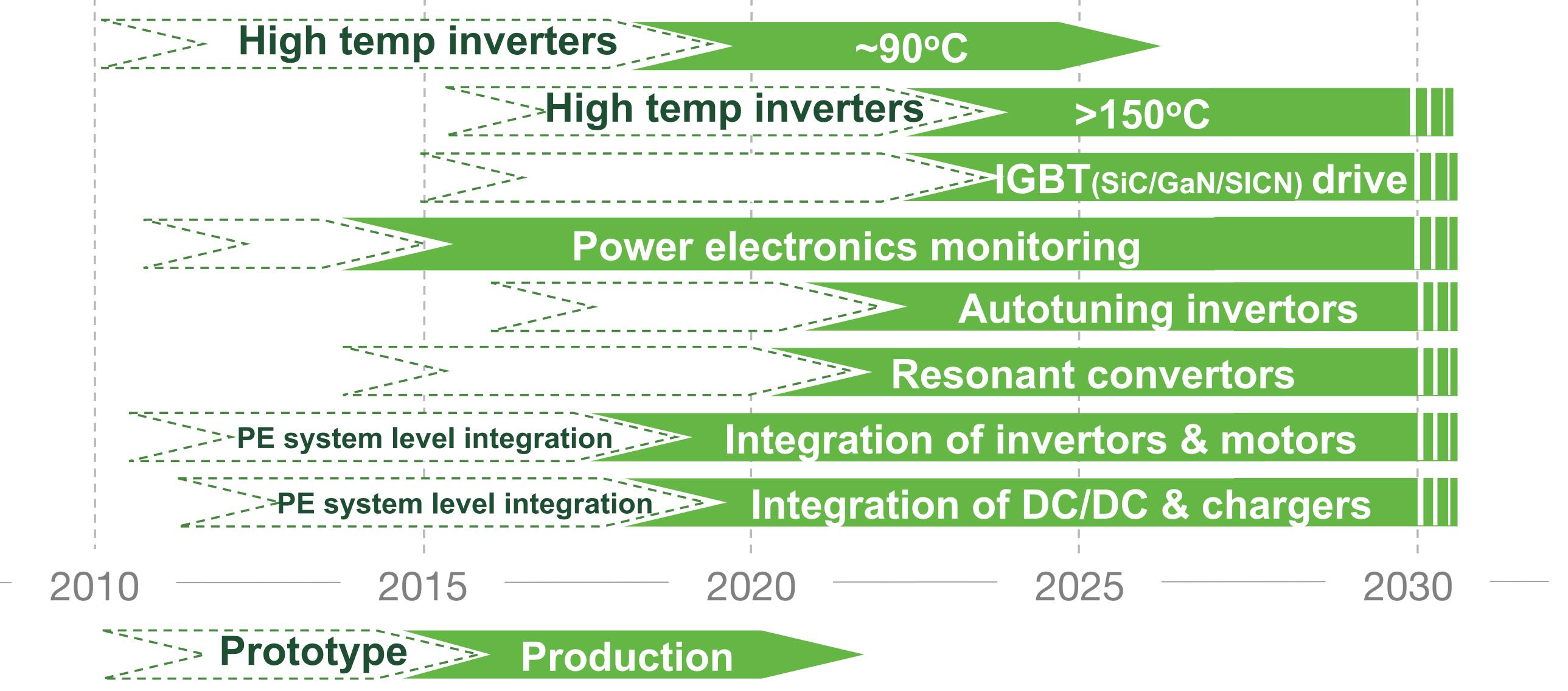
