

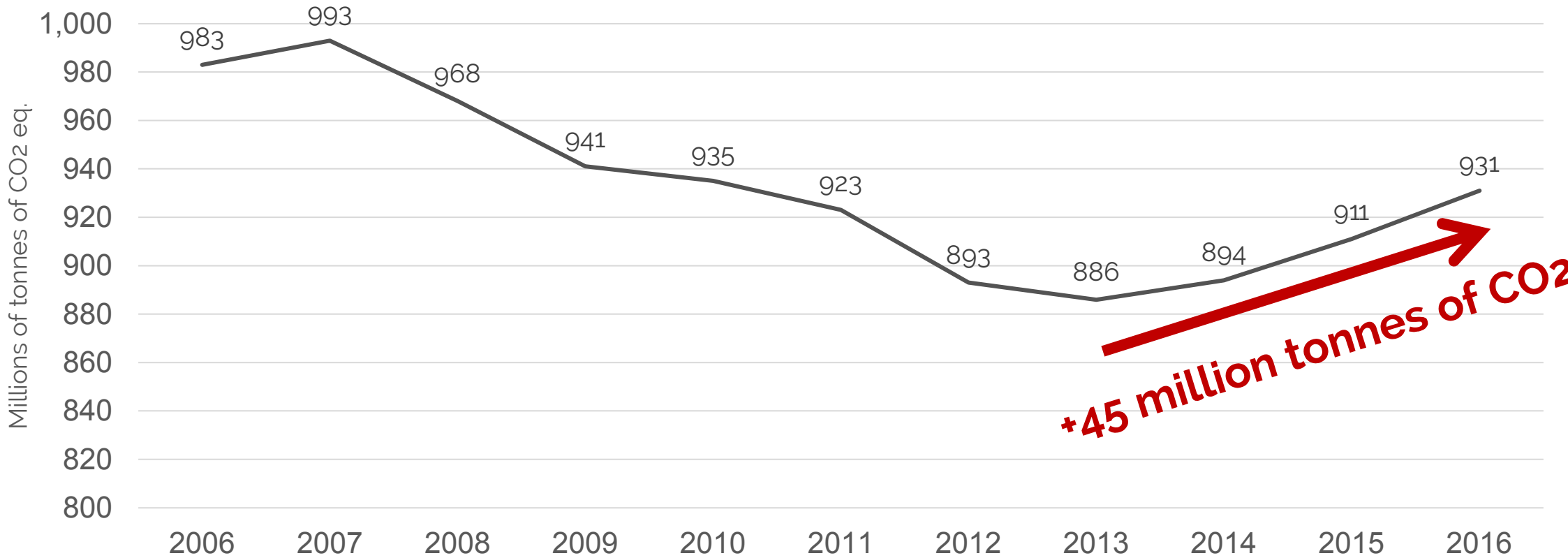
EV Market Development: *From Niche to Mainstream in Five Years*

