

# APC automotive quarterly report

## Q3 2024

# Demand forecast

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January 2025



Accelerating  
Progress

## This demand forecast covers

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**Markets** Global; European; UK

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**Vehicles** Light Duty Vehicles (LDVs)



**Materials** Lithium; Cathode Active Material (CAM); Battery foils; Electrolyte and Separator material; Traction electric motor material

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## Our process

The data in these demand reports is based on APC insight and analysis of the global market outlook, European market outlook and information and insights gathered from UK OEMs on xEV production; APC and Automotive Council PEMD traction specifications; and powertrain split forecasts from S&P Global AutoTech Insight, Rho Motion, BloombergNEF (BNEF) and Wood Mackenzie have also guided the demand data forecast.

## Quarterly updates

Any developments in the sector will change and influence these forecasts. The APC produces these automotive industry demand reports on a quarterly basis to reflect a rapidly changing landscape in the sector as the transition to cleaner powertrains and fuels continues.

## Disclaimer

These forecasts provide an estimate of electrified powertrain demand and are by no means an accurate statement of future markets and industry intentions. The data should be used in good faith and APC UK cannot be held liable for any inaccuracies in the data, views expressed or underlying assumptions.

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# Q3 2024 – Summary

# Summary – Changes to projected demand by region

Q3 2024



## Global demand update

- A backdrop of significant political and economic changes over the past 6 to 12 months sees an impact to the automotive industry in the short to medium term, but the forecast for 2035 production volume and battery demand remains close to APC’s Q1 2024 Demand Report forecast.
- While the global forecast for 2027 and 2030 has reduced slightly, the global automotive LDV battery demand will reach around 4 TWh by 2035, which reflects the transition to more hybrid models than BEV.
- A steady growth in production volume is forecasted for the next decade, to include ICE vehicles. It is estimated that 105 million car and vans will be produced annually, with nearly 50% of this total being battery electric vehicles (BEV)

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## European demand update

- European LDV battery demand is forecast to grow to almost 1 TWh by 2035, accounting for over 20% of the global battery demand.
- The forecast now indicates there will be a slight increase in hybrid vehicle production and associated battery demand in 2027 and 2030, while the demand growth in 2035 comes from a shift to more BEV production.
- Localising the production of cathode and anode material still looks challenging and remains a focus area in Europe in the next 5 to 10 years.

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## UK demand update

- Vehicle production in the UK is expected to stall temporarily in 2027, owing to a slower transition to new models, however, BEV production is looking steady over the forecast period. It is expected that annual vehicle production in the UK will have grown to over 1.2 million by 2035.
- Automotive industry growth to 2035 is expected to be led by major OEMs introducing new models. If the UK automotive industry is to grow further than forecasts indicate then the introduction of additional new models or OEMs will be required, with efforts to attract potential new investment.

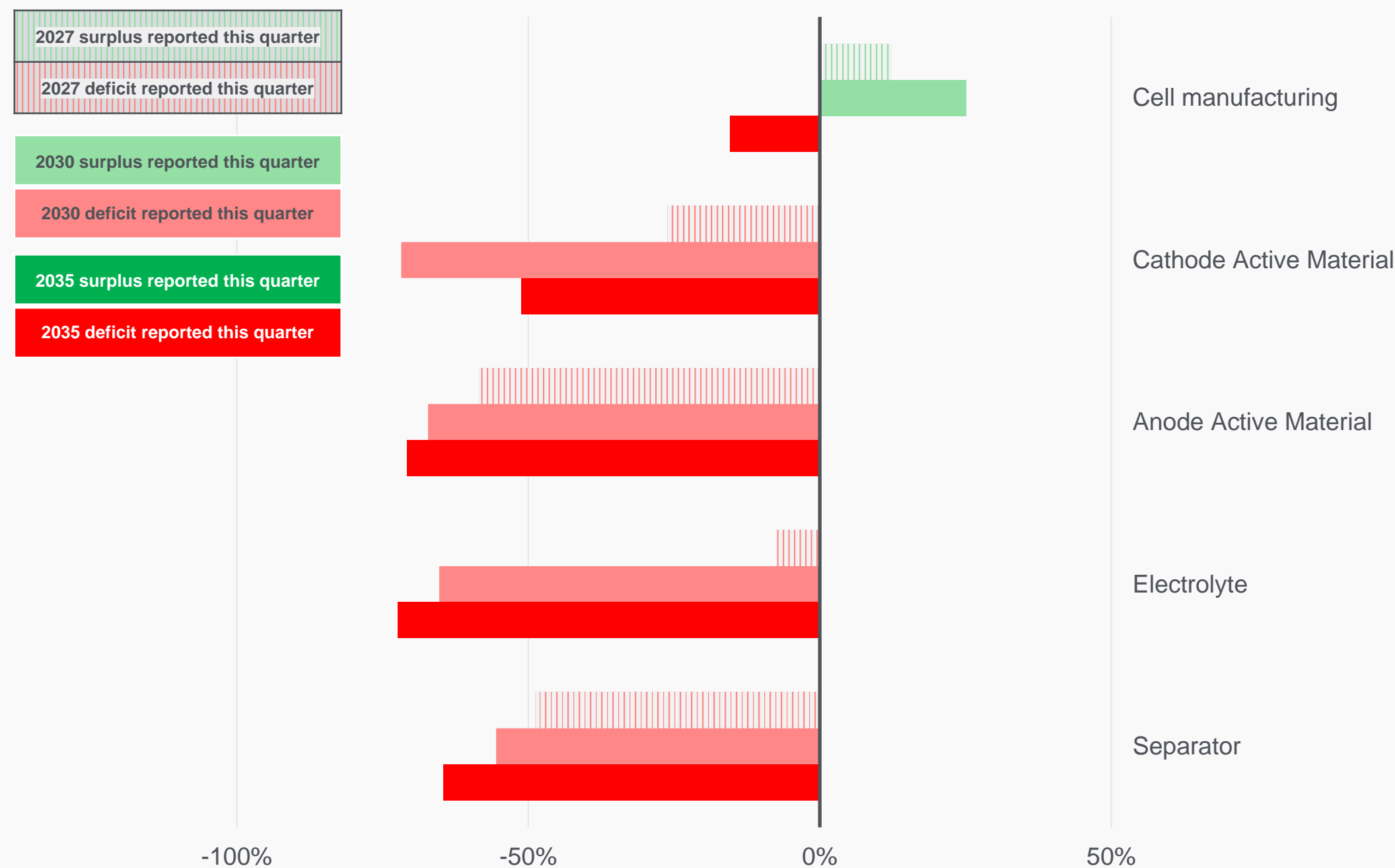
[Page 12](#)

# Summary – Supply chain activity

## Q3 2024 notes

- The graph refers to Europe’s capability to supply battery cells and sub-components that arise from local vehicle production.
- It assumes Europe is a self-sustaining bloc with no imports or exports.
- Capacity demand and incentives are attracting investment to the USA market from Europe.

2027, 2030 and 2035 European<sup>1</sup> capacity vs demand balances



Status of regional capacity* vs demand balance in 2035	Value** (%)	UK supply chain status
<ul style="list-style-type: none"> <li>• The announced capacity in Europe in the past 12-18 months pointed toward some overcapacity in the near term, especially ~2030. However, many announced projects have been abandoned lately with projected surplus in 2030 smaller than that projected in Q1 and 2035 currently showing a deficit.</li> </ul>	18%	As part of Nissan’s announcement of three EVs being produced in Sunderland, the company said it had initiated a feasibility study to explore potential further gigafactory investments in the UK. Agratas hosted a supply chain opportunities event in October 2024.
<ul style="list-style-type: none"> <li>• Cathode manufacturing is limited in Europe, especially with emerging trends towards L(M)FP chemistry for high-volume manufacturers. European companies are investing heavily in R&amp;D and capital, but capital costs are very high. CAM is increasingly looking like a risk regarding local content requirements.</li> </ul>	46%	Required to be made in the region from 2027 for UK cells to qualify as local and to avoid EV tariffs in the EU. The cost competitiveness of L(M)FP CAM is becoming more important for UK (and European) OEMs.
<ul style="list-style-type: none"> <li>• There are no signs of local supply of anode at scale in Europe.</li> <li>• 95% of the world's anode material is produced in China.</li> </ul>	9%	With the price of natural graphite increasing, the prospect of synthetic graphite is becoming competitive. Whilst the UK has some of the supply chain, e.g. needle coke, it would be prudent to have graphite supply in place by 2027.
<ul style="list-style-type: none"> <li>• Electrolyte manufacturing can be deployed relatively quickly, therefore further announcements that will meet demand are expected in the coming years.</li> </ul>	8%	Value in today’s liquid electrolyte is relatively low, but semi-solid and solid-state electrolytes are a key investment consideration.
<ul style="list-style-type: none"> <li>• Capacity in Europe is low and looks likely to remain low. Separators have relatively low value, on the other hand it is relatively quick to establish production.</li> </ul>	7%	Significant opportunities to localise in the UK.

Source: APC internal analysis of public announcements, BNEF forecasts (Sep 2024), Wood Mackenzie (Sep 2024)  
 1) all subsequent references to Europe in this document refer to the continent regions not EU members.

\*Risk-weighted capacity based on APC internal assessment of announced and under construction projects  
 \*\*Value in terms of cost contribution to total cell cost based on an NMC811 cell

## Q3 2024 – Demand update

The following section includes battery demand from Light Duty Vehicles (LDVs), including passenger vehicles