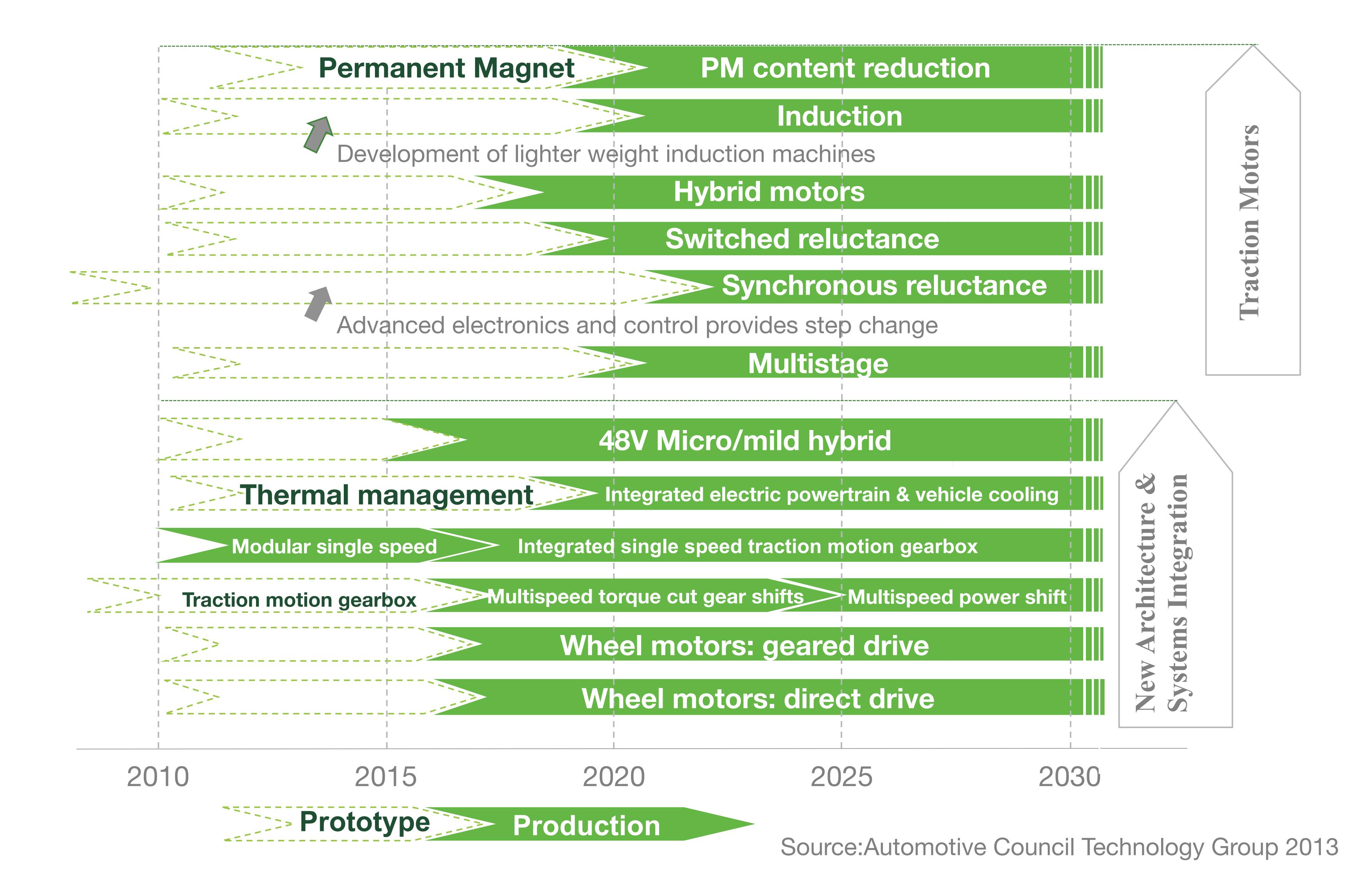
#### Power electronics roadmap