Matt Freeman, cap hpi consulting
November 2019



Transport is in focus for CO2 reduction

EU CO2 Emissions: Transport



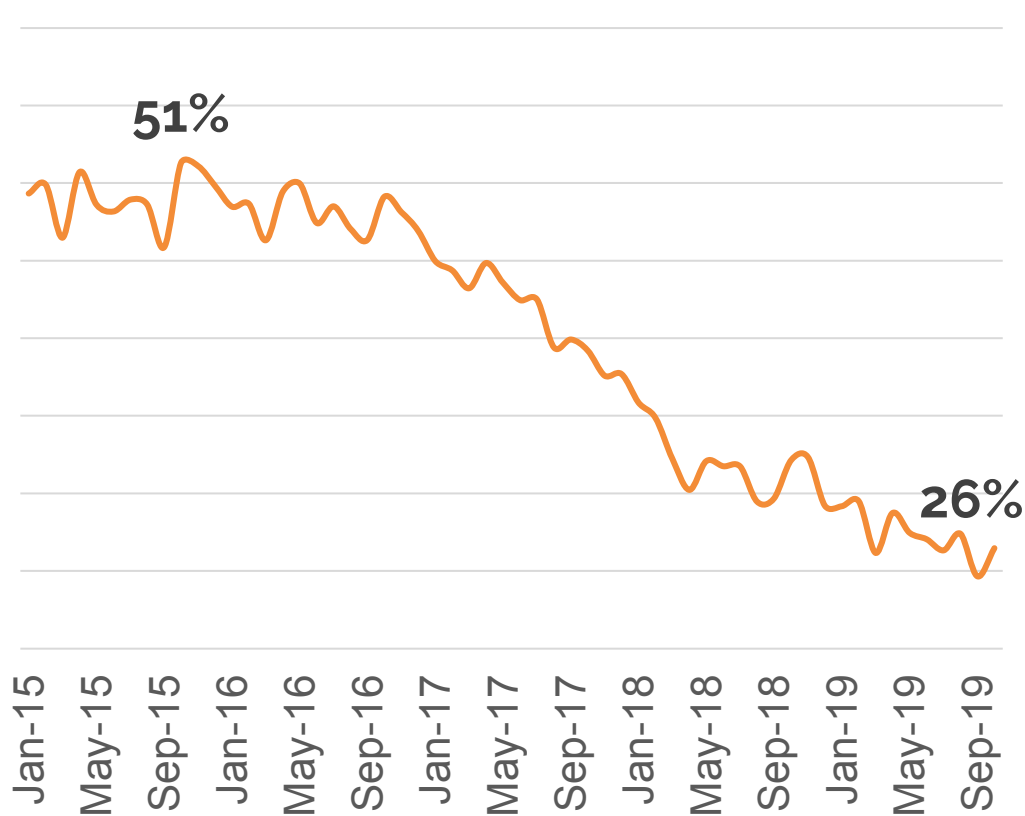
+45 million tonnes of CO2

Data: European Environment Agency

CONFIDENTIAL INFORMATION

Consumer habits are changing

UK New Registrations: Diesel share



Supermini -12%	Lower-medium -30%
Upper-medium -37%	Executive -30%
SUV -35%	MPV -12%

Data: SMMT, cap hpi consulting analysis

CONFIDENTIAL INFORMATION

Major investment in new tech

BUSINESS NEWS

JANUARY 15, 2018 / 10:00 PM / 2 YEARS AGO



Global carmakers to invest at least \$90 billion in electric vehicles



CONFIDENTIAL INFORMATION

Our simple world...



Our simple world... got more complex



Three drivers of change:



**Industry
transition**



**Consumer
acceptance**



**Emissions
regulation**

Technology transition

Mild hybrid represents the fastest transition technology for the industry

An illustration of a blue car in a factory setting. Four orange robotic arms are positioned around the car, performing tasks. One arm on the left is welding the front fender, creating a bright yellow starburst effect. Another arm on the right is also welding the front fender. A third arm is positioned above the car, and a fourth arm is on the right side, possibly working on the door or rear fender. The car is a simple, stylized representation of a modern vehicle.

