



Urban Mobility

Zero tailpipe
emissions led











High Volume Compact Passenger Car

Small Urban BEVs

Long Range Mobility
Net-zero* emissions led

Typically Medium Power









< 3.5t Vans

High Volume Passenger Car

High Power and Performance
Net-zero* emissions led

Typically High Power









High Performance

High Power SUV / Pick-up

Propulsion Technologies Roadmap



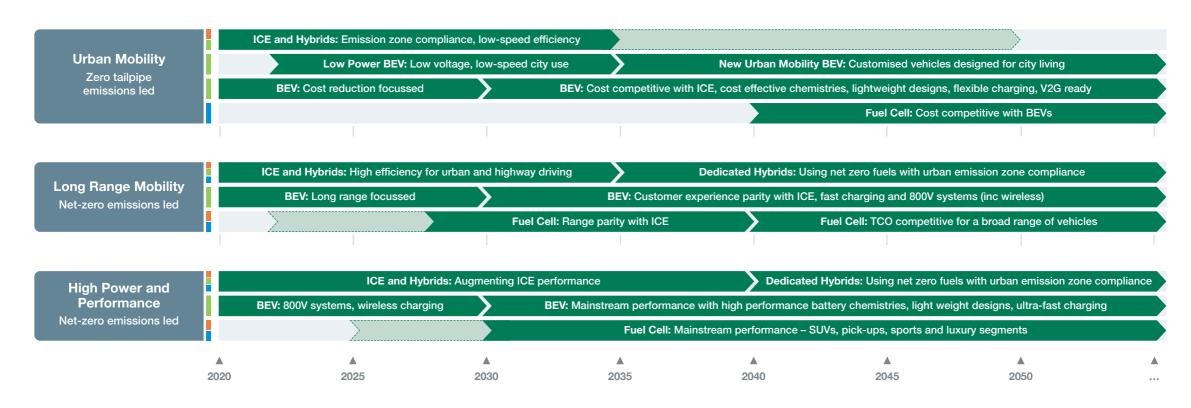


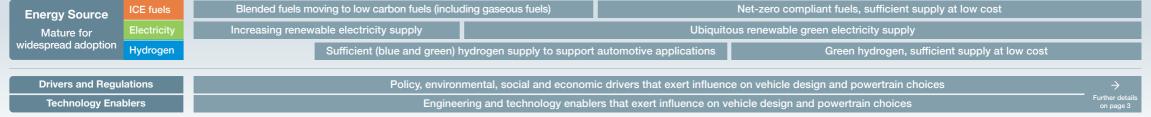
This roadmap represents a snapshot-in-time view of the global automotive industry propulsion technology forecast for mass market adoption.

Specific application-tailored technologies will vary from region to region.



Dotted line bar:
Technology exists in international
markets, but less prevalent in Europe





Hybrids = Mild, HEV, PHEV and range extender

Drivers and Regulations / Technology Enablers



Defined driver



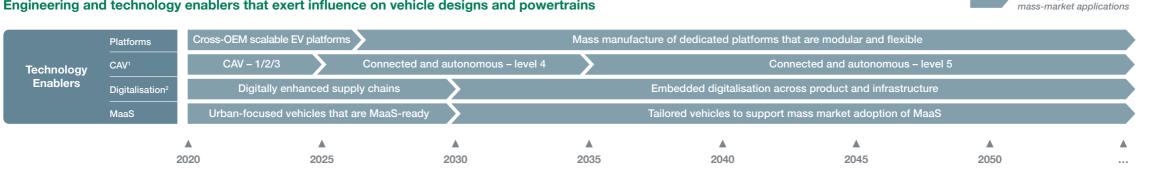
Predicted driver

Technology adoption for

Policy, environmental, social and economic drivers that exert influence on vehicle designs and powertrains

Drivers and Regulations	CO2e Emission	95 g/km (NEDC)	-15% (WLTP)	PC -37.5% and Van -31% (WL	TP)	Towards net-ze	ero CO2e and LCA compliand	се		
	ZEV Policies	ZLE	V credits and mandates in specif	ic areas	Broader adoption of ZEV mandates to achieve net-zero CO2e and local air quality ambitions					
	Pollution and Resource	Euro 6d / EPA Tier 3	Euro 7 / EPA Tier 3	Holistic environmental impact legislation (VOC, resource use, land use) and LCA compliance						
	Zone Regulation	Ultra-low emission zones	tra-low emission zones Localised zero tailpipe emission zones and geo-fencing			Increasing pedestrianisation and vehicle entry restrictions, next gen city designs				
	Urban Mobility	Discrete transport services (pay per mile / usage)		On-demand, integrated transport services that deliver accessible end-to-end mobility						
	EV efficiency improvements	215Wh/mile	10-15%	20-3	0%		>30%			
	A 2020		A	<u> </u>		A	A	A	A	
			2025 20	030 203	35 20	040	2045	2050		

Engineering and technology enablers that exert influence on vehicle designs and powertrains



^{1.} Adoption is dependent on supporting roadside infrastructure (incl. V2X, digital networks, data protocols, interconnects). See further details on https://zenzic.io/roadmap/

^{2.} More details on digitalisation will be available on the IDE roadmap from March 2021