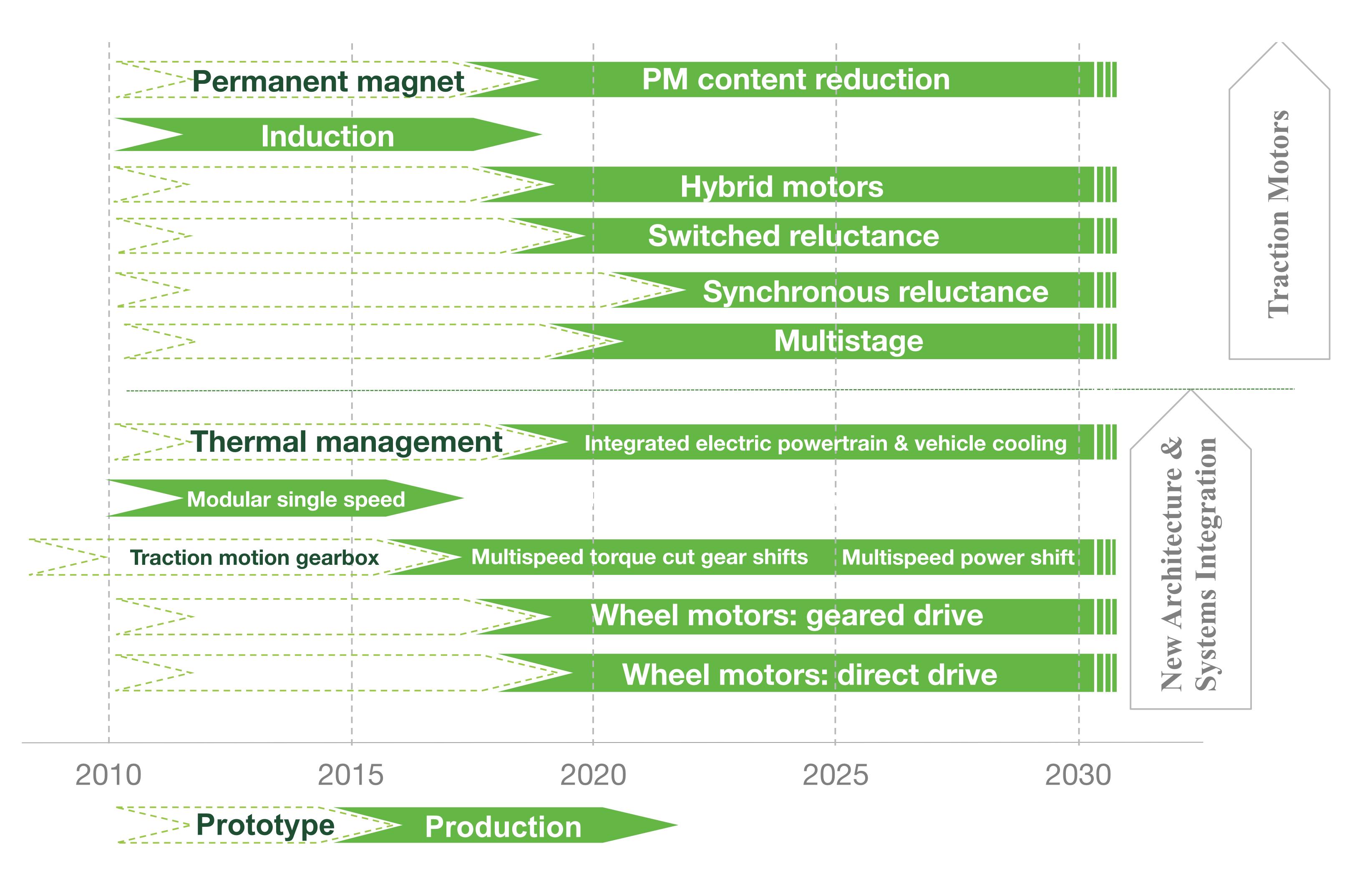




# Traction motors & generators roadmap (<40kW)





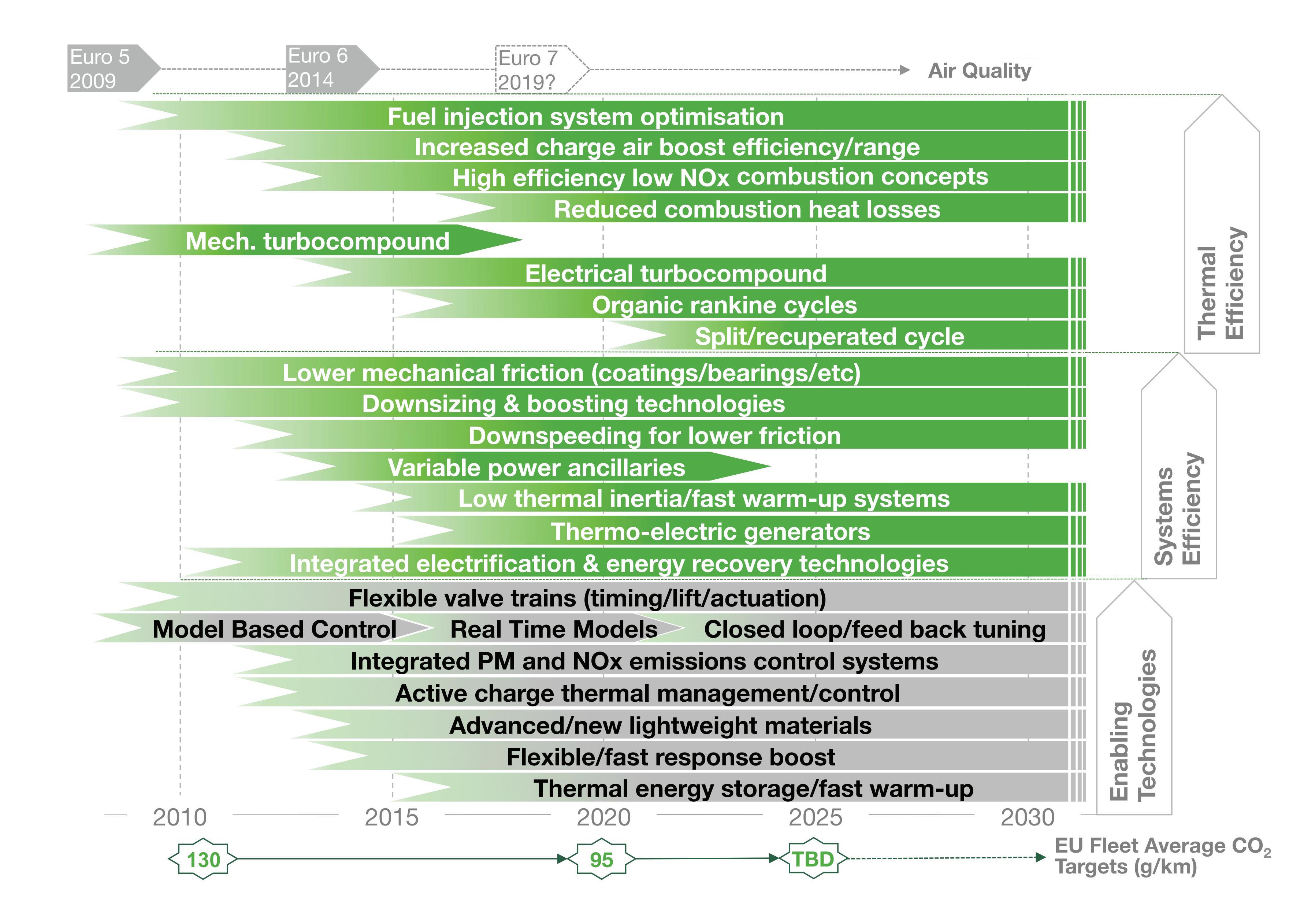


## Power train (ICE) technology