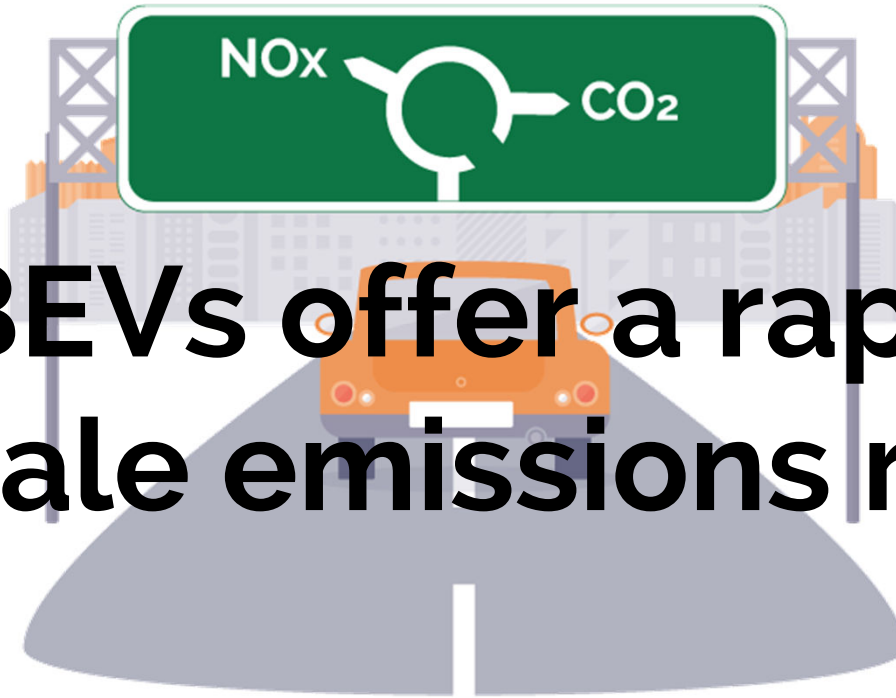
Consumer acceptance

HEV and PHEV are the path of least resistance for the consumer

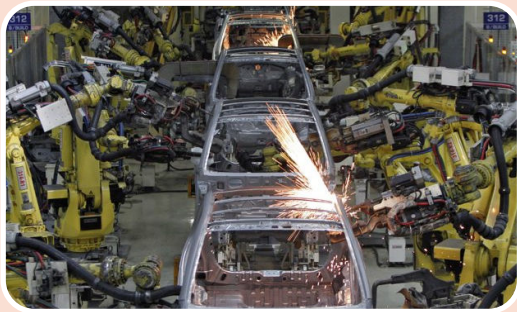


Emissions regulation

But only BEVs offer a rapid route to large-scale emissions reduction



Future shape of the market



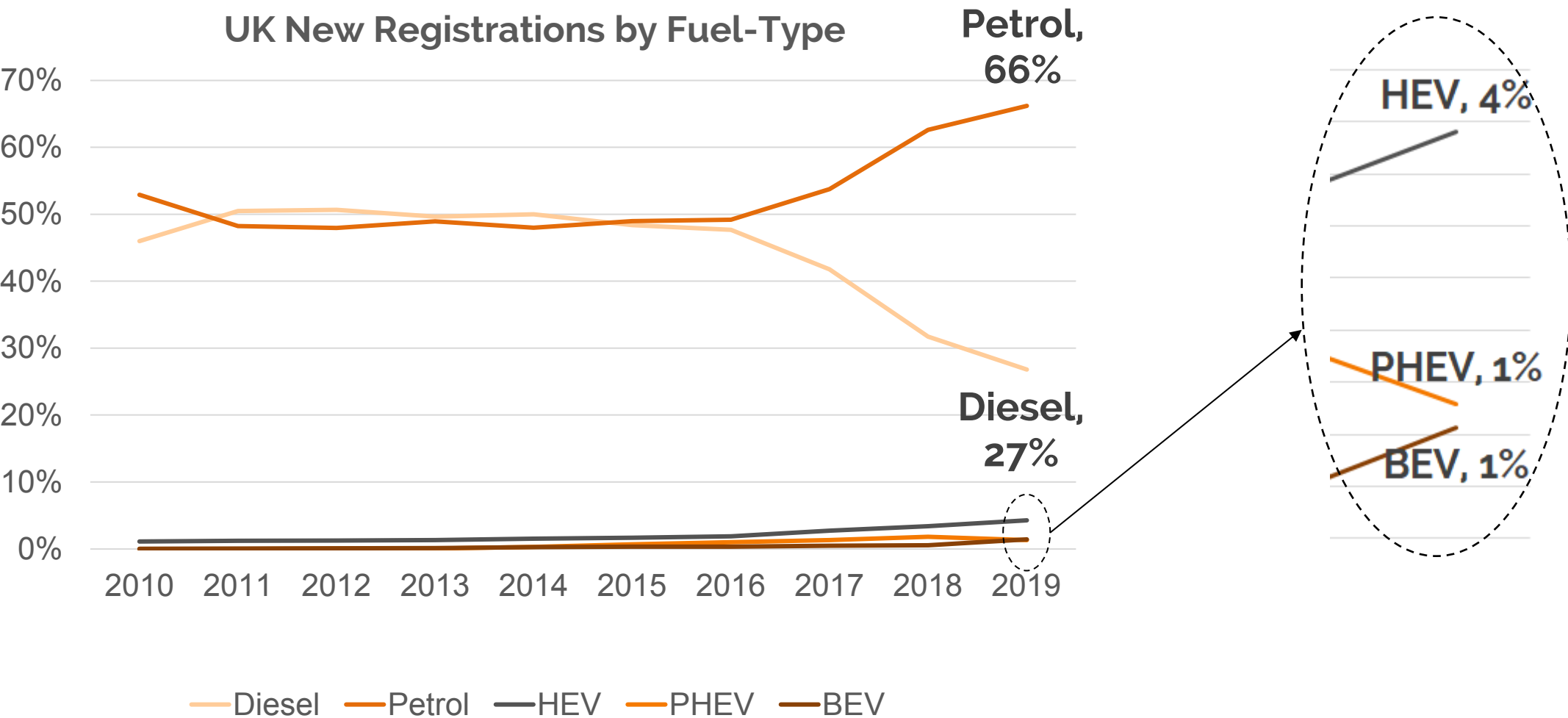
**Micro-
hybridisation
of some ICE
models**

**HEV
expansion to
replace
diesel**

**PHEV
expansion as
bridge to
BEVs**

**BEV
expansion to
reduce
emissions**

The story so far



Data: SMMT, cap hpi consulting analysis

New EU targets

New EU fleet-wide CO₂ emission targets are set for the years 2025 and 2030 both for newly registered passenger cars and newly registered vans.