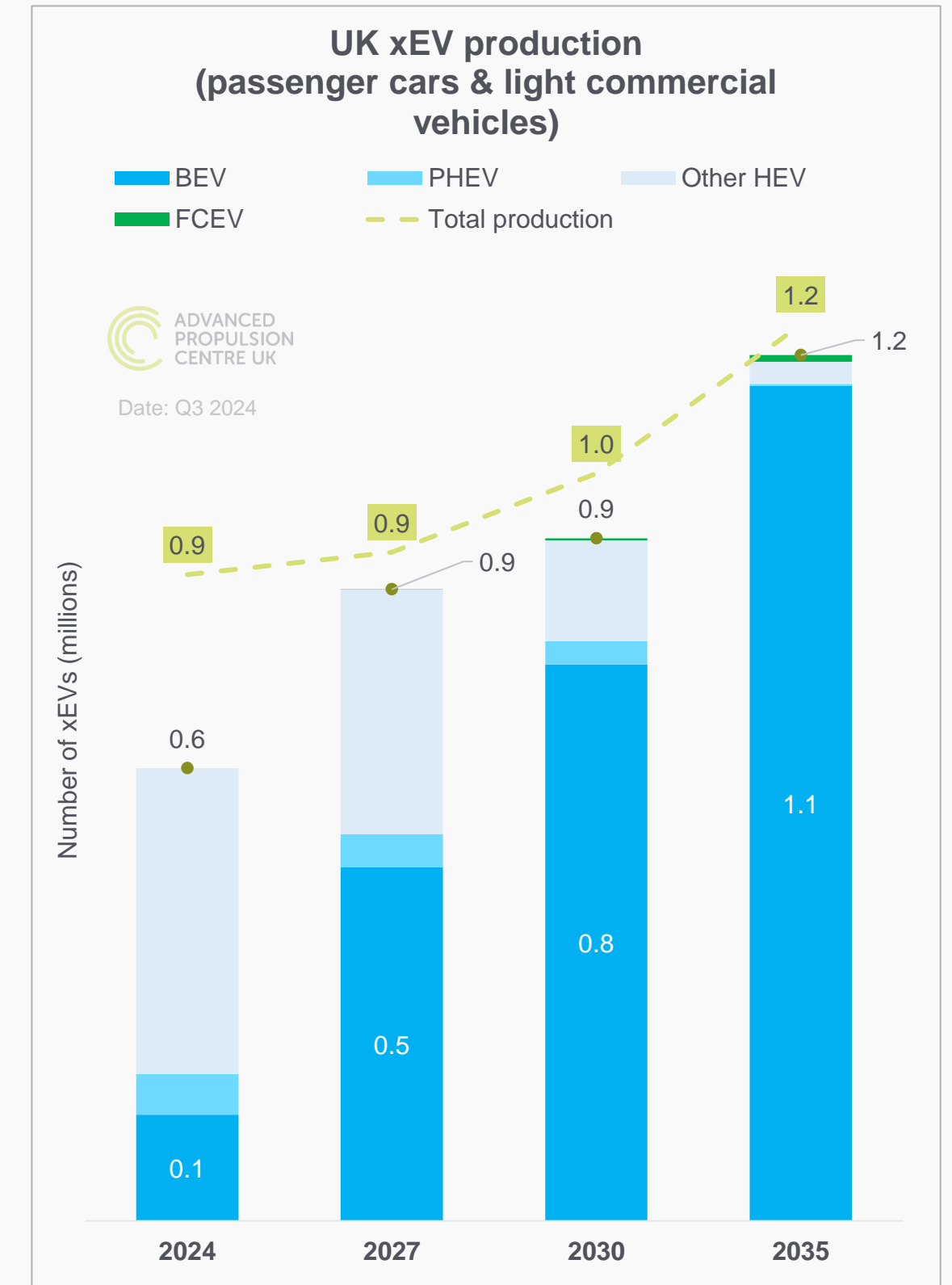
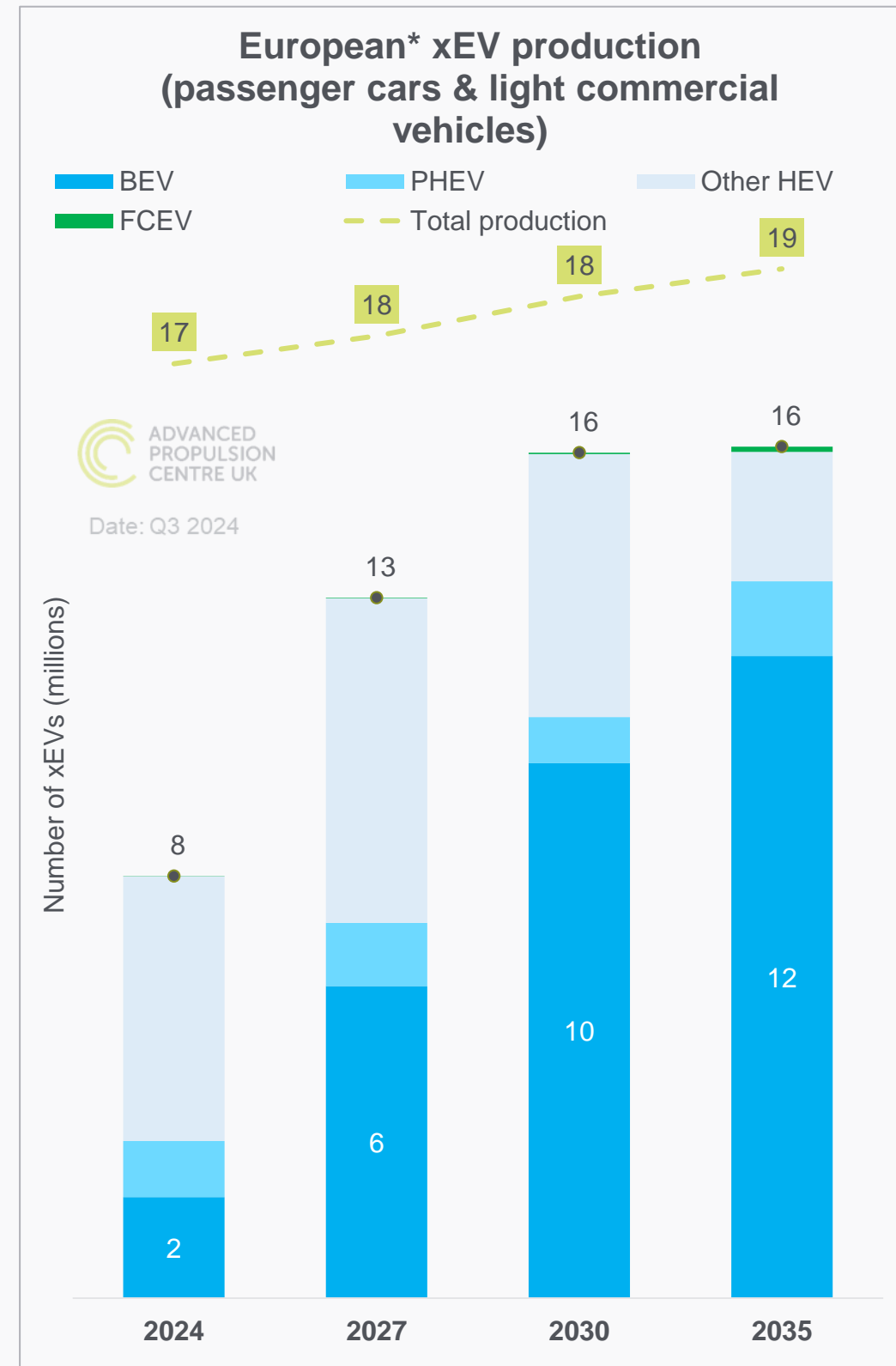
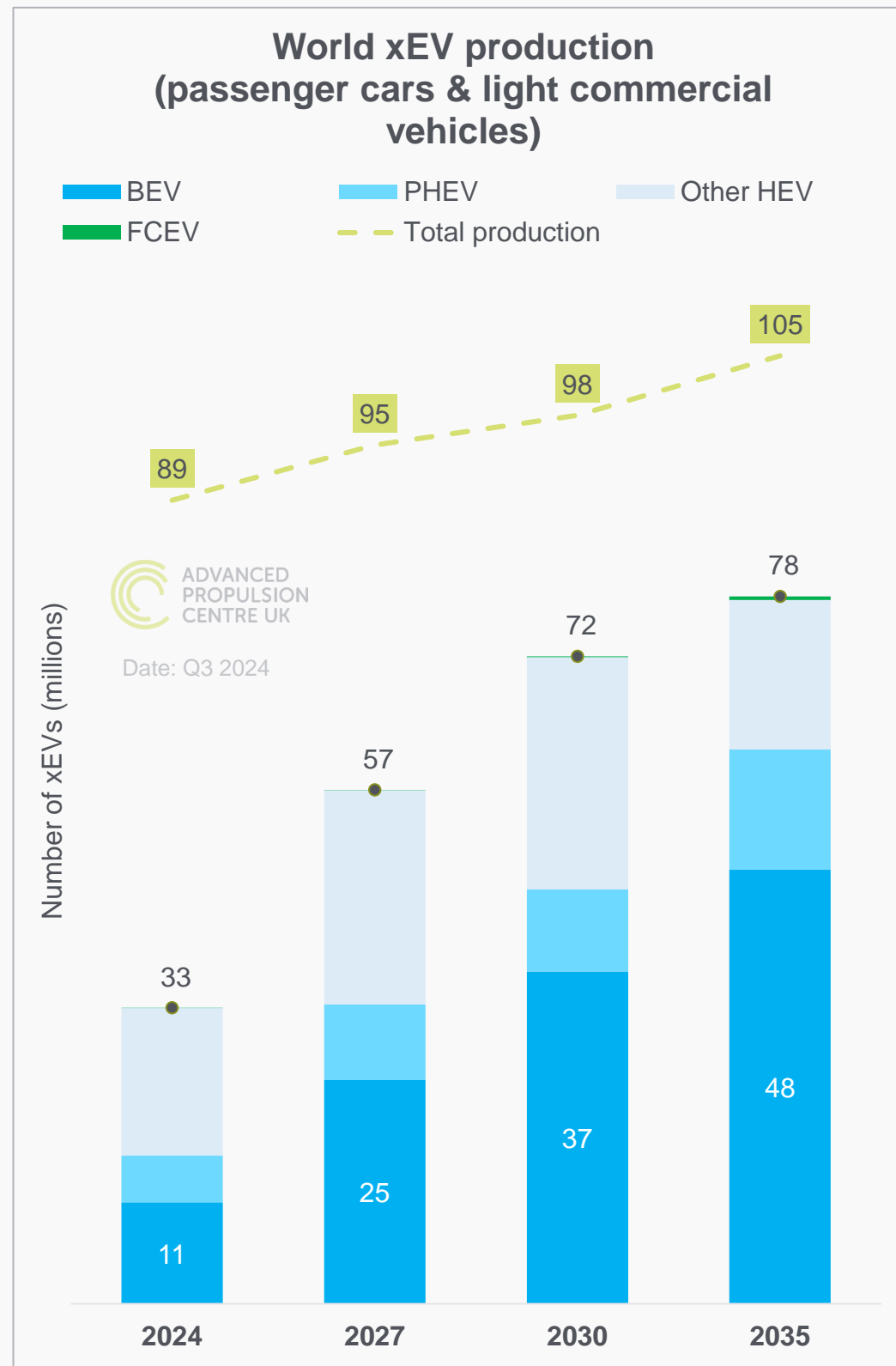


# xEV production

## Passenger cars and vans (LDVs)

### Q3 2024 notes

- The impact of significant political, environmental, and economic changes in the UK, Europe, and North America over the past 6 months continue to be felt. This is likely to continue in the next 6-12 months, leading to market volatility and impacting forecasting accuracy over the coming months.
- Despite a reduction in 2027 and 2030 production forecasts, it is anticipated that volume will return to figures stated in the APC Q1 2024 demand report shortly after 2030, with annual UK production volumes forecast to reach over 1.2 million by 2035.
- The slower transition to BEV, has been shown on the split of the overall production forecast, whereas the total production volume is not affected as significantly.



Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), BNEF forecasts (2024)  
 Note: LCV = Light Commercial Vehicles < 3.5t, buses not included. \*European forecast includes non-EU countries such as Turkey  
 Total production includes ICE vehicles.