roadmap

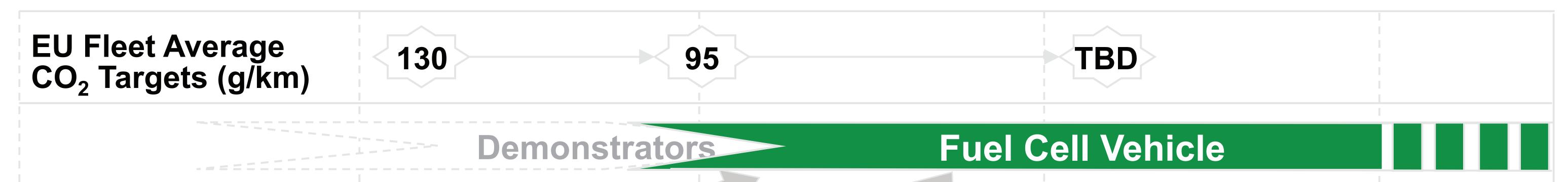
automotive

**Council** 

IIK



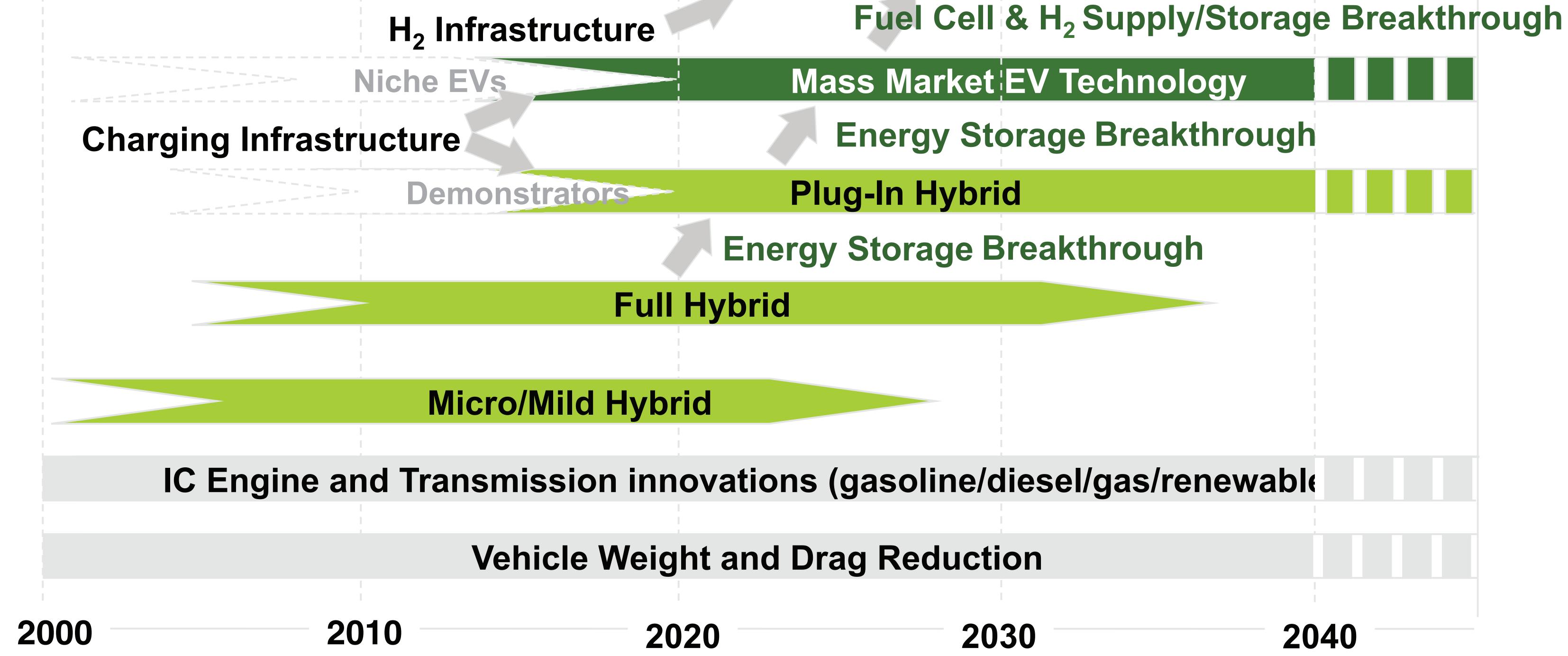
## Passenger car low carbon technology roadmap



