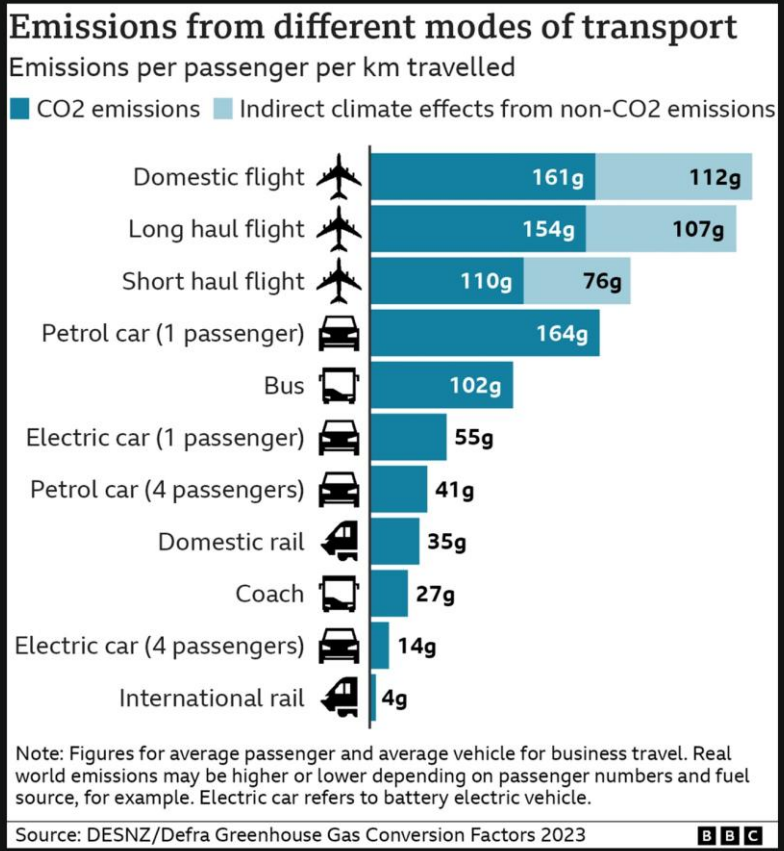
- Reduce Impact to Climate Crisis
- Savings
- Convenience
- Health
- Lower maintenance
- Enjoyment