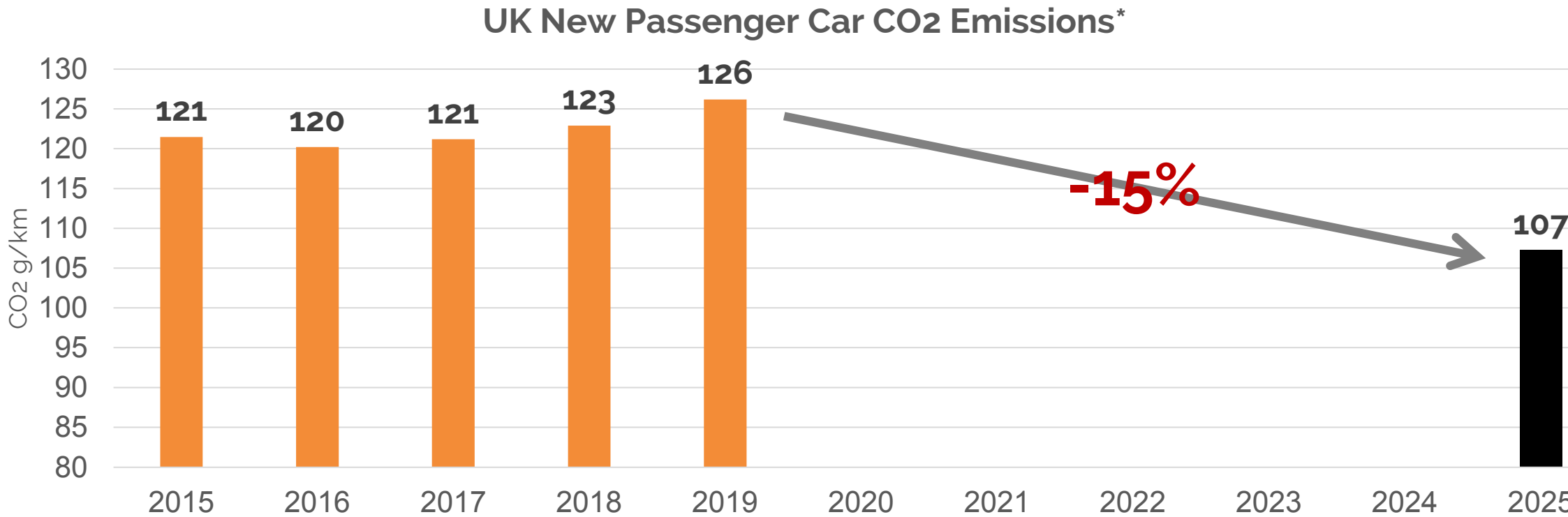
These targets are defined as a percentage reduction from the 2021 starting points:

- **15%** reduction from 2025 on
- **37.5%** reduction from 2030 on

Source: <https://ec.europa.eu/clima/policies/transport/vehicles/regulationen>

UK CO₂ Emissions

If we applied EU targets to the UK:



cap hpi consulting estimates, based on new registration data

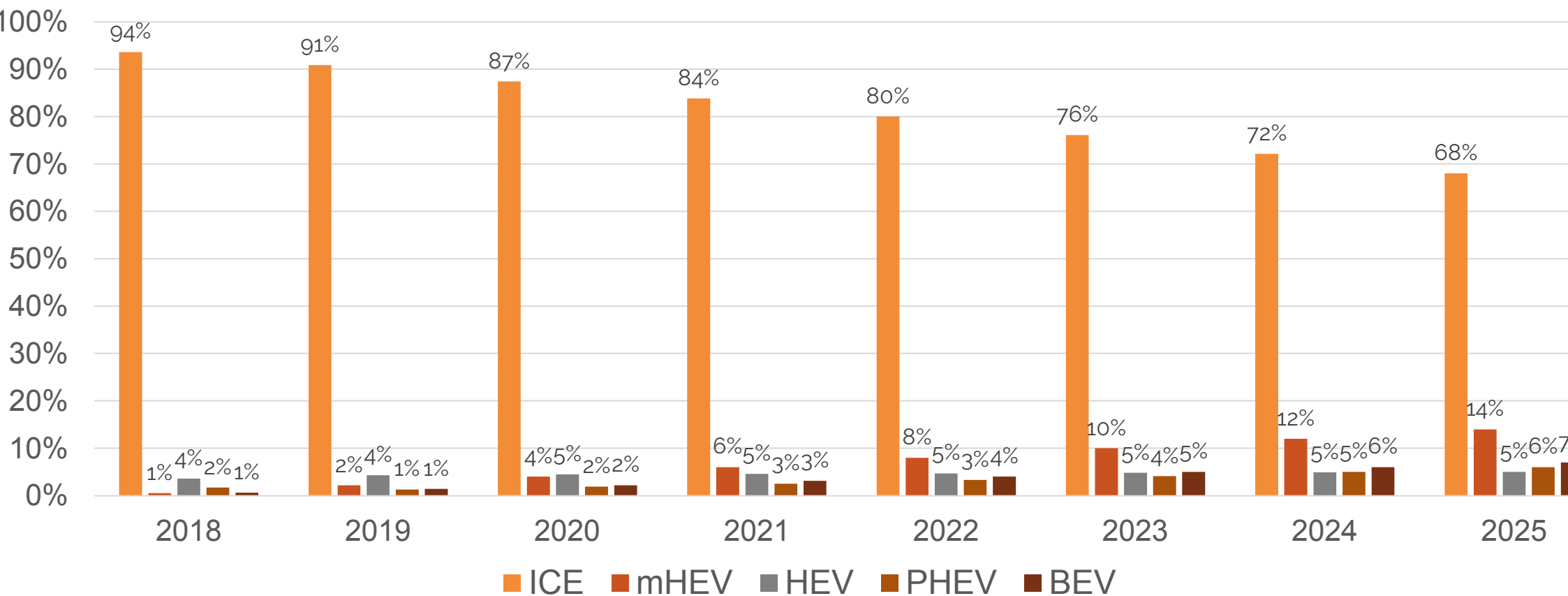
ADDITIONAL INFORMATION

Scenario 1

*No significant changes to the
market environment*

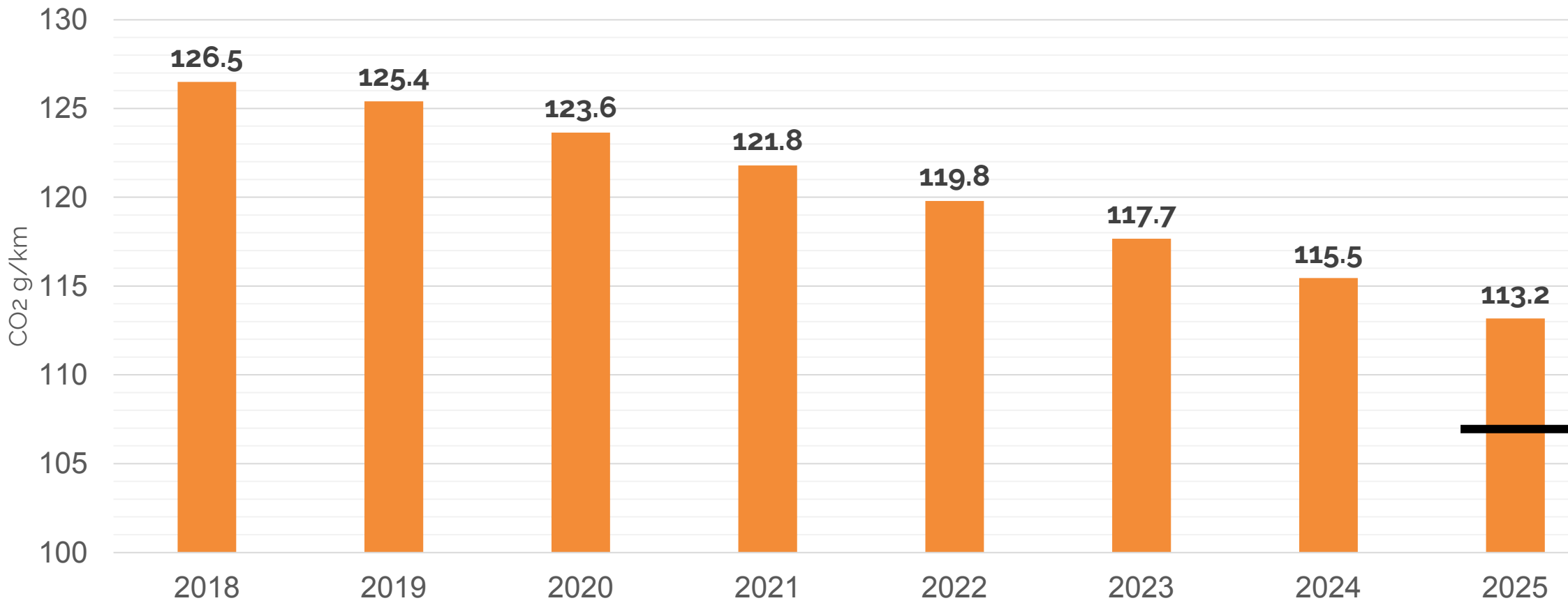
Scenario 1

UK New Passenger Car Registrations by Fuel Type



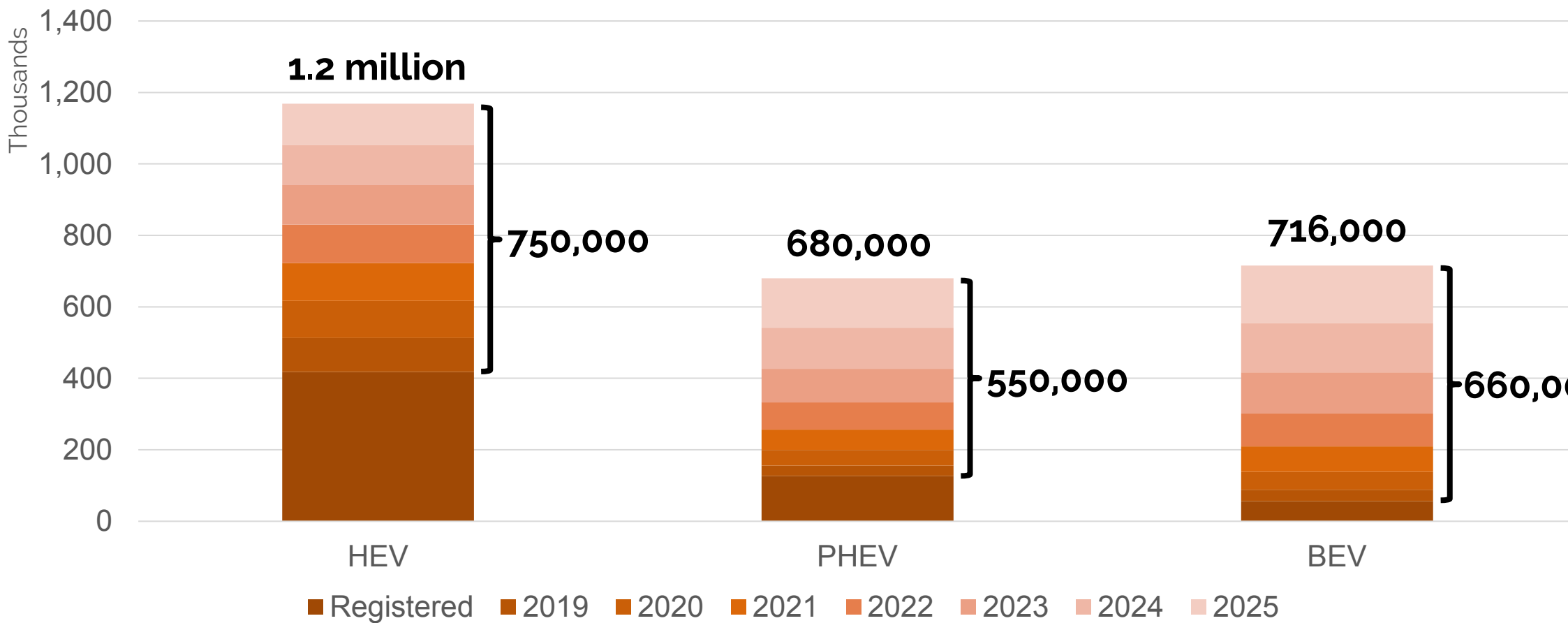
Scenario 1

UK Average CO2 Emissions by New Passenger Cars



Scenario 1

Cumulative New Registrations



Scenario 2

Fiscal
policy

Driver
benefits

Clean Air
Zones

***Policies enacted to support
mass move to EVs***