automotive

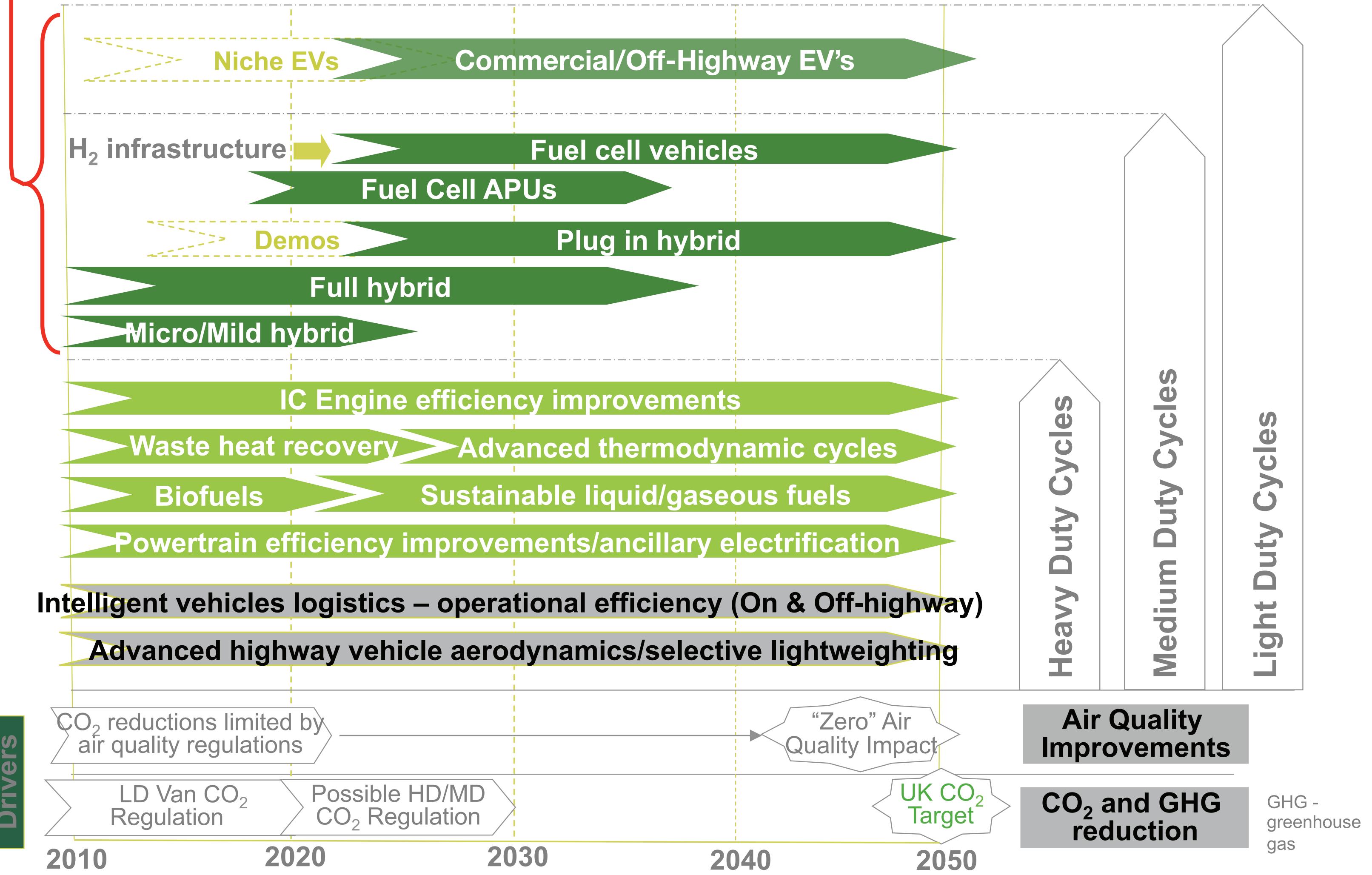
council

UK



## Commercial and off-road technology roadmap



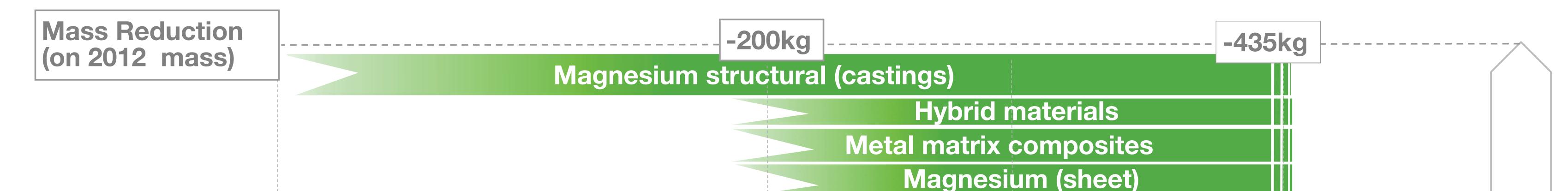


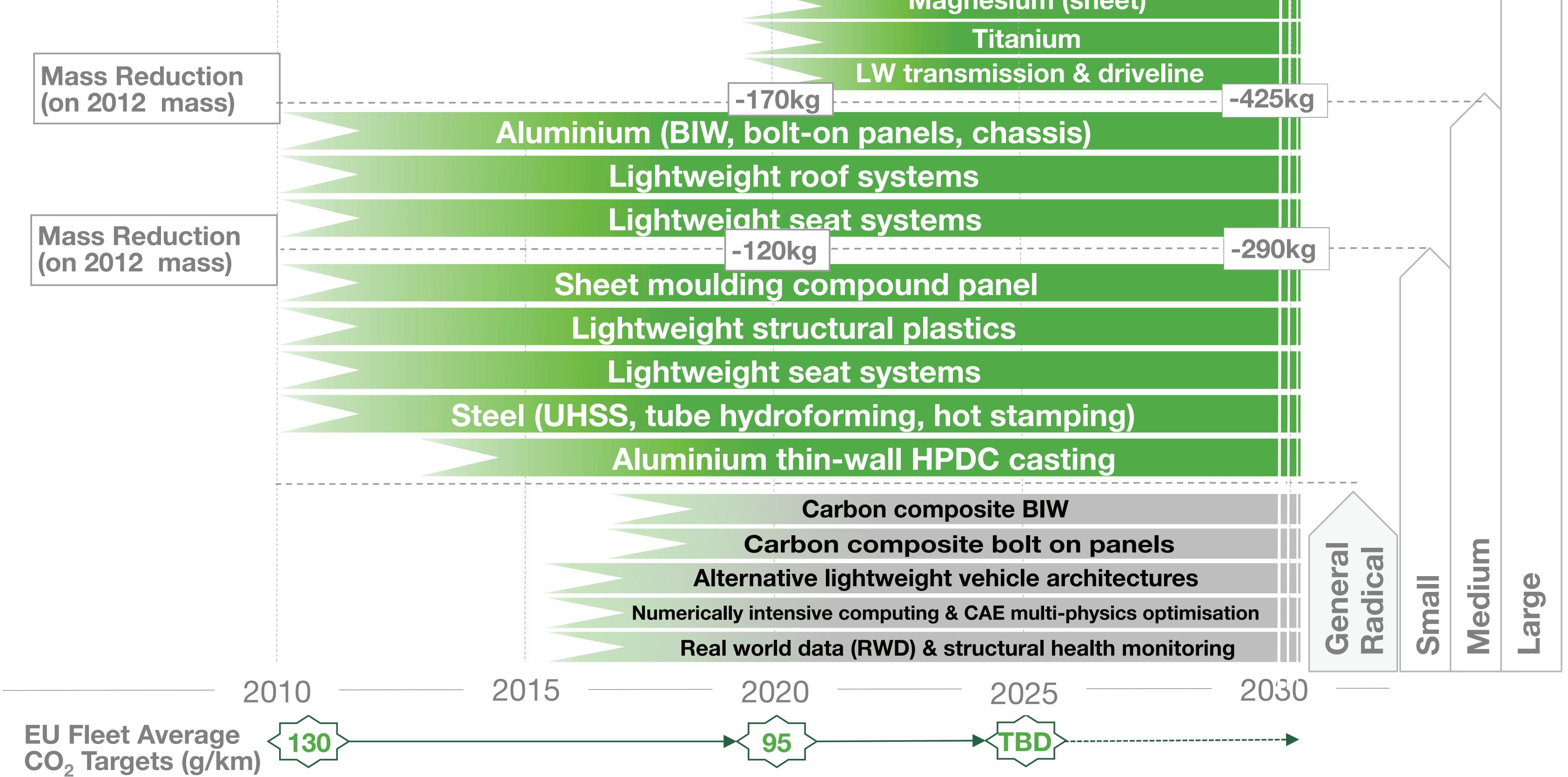
automotive

council

UK

#### Lightweight vehicle and power train roadmap





Source: Automotive Council Technology Group 2013

automotive

council

UK



