

Transport: Light Vehicles - Biofuel

This lever controls the sub-levers listed in the table, and ambition levels are for the end year shown on the right-hand side.

Biofuels have the potential to reduce greenhouse gas (GHG) emissions as the CO2 produced at the tail pipe has been absorbed during the growth of the biomass used. The net GHG emissions impact of biofuel is therefore generally low being just those incurred in the supply chain, although for some crops (such as oil seeds) the impact can be much higher, hence the interest in biofuel production from wastes such as used cooking oil.

In 2018 the share of biofuel consumed by road vehicles was 4.8% for bioethanol and 3.9% for biodiesel. They can simply be mixed with fossil fuels and used in existing engine technologies. However, shares of the fuel mix beyond 10% for bioethanol and 7% for biodiesel require modifications to the engine or development of types of advanced biofuels. Vehicles that can run on substantially higher biofuel blends exist (e.g. up to 85%), but the numbers of these vehicles on the road are low.

Key Interaction

Increasing the use of biofuels in transport has implications for how that increased demand for biofuels will be satisfied. Biofuels can be created from waste and biomass grown in the UK, but feedstocks can equally be imported from a wide range of countries around the world. There are however limits to how much of

these feedstocks are sustainably available both domestically and globally. UK bioenergy production can be controlled through the Land Use & Biofuels levers.

Level 1

The amount of biofuel blended with fossil fuels remains at current levels.

Level 2

Biofuel blend increases to match the current levels seen in more 'biofuel progressive' countries such as Brazil where the ethanol use mandate for gasoline was raised to 27% in 2015. This might require engine modifications depending on the type of biofuel.

Level 3

Technological advances in biofuels improve their compatibility with current vehicles allowing 50% of fossil fuel to be substituted.

Level 4

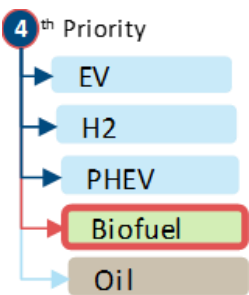
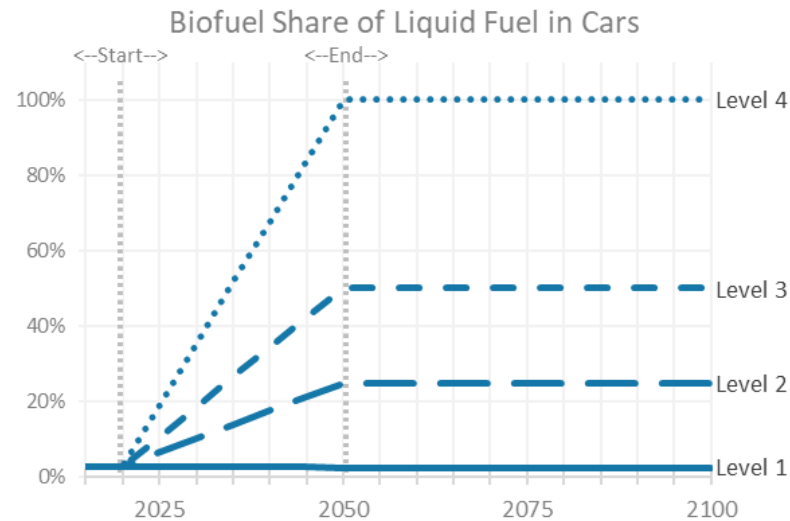
Huge advances in biofuels with strong public engagement and policy leading to all fossil fuels used in light vehicles being replaced by biofuels. Unless transport demand is reduced, this would require over twice the maximum available raw biomass of around 300 TWh/year (CCC 'Global governance and innovation' scenario¹).

¹<https://www.theccc.org.uk/publication/biomass-in-a-low-carbon-economy/>

Default Timing Start year: 2020, End year: 2050

Biofuel share of liquid fuel by vehicle

Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Car	share	3%	3%	25%	50%	100%
LGV	share	2%	3%	25%	50%	100%
HGV Rigid	share	2%	2%	25%	50%	100%



Lever Priority

Biofuel is the fourth in the priority order for cars, vans and light trucks.

Where supply would otherwise exceed demand, measures lower in the priority order will be superseded by those above them.

Conventional fossil fuelled vehicles meet any shortfall in demand.