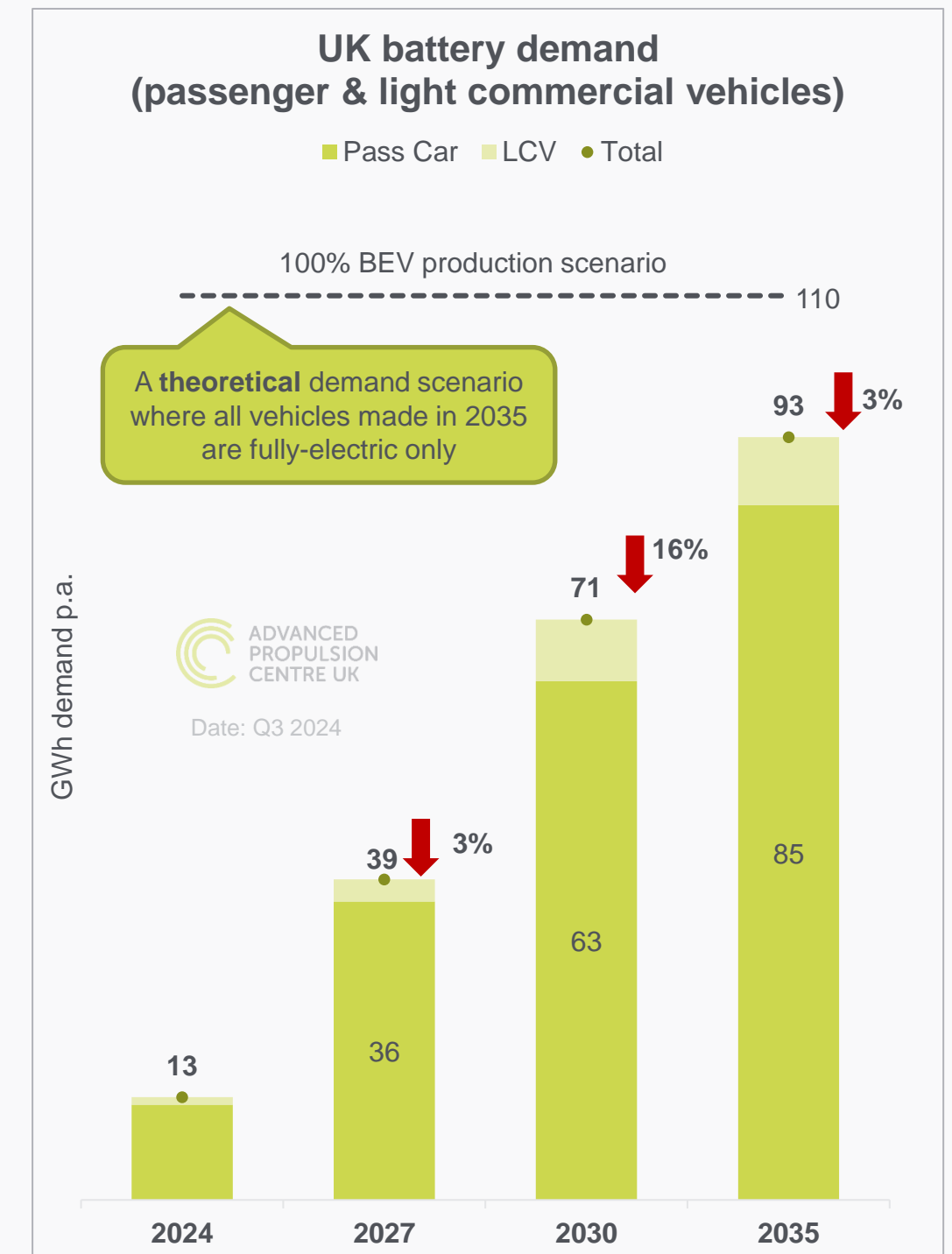
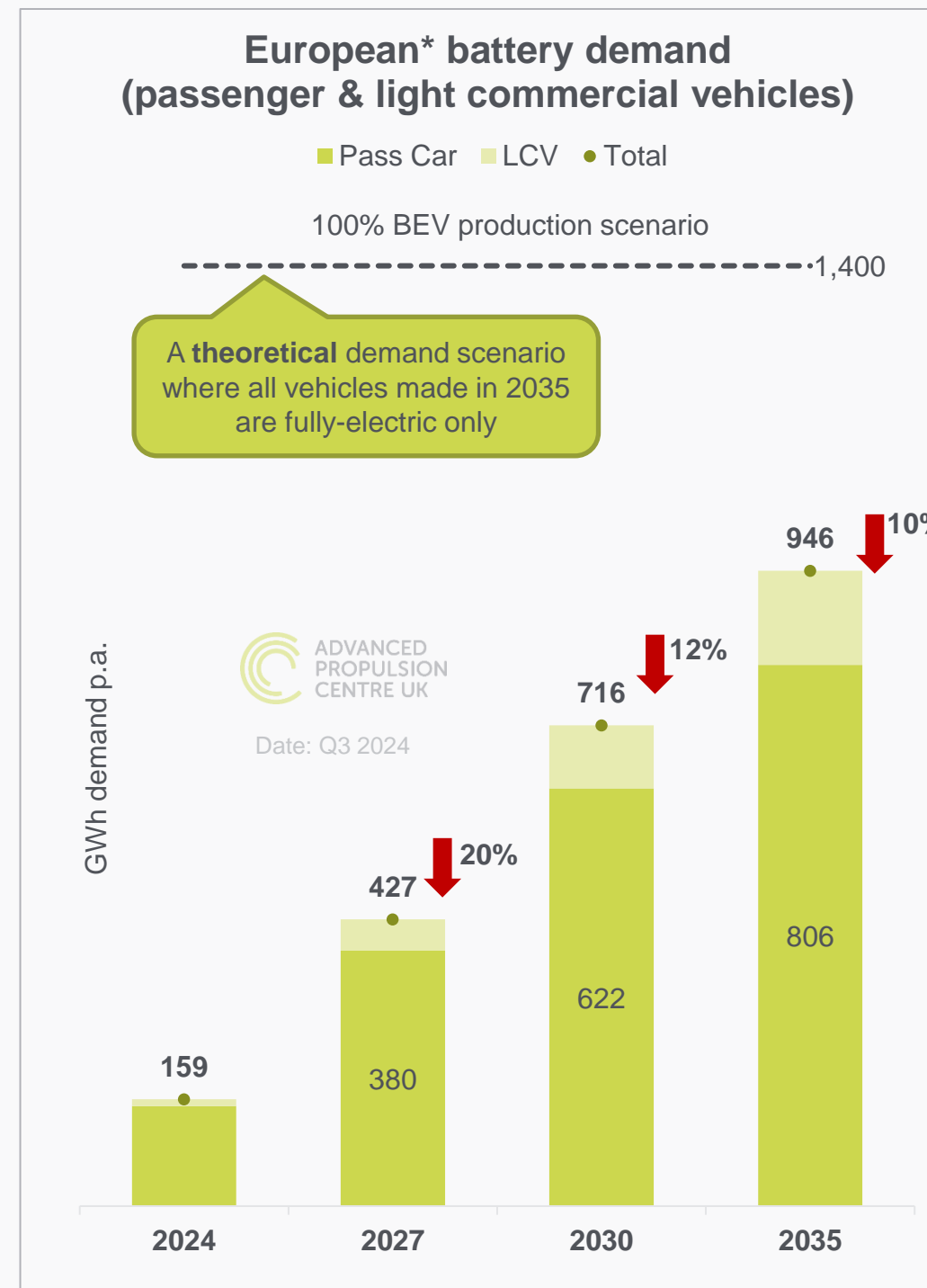
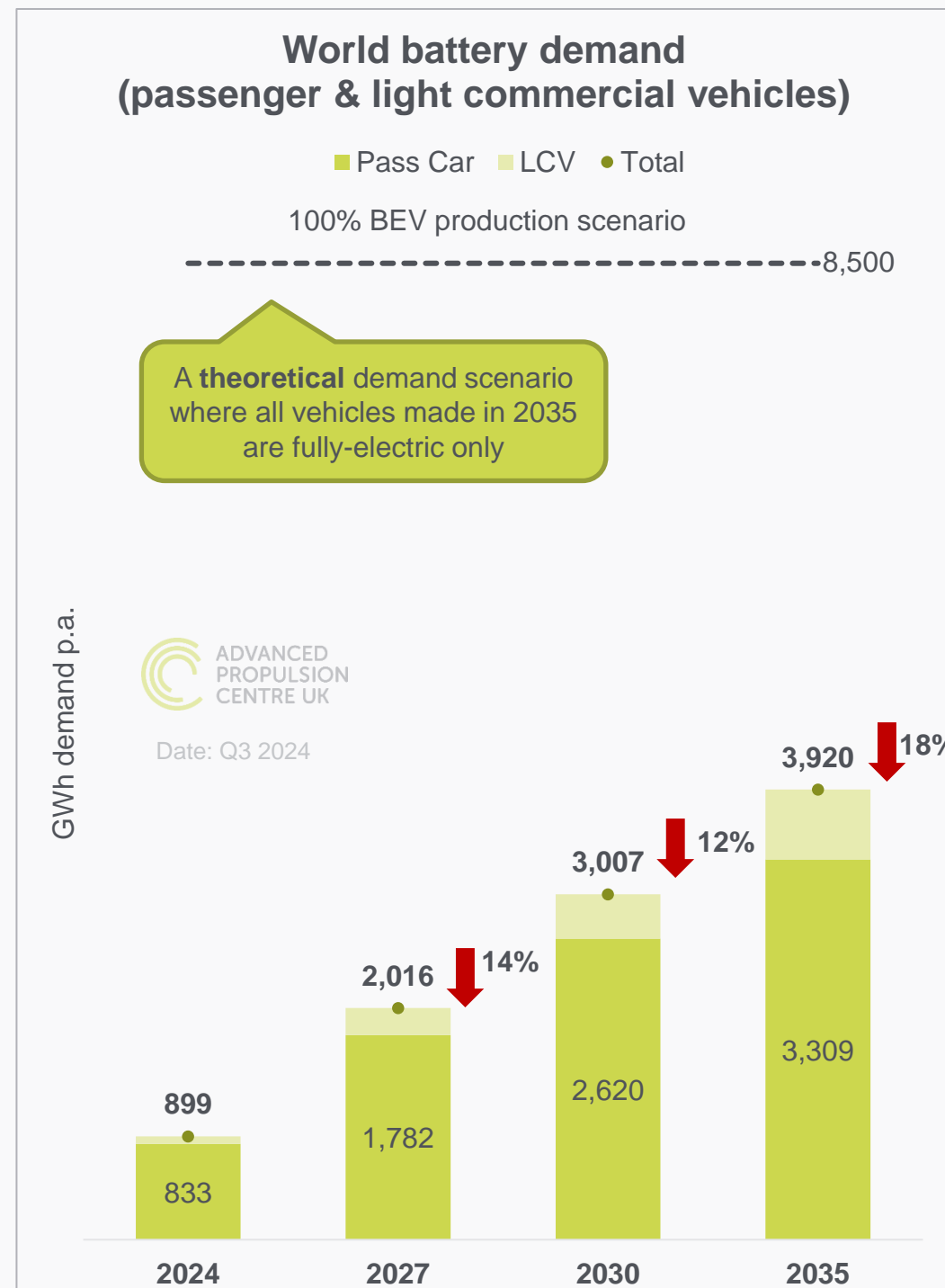
# Battery demand forecast

LDVs (passenger cars and light commercial vehicles)

## Q3 2024 notes

- Global automotive battery demand is forecast to reduce by almost 12% in 2030, to just over 3TWh.
- By 2030, European LDV battery demand will account for just under 25% of the total global demand.
- The UK is projecting a demand of 71 GWh in 2030 for LDVs, 16% down from our previous forecast (June 2024) but closer to the projected demand in 2035, as stated in the Q1 2024 demand report.