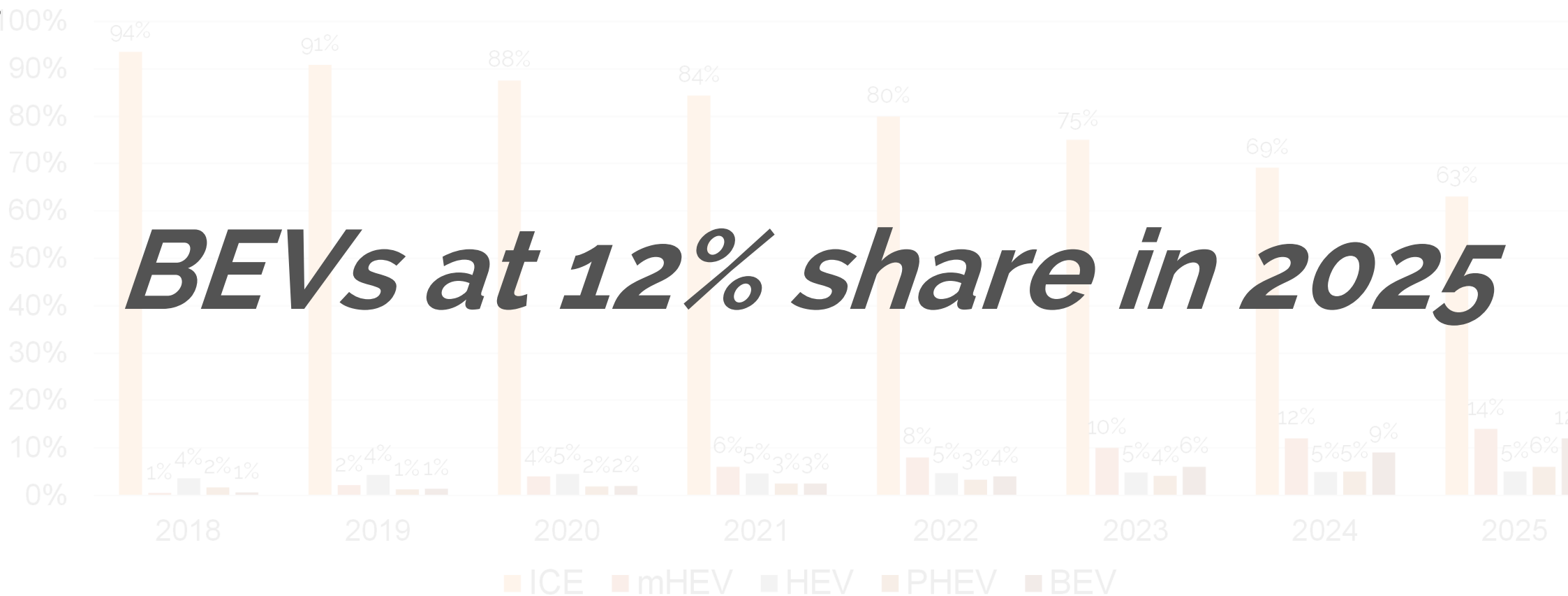
Network
investment

Scrappage
schemes

Cost of
ownership

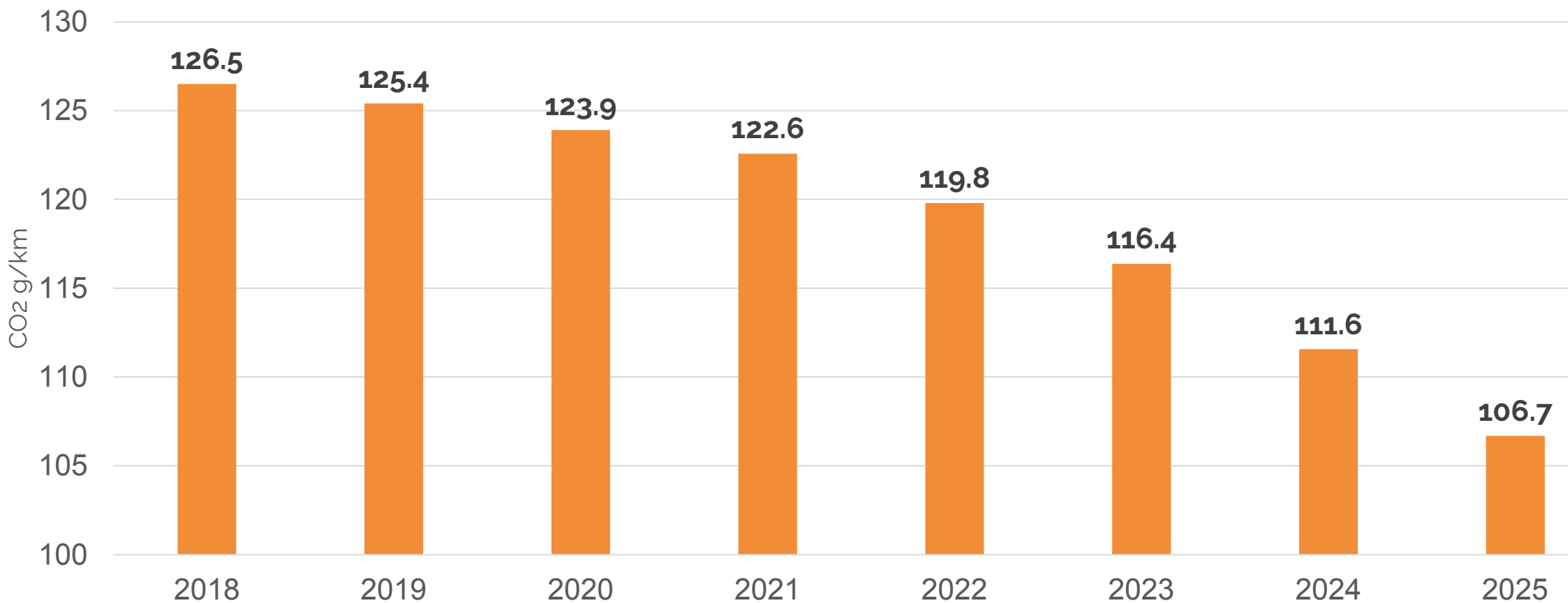
Scenario 2

UK New Passenger Car Registrations by Fuel Type



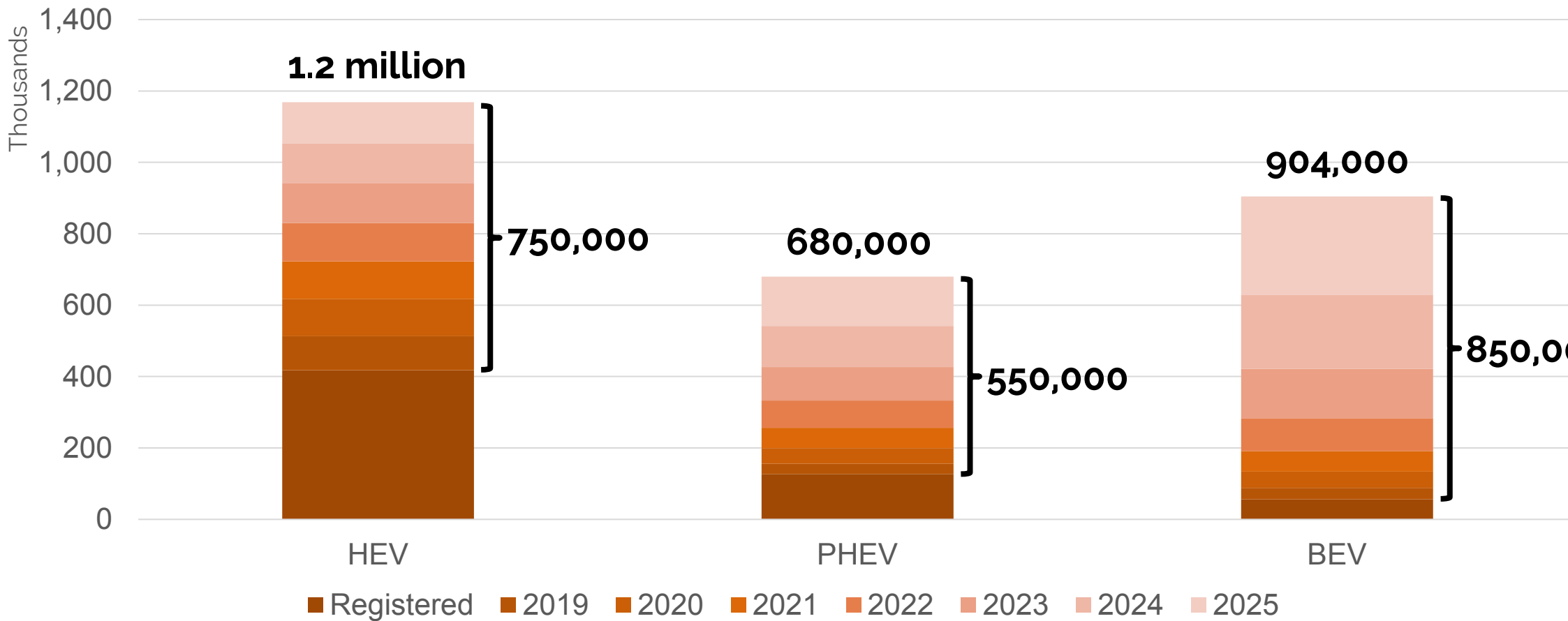
Scenario 2

UK Average CO2 Emissions by New Passenger Cars



Scenario 2

Cumulative New Registrations



Challenges



BREXIT



Challenges



Manufacturing capacity



Challenges



Charging infrastructure



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