Cons

- Fear of the New
- Cost
- Inconvenience
- Range Anxiety

UK Greenhouse gas emissions from transport





BBC News - What you can do to reduce carbon emissions

LIFE-CYCLE GREENHOUSE GAS EMISSIONS OF PASSENGER CARS

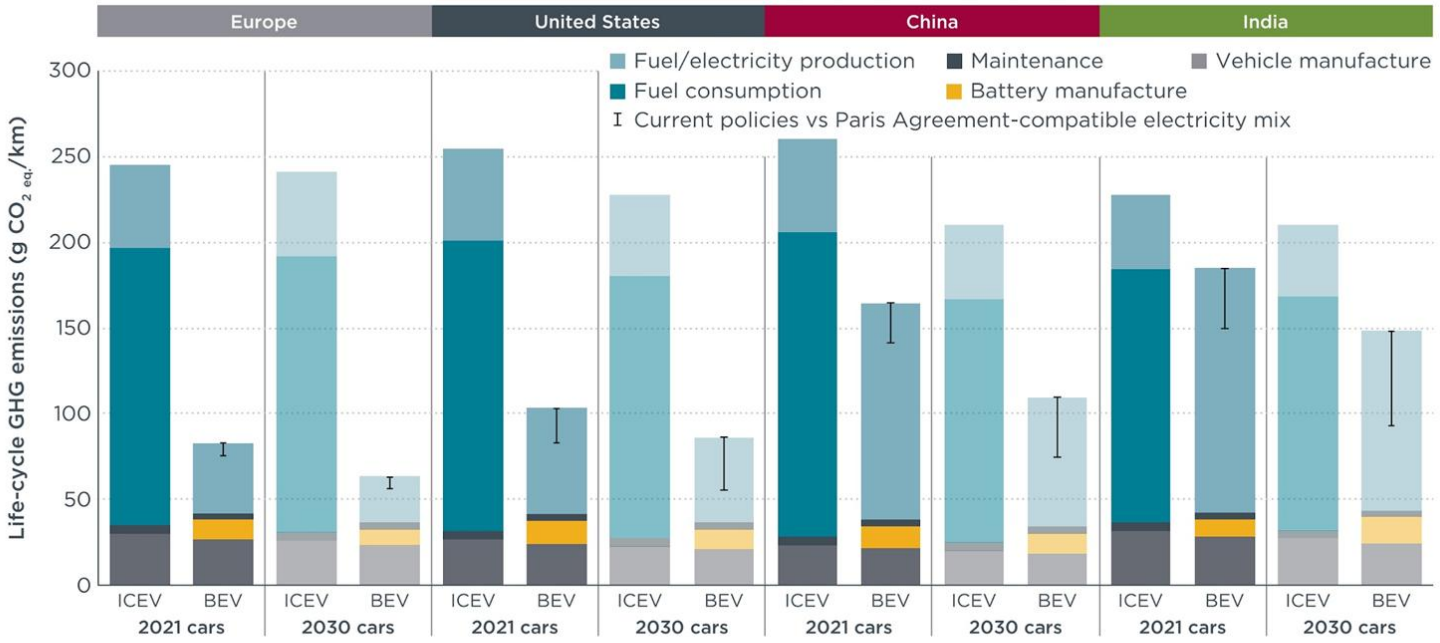


Figure ES.1. Life-cycle GHG emissions of average medium-size gasoline internal combustion engine (ICEVs) and battery electric vehicles (BEVs) registered in Europe, the United States, China, and India in 2021 and projected to be registered in 2030. The error bars indicate the difference between the development of the electricity mix according to stated policies (the higher values) and what is required to align with the Paris Agreement.

https://theicct.org/wp-content/uploads/2021/07/Global-Vehicle-LCA-White-Paper-A4-revised-v2.pdf

Costs

01

Purchase price premium of an EV – relative to an equivalent internal combustion engine (ICE) vehicle – has dropped from around 50% in 2020 to around 40% in 2023. With battery costs reducing and continued innovation, forecasts predict that some EVs could be around the same price to purchase as a petrol or diesel car by the end of the 2020s.

New BYD Dolphin Surf EV's start at £18,650

02

In 2023 the top 10 selling petrol cars cost £700 - £1,300 a year more to run than EV equivalents.

03

From 2024 the Zero Emission Vehicle (ZEV) mandate policy increases the costs for petrol vehicles by an estimated £10,000 more in running costs over the lifetime of the vehicle.

01: https://www.gov.uk/government/publications/electric-vehicles-costs-charging-and-infrastructure/electric-vehicles-costs-charging-and-infrastructure

02+03: https://eciu.net/media/press-releases/2023/new-analysis-petrol-car-drivers-paid-a-700-petrol-premium-in-2023

Convenience

Charge at Home

Cheap - 2-3 p/mile

Quick - no queues

Helps the Grid

ICE cars cost 15-20 p/mile

Inconvenience

Charging Stations

Not cheap - 10-25 p/mile

Often queues - 66% wait more than 10 min

Helps the Grid

Batteries

How long do they last? Guaranteed to retain 80% of original charge after 8 years or 100,000 miles. Latest CATL batteries warranted to lose <9% charge after 120,000 miles.

Impact to Environment? Similar impact to extracting oil and gas and other minerals, but batteries can be recycled

Safety? Temperature and Voltage are measured and controlled to ensure they don't exceed safe limits

Range Anxiety - will we get there?

EV range depends on battery capacity (kWh), weight, style, season and speed. From Dacia Spring (137 miles) to Mercedes-Benz EQS (481 miles).

RAC says the average range of an electric car is 236 miles, which is three times the average distance driven in a week

Chargepoints: 70,000 at 35,800 locations (October 2024), of these 14,000 are rapid or ultra rapid chargers at 5,850 locations, enabling an electric car to be recharged in the time it takes to enjoy a coffee or a meal

Most drivers need a break after driving for three hours anyway. Rule 91 of the Highway Code states that a break of at least 15 minutes should be taken every two hours

EVs are Just Better

Driving experience

- Quicker due to "instant torque" from electric motors
- Typical EVs are 3.5-7 seconds 0-60 mph
- Fastest ‘production car’ in the world is an EV: McMurtry Spéirling Pure achieves 0-60 in 1.55 seconds

Healthier

- less pollution
- quieter
- less maintenance as fewer things to go wrong!
- less stress due to regenerative braking = **one pedal driving!**