Forecast demand change from the last quarterly demand report (June 2024) (%)



See further scenarios and narrative on slide 15

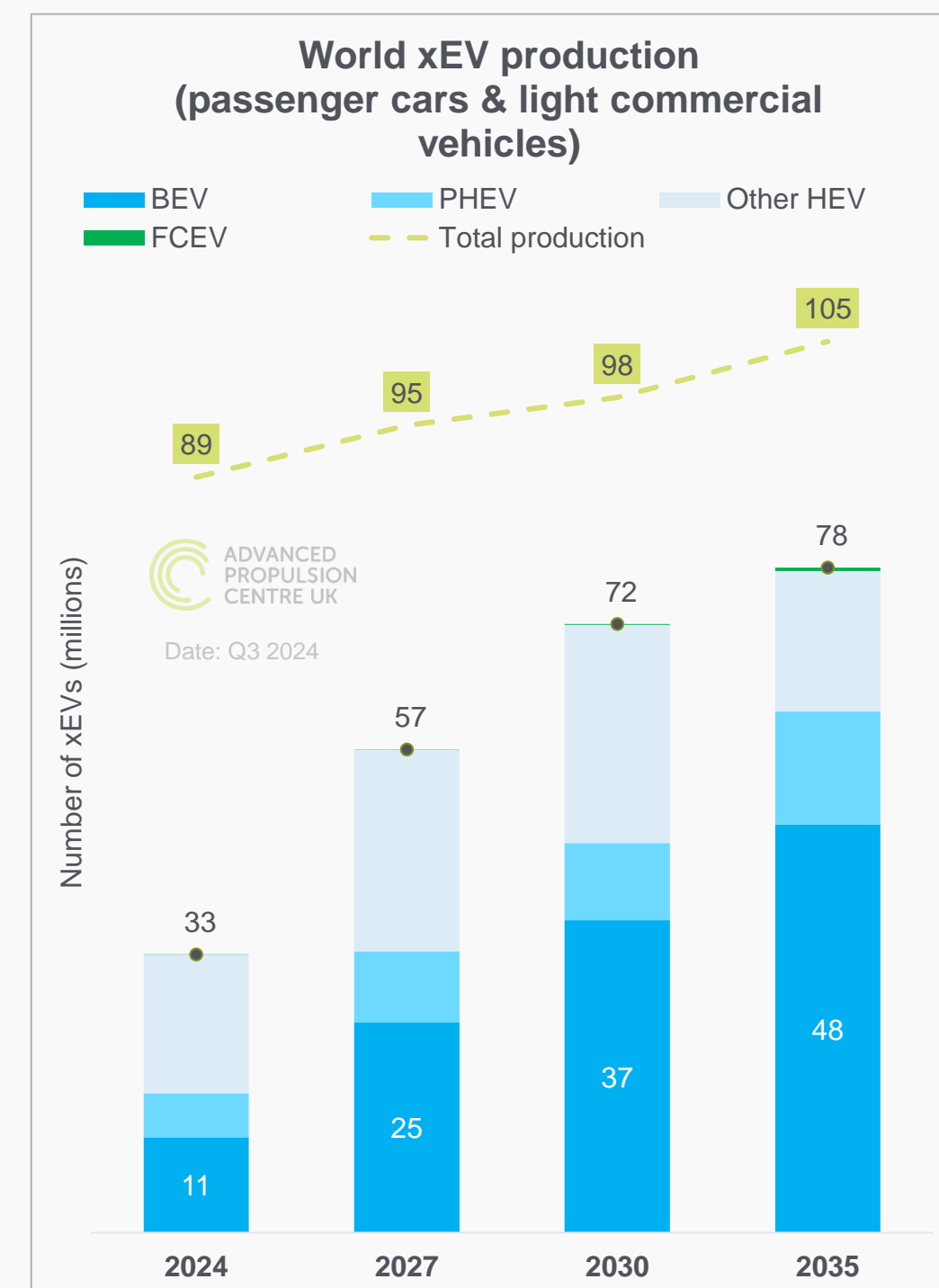
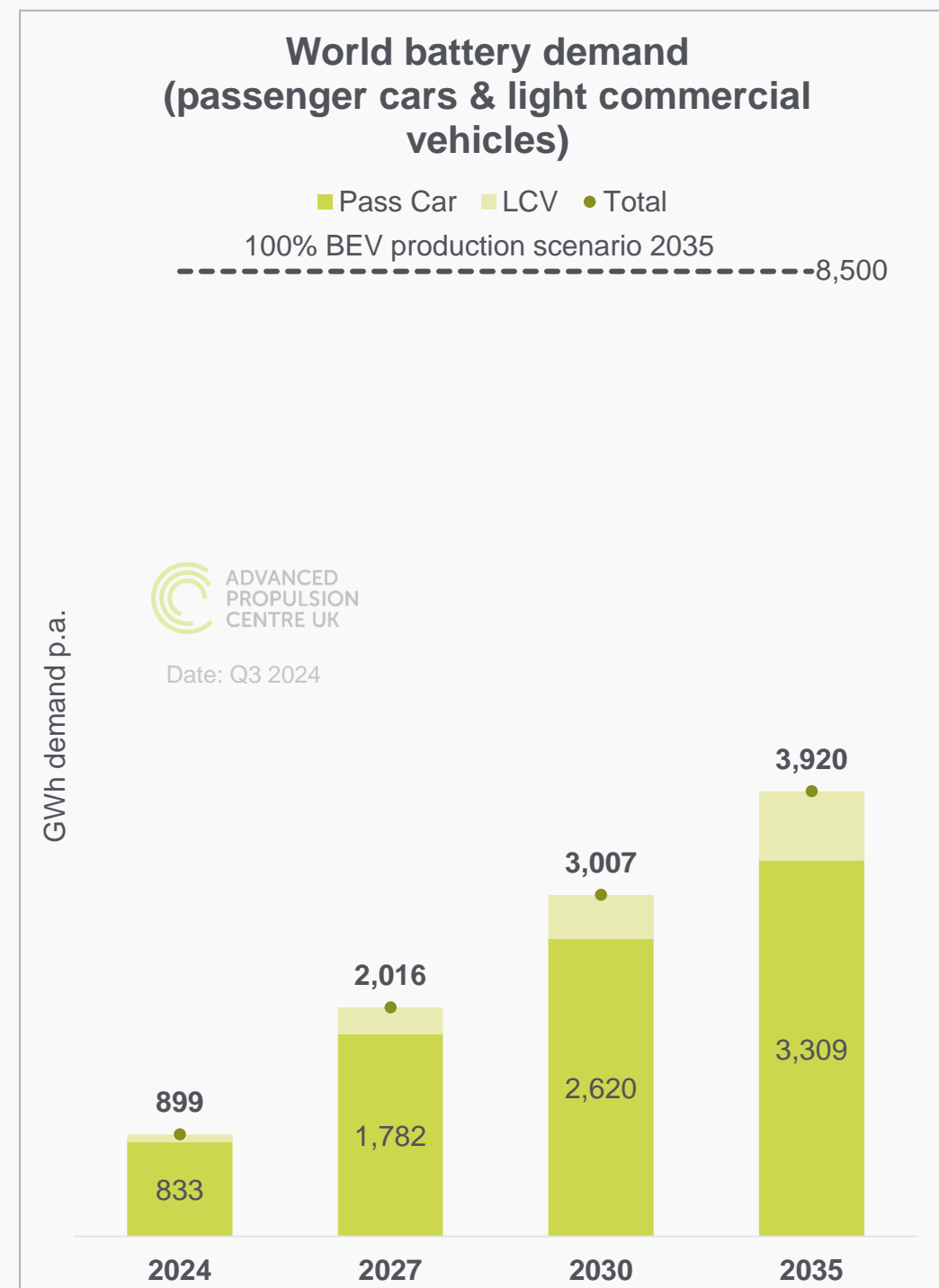
Excludes forecast UK battery exports (this represents UK vehicle manufacturing demand only)

# World xEV production

LDVs (passenger cars and light commercial vehicles)

## Q3 2024 notes

- Total world production for BEV is forecast to slow down slightly in 2027 compared to figures shared in the Q1 2024 demand report.
- PHEV and other HEV are expected to see a temporary period of growth until 2030.
- Annual global LDV production is projected to reach 105 million by 2035.



Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), Rho Motion data (2024), BNEF forecasts (2024), Global Data (2024)

Note: LCV = Light Commercial Vehicles < 3.5t, buses not included.

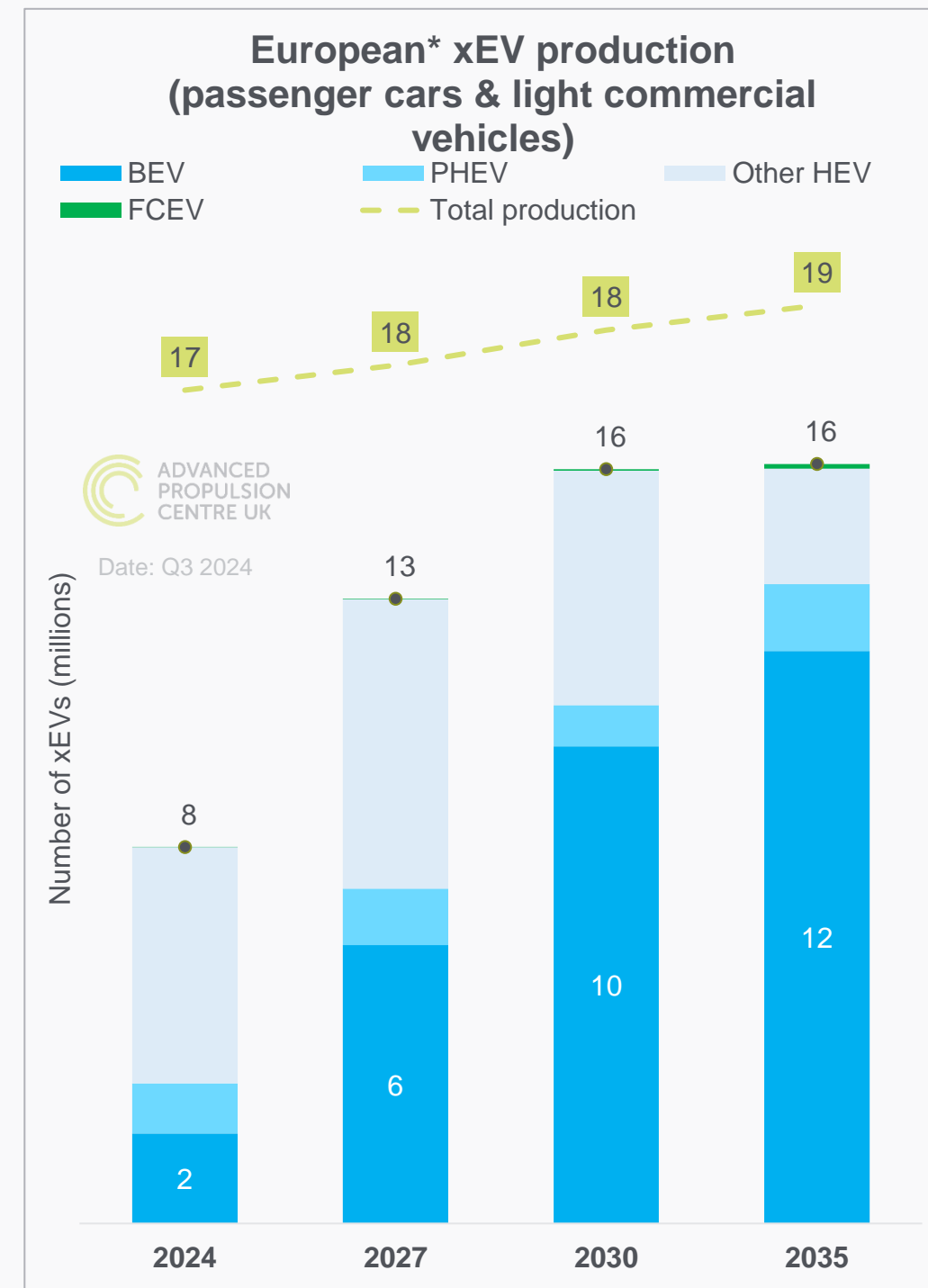
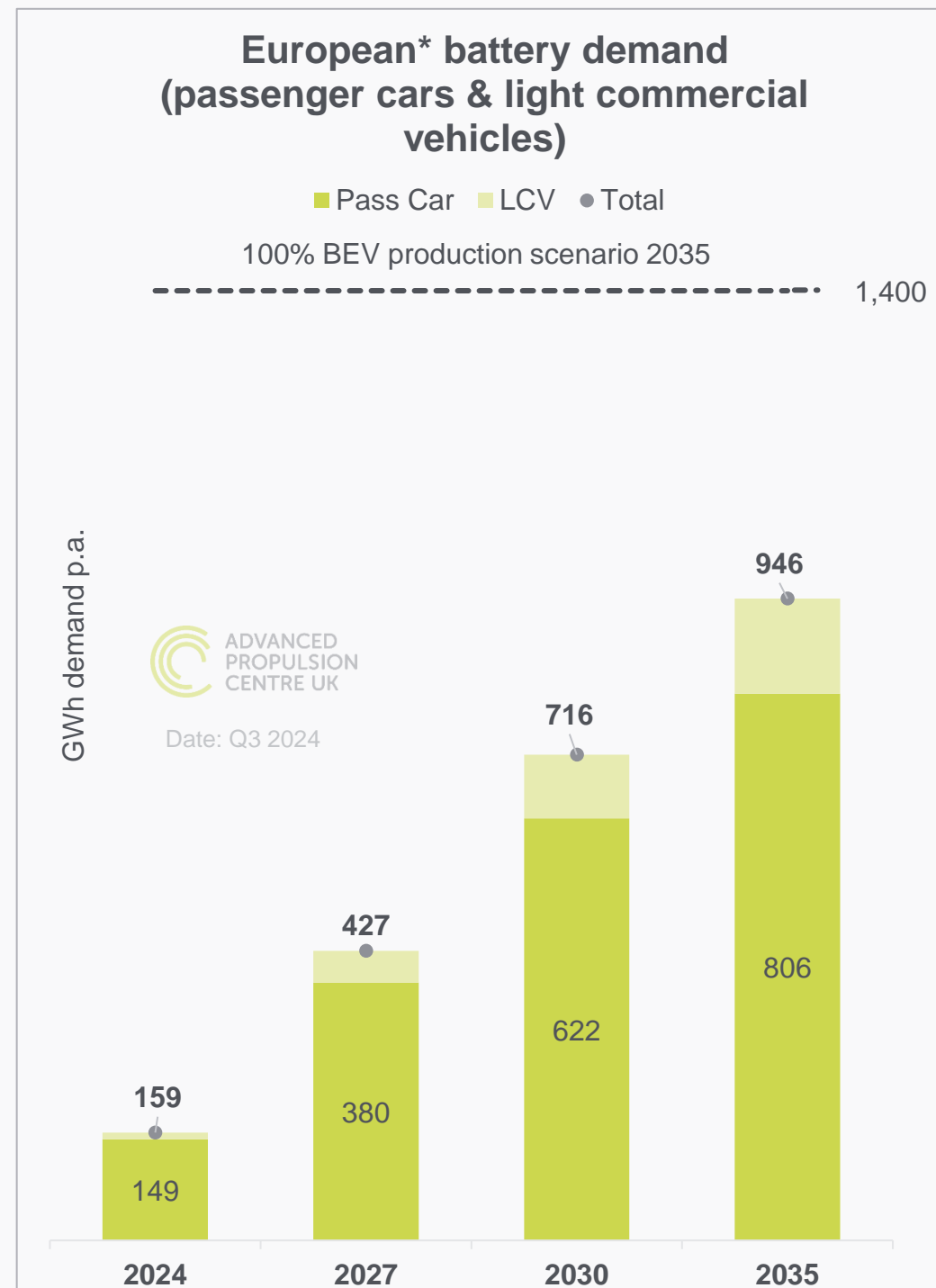
Total production includes ICE vehicles.

# European xEV production

LDVs (passenger cars and light commercial vehicles)

## Q3 2024 notes

- In Europe, total light-duty production is expected to stall and remain around 18 million until 2030 and then increase to 19 million by 2035.
- BEV production is expected to continue to grow steadily up to 2035, and PHEV is forecast to stay around 1 million over the forecast period.
- Other HEV, including FHEV and MHEV, are expected to grow until 2030 and thereafter decrease.



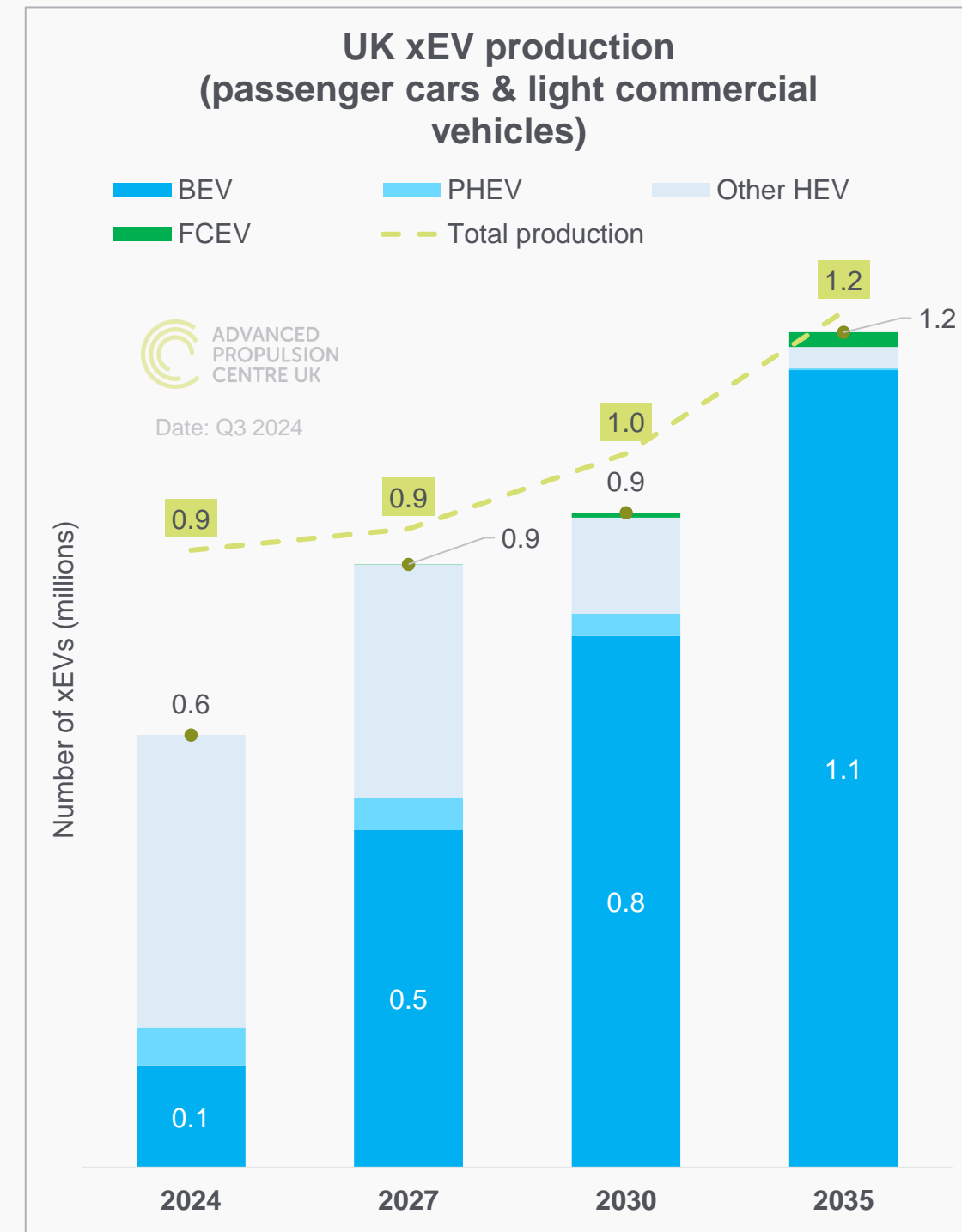
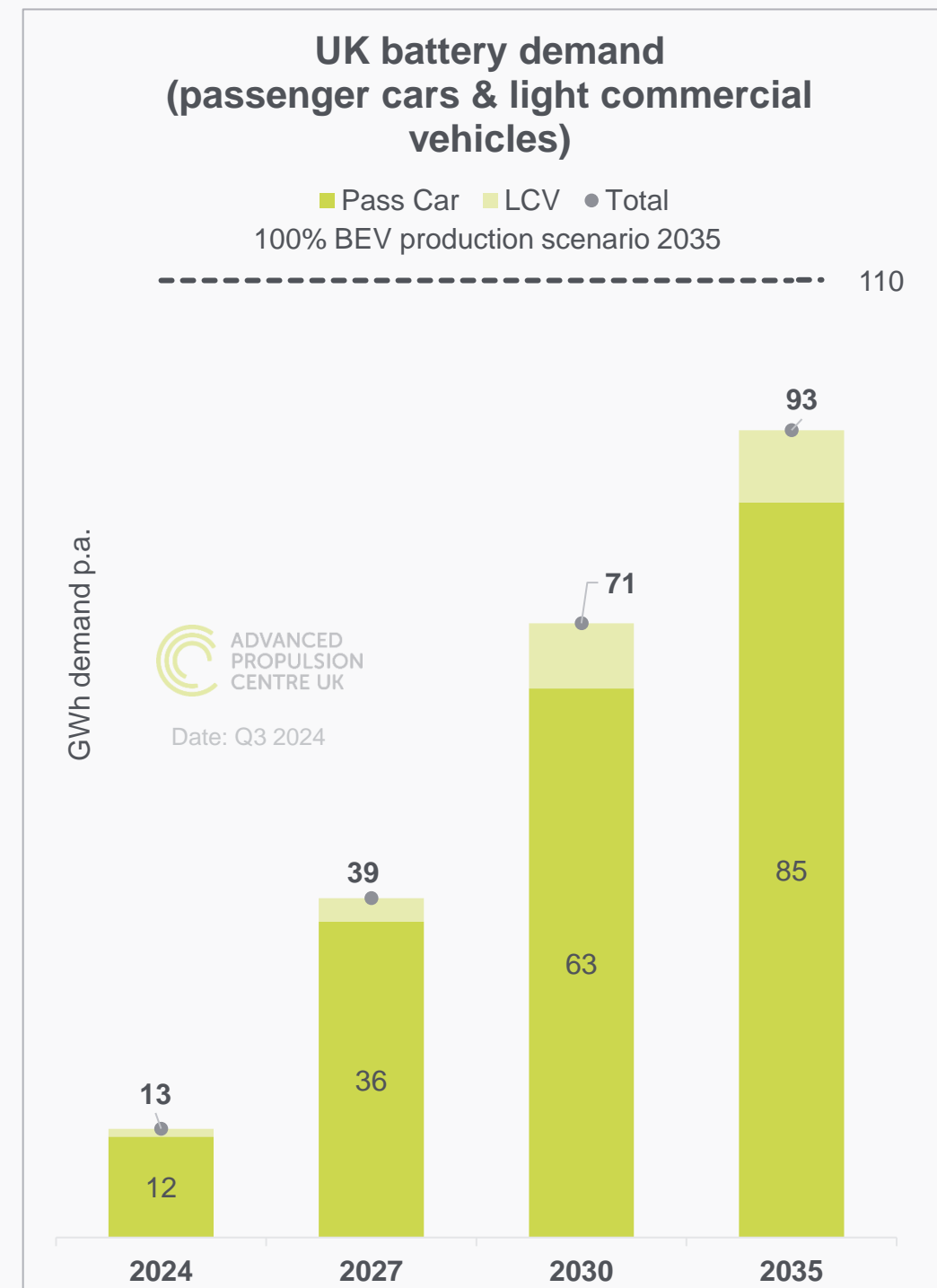
Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), Rho Motion data (2024), BNEF (2024), GlobalData (2024), ACEA (2024)  
 Note: LCV = Light Commercial Vehicles < 3.5t, buses not included. \*European forecast includes non-EU countries such as Turkey  
 Total production includes ICE vehicles

# UK xEV production

LDVs (passenger cars and light commercial vehicles)

## Q3 2024 notes

- Total LDV production in the UK is expected to see a short-term slow-down in growth between ~2024 and 2030. Vehicle production will recover to Q1 2024 forecast levels by 2035.
- BEV production in the UK is expected to grow at a slower rate than forecast in the Q1 2024 demand report, due to a delay in introduction of new BEV models. Despite this, BEV production is forecast to more than double in size by 2035 (compared to 2027) and reach over 1.1 million each year in the UK



Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), Rho Motion data (2024), BNEF (2024), GlobalData (2024), ACEA (2024)

Note: LCV = Light Commercial Vehicles < 3.5t, buses not included.

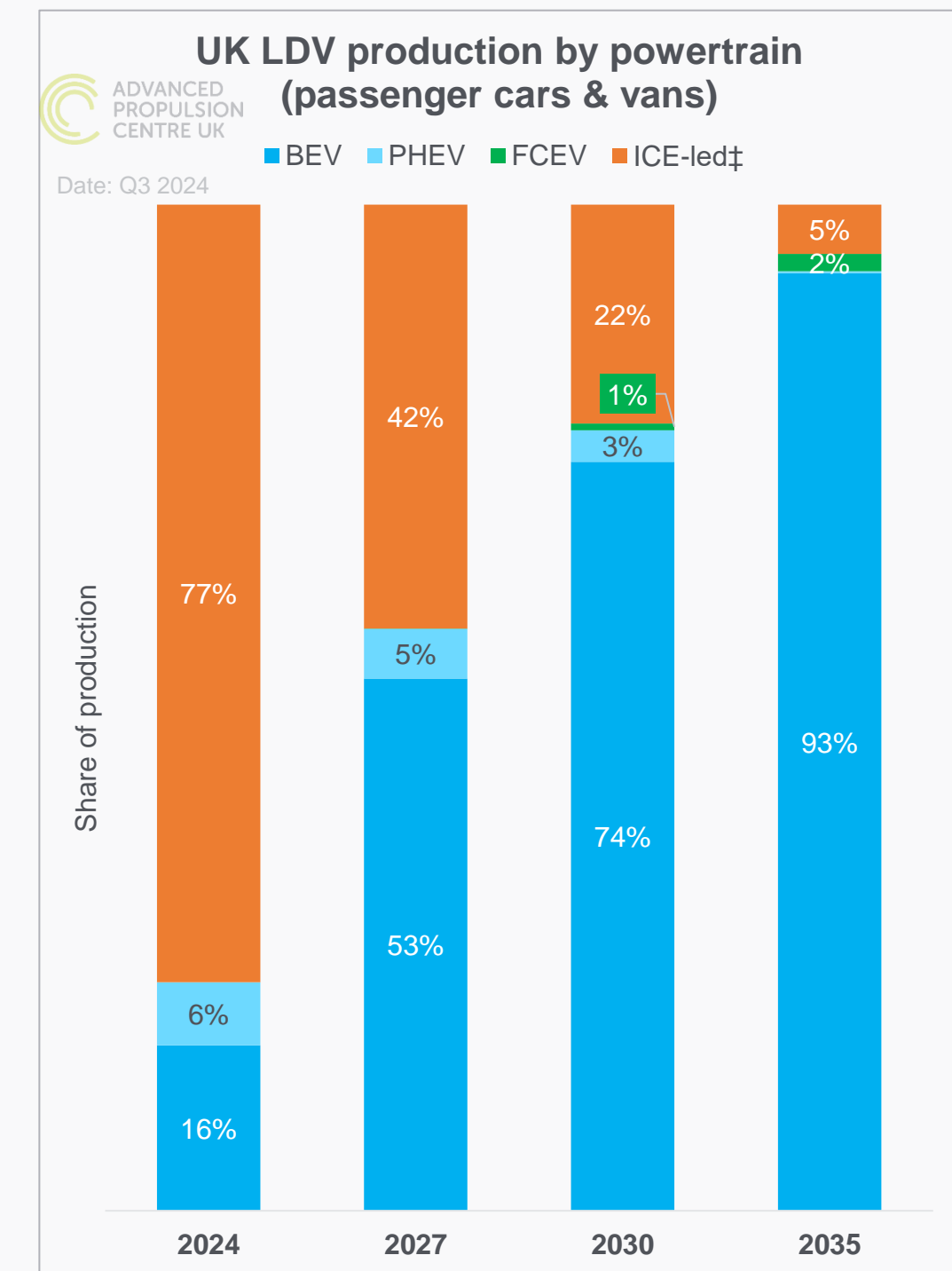
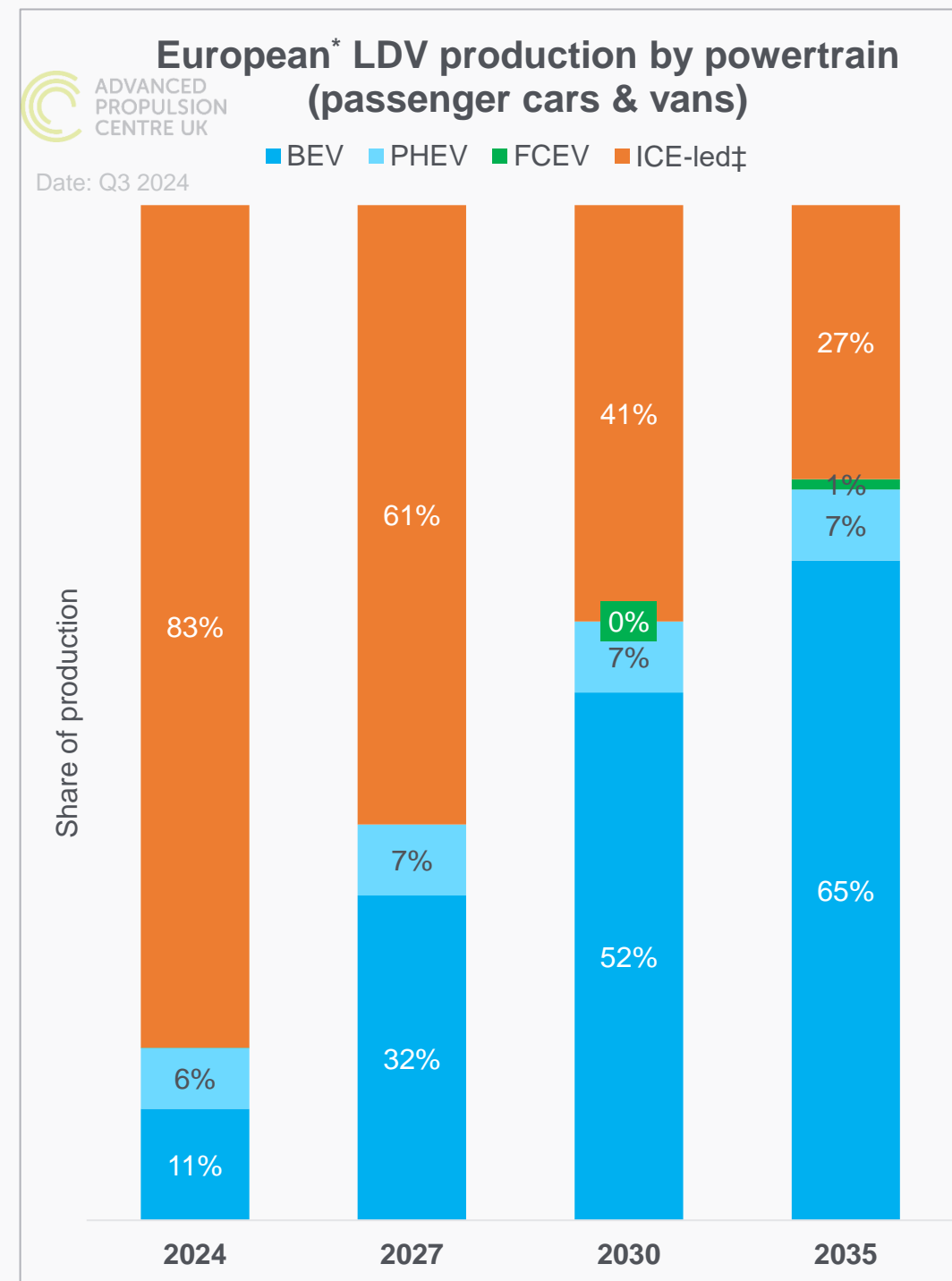
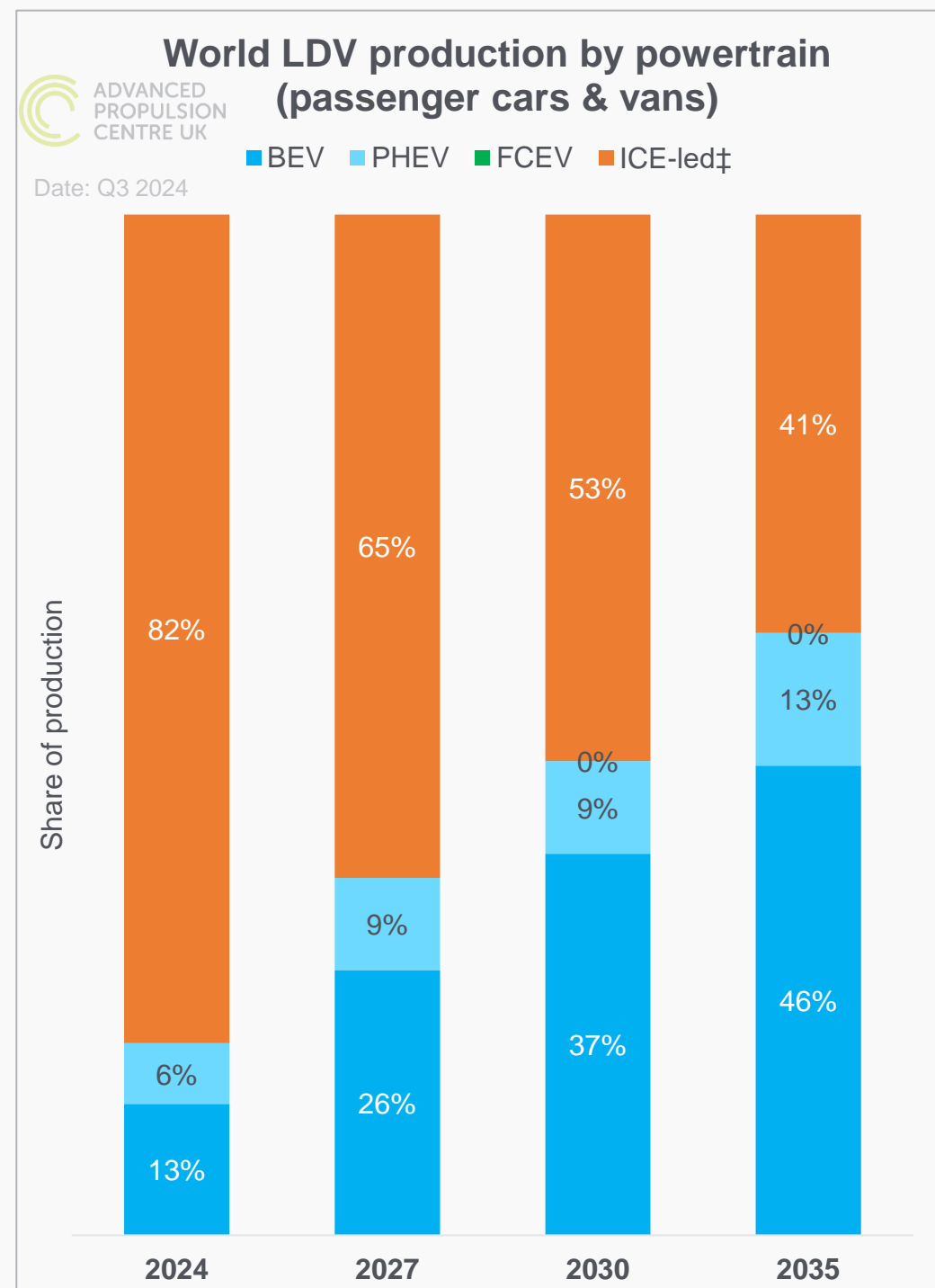
Total production includes ICE vehicles

# Q3 2024 – Electrified components data

# Forecasts for LDV production by powertrain

## Q3 2024 notes

- A slower transition to BEV, both globally and within Europe, is resulting in a higher hybrid and ICE-led production split compared with the Q1 2024 forecast.
- BEV production in the UK is expected to reach 93% capacity by 2035, with a small percentage of non-zero-emission vehicles being produced, mainly for export.
- The UK looks to have the lead in terms of a split share of BEVs by 2035, with a significant jump between 2030 – 2035, mainly driven by the ZEV mandate.



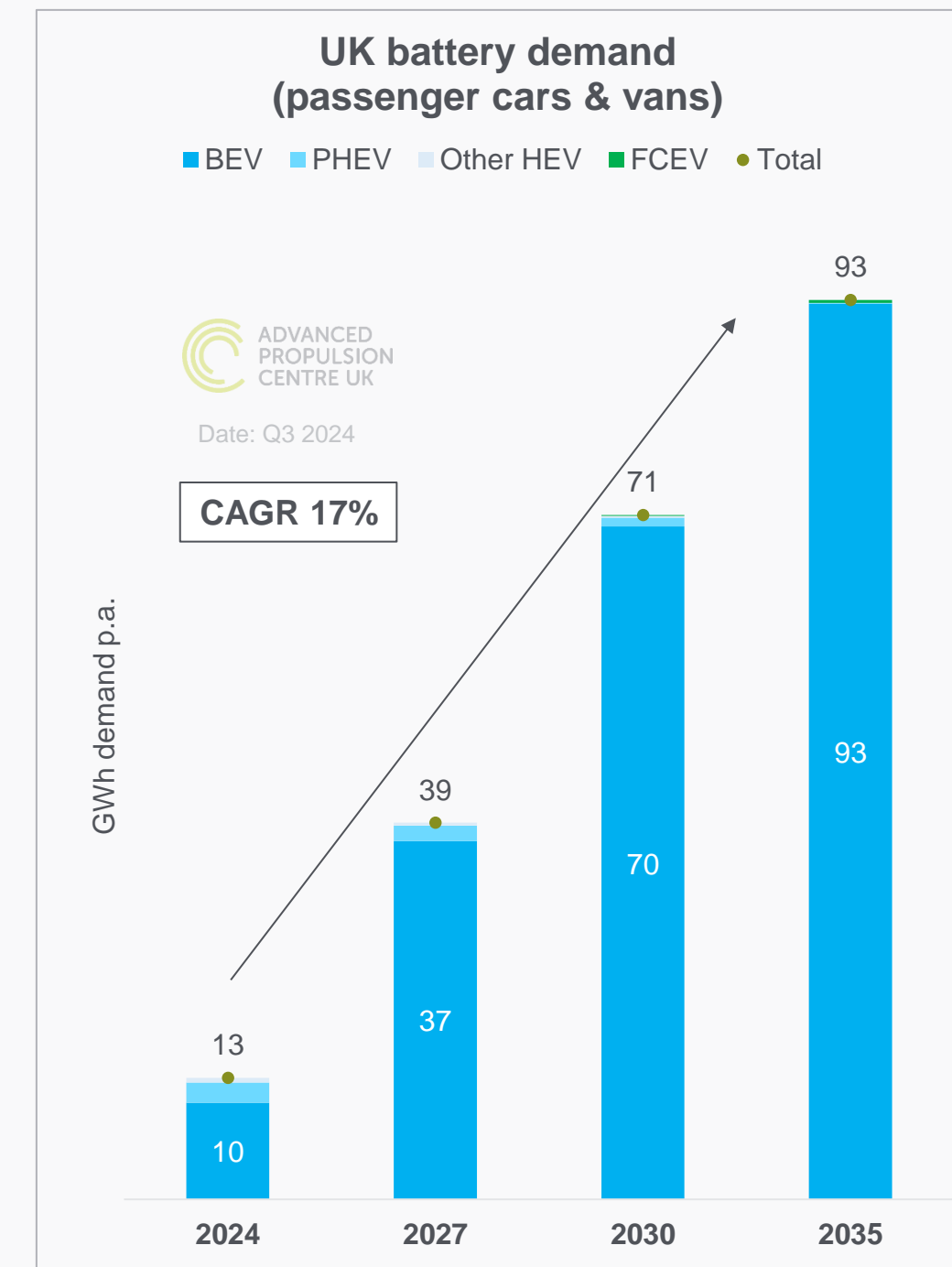
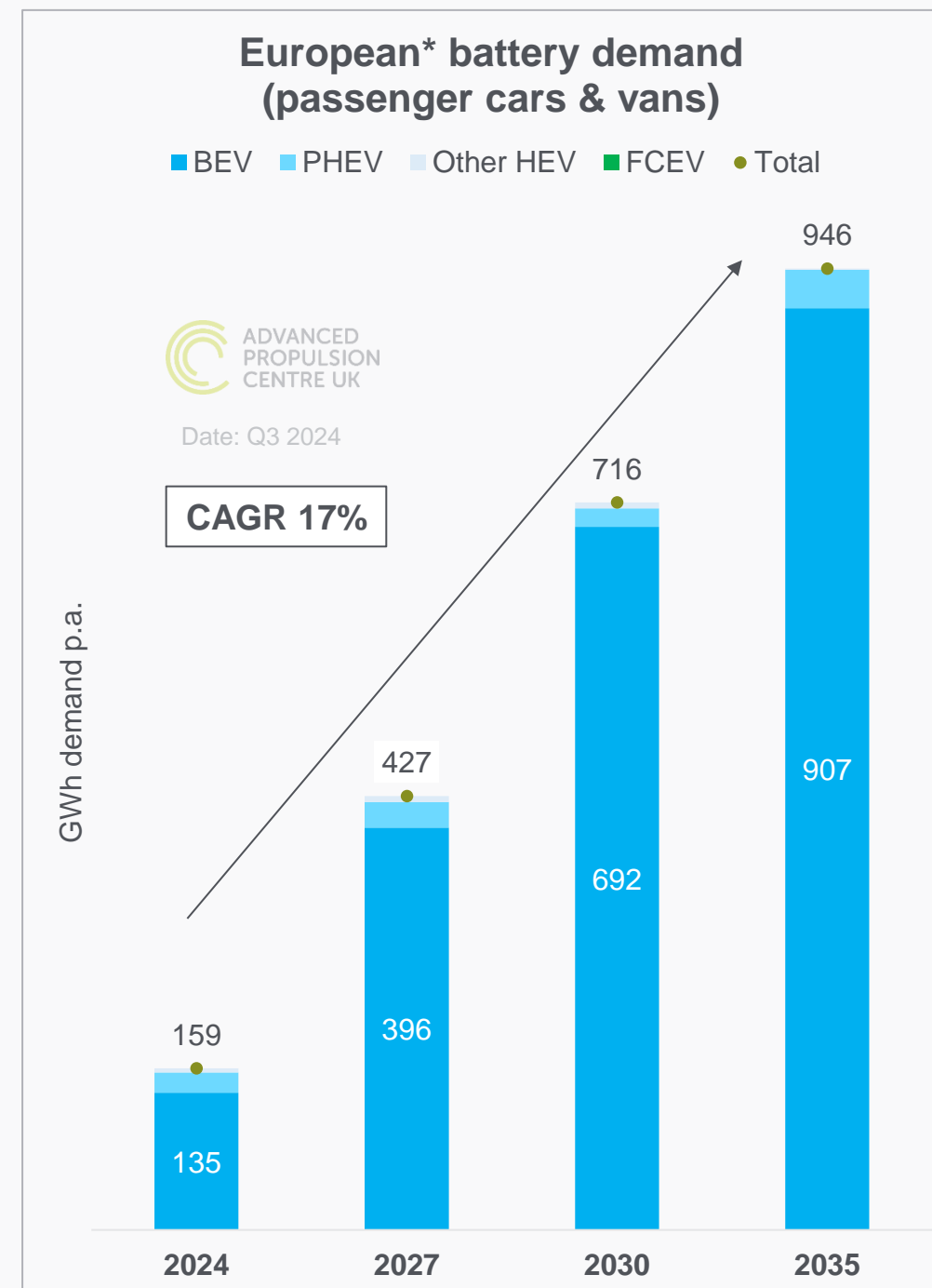
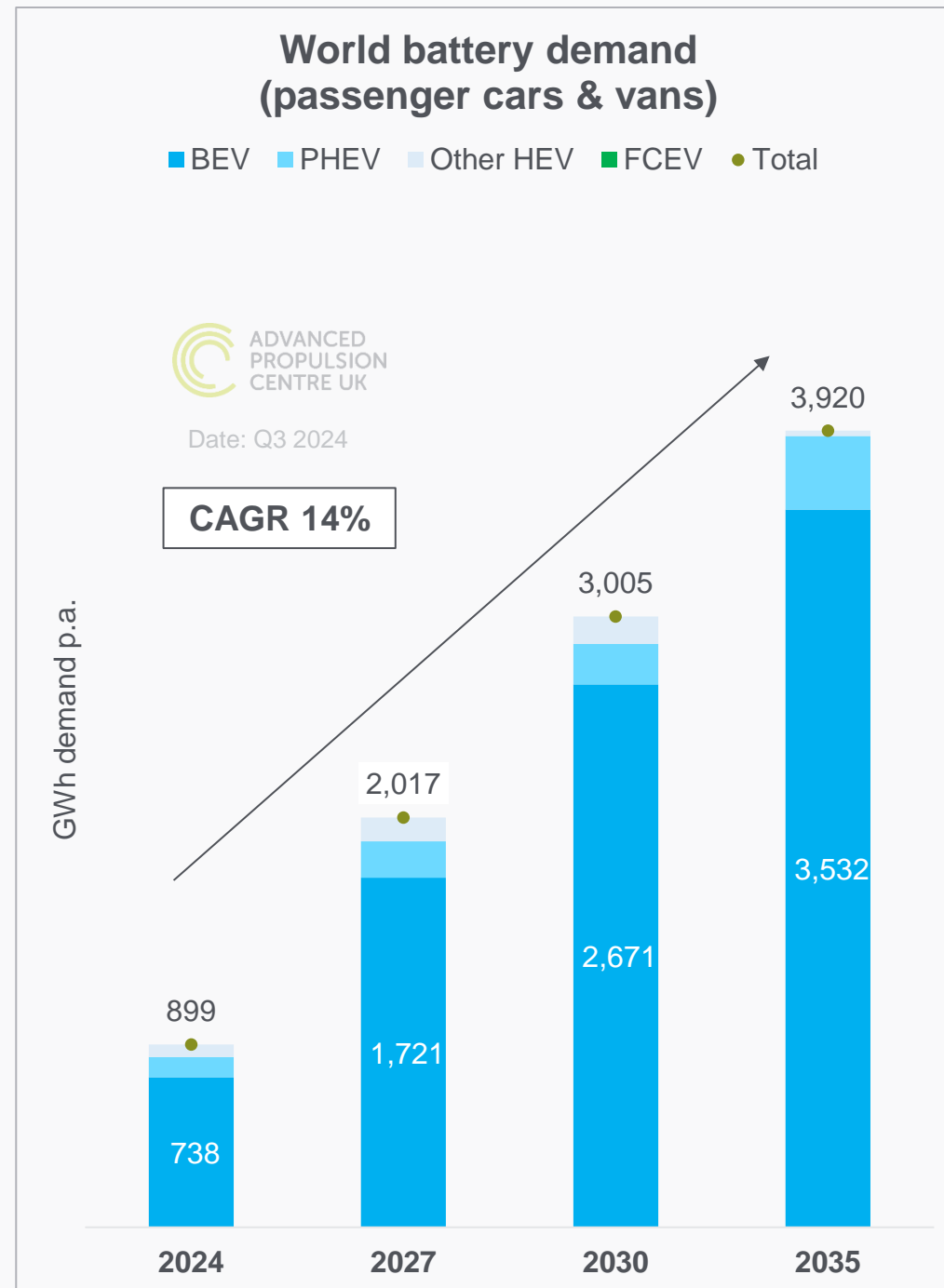
Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), BNEF forecasts (2024), RhoMotion (2024)  
Note: Passenger cars & Light Commercial Vehicles < 3.5t only, \*European forecast includes non-EU countries such as Turkey, ‡Includes non-plug-in HEVs & ICE

# Battery demand for LDVs

LDVs (passenger cars and light commercial vehicles)

## Q3 2024 notes

- The UK is echoing Europe's xEV vehicle production, which is showing a slow down in growth in demand by 2027 and 2030, but which is back in line with Q1 2024 forecast by 2035.

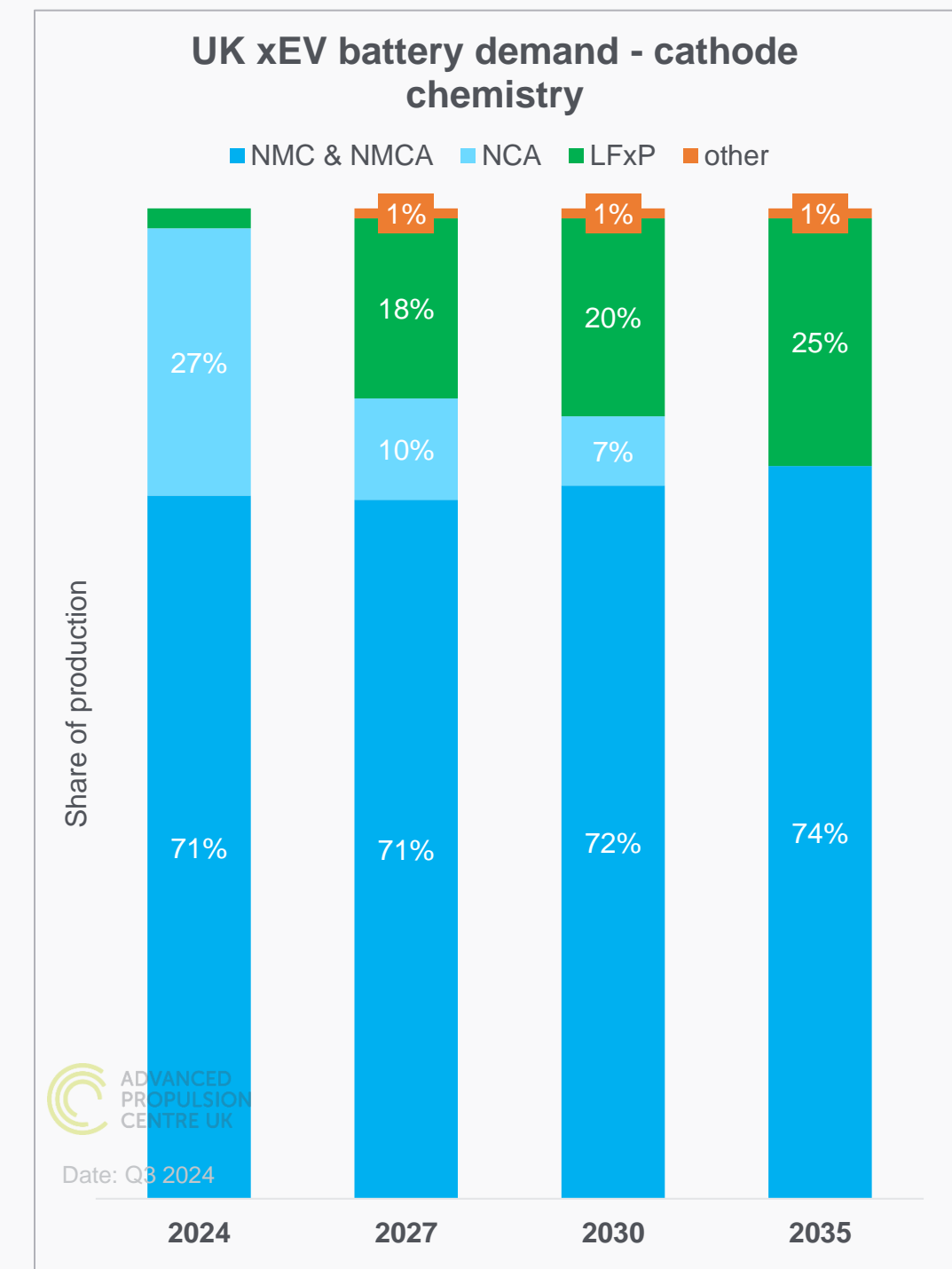
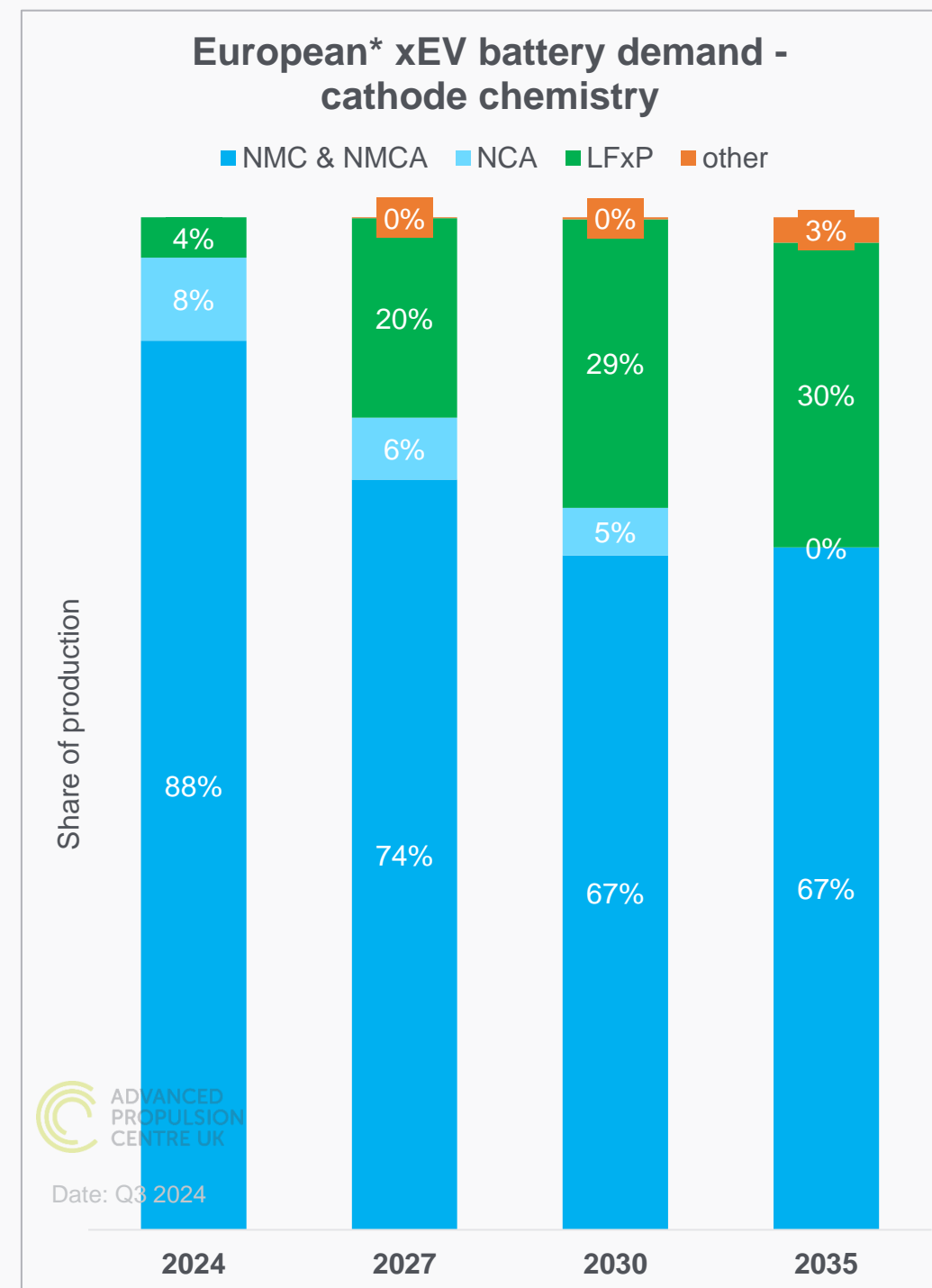