#### Energy storage Echem Tech roadmap

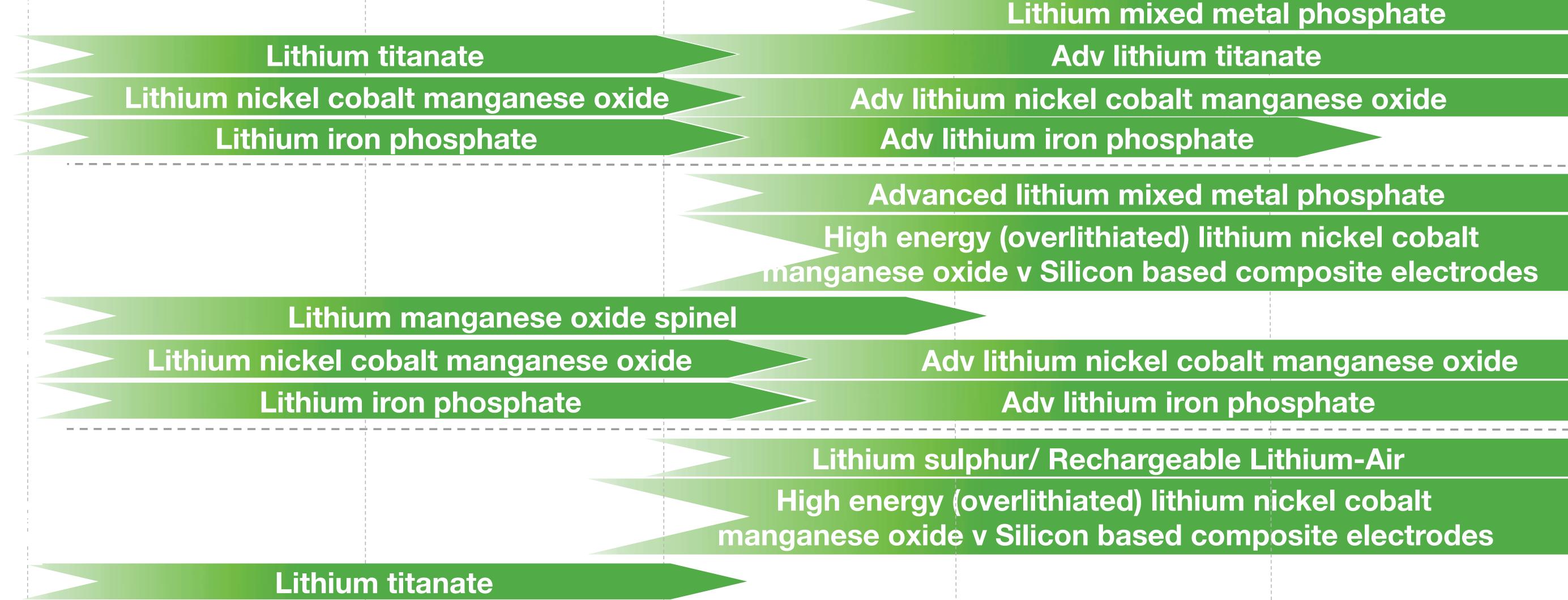
Lithium nickel cobalt manganese oxide

Lithium iron phosphate

Lithium mixed metal phosphate

Adv lithium nickel cobalt manganese oxide

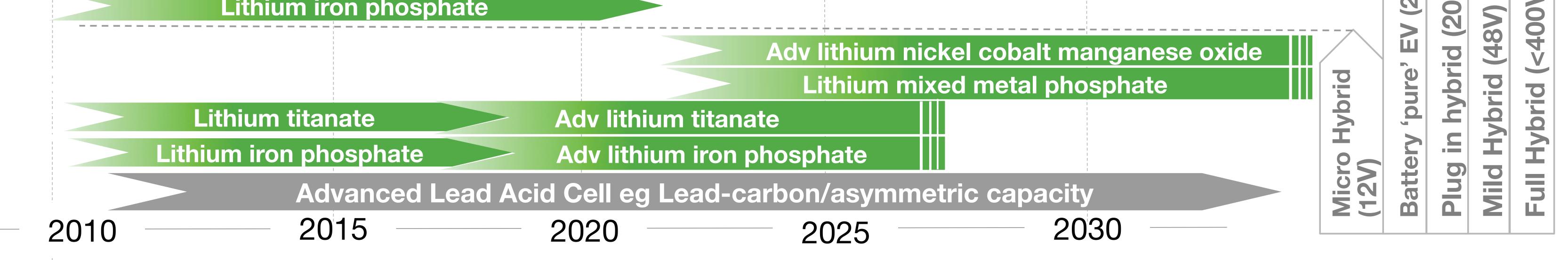
Adv lithium iron phosphate



Lithium nickel cobalt manganese oxide

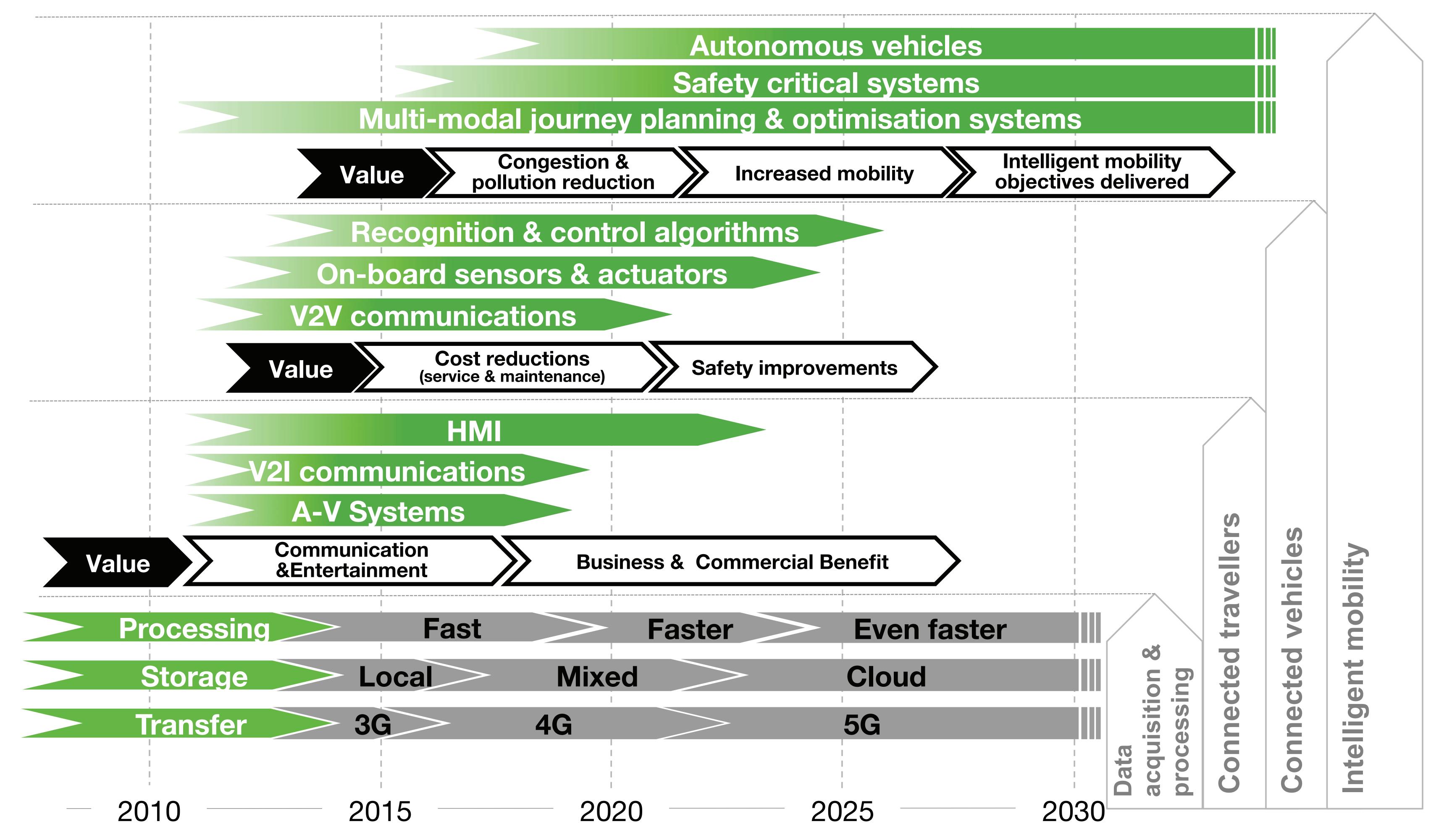
Lithium iron phosphate

500v) 250





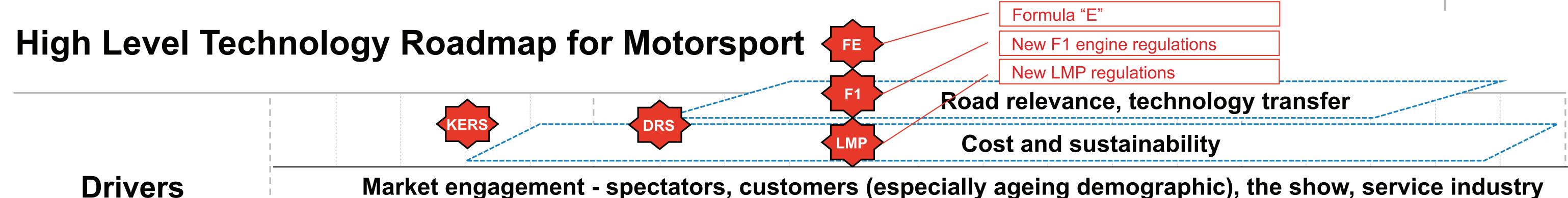
#### Intelligent mobility technology roadmap



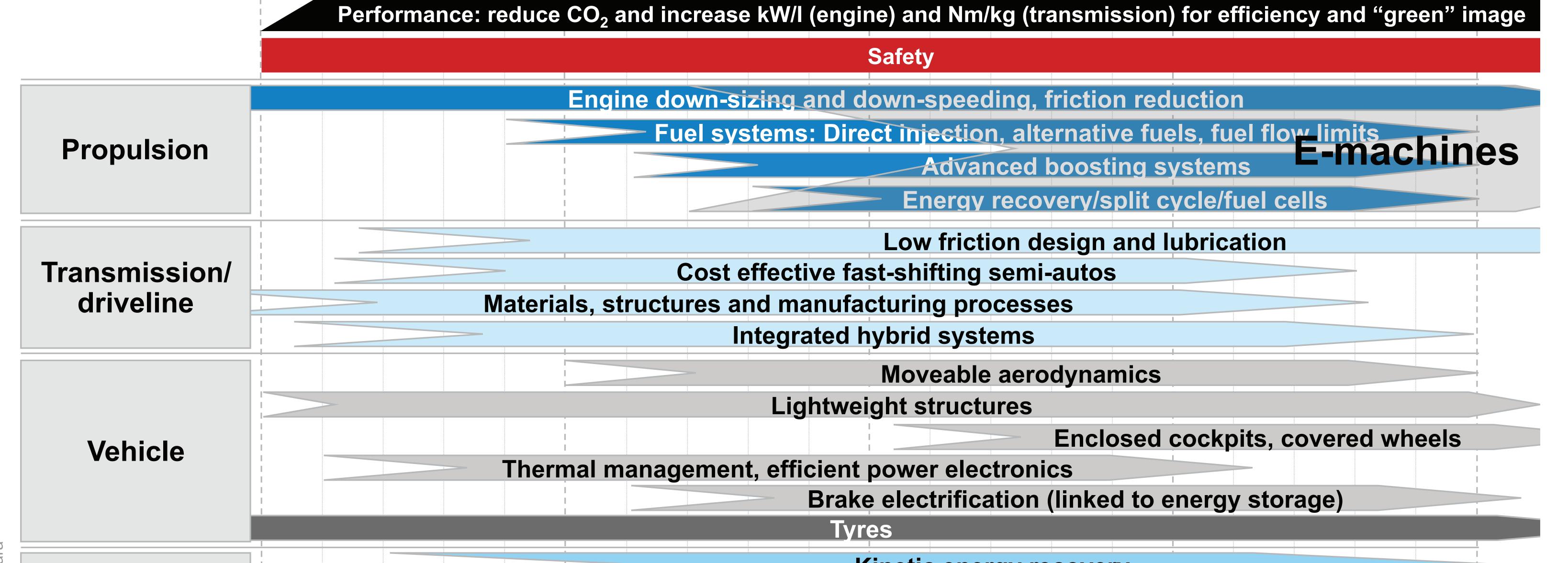


The motorsport technology roadmap focuses on chasing integrated performance efficiently with cost-effective CO<sub>2</sub> reduction





Market engagement - spectators, customers (especially ageing demographic), the show, service industry



e: Ricardo analy Lola and Dalla	Energy management/ infrastructure	Energy storage (on-		wheels, ultra-caps, hy heat recovery	ydraulic)
Sourc	ITS © Ricard	© Ricardo plc 2013 Telemetry, data/information feed direct to consumers			
	2005	2010	2015	2020	2025
Confide	ntial		31 July 2013	Version 10	© Ricardo plc 2013 1

### Bus technology roadmap



#### Breakthrough in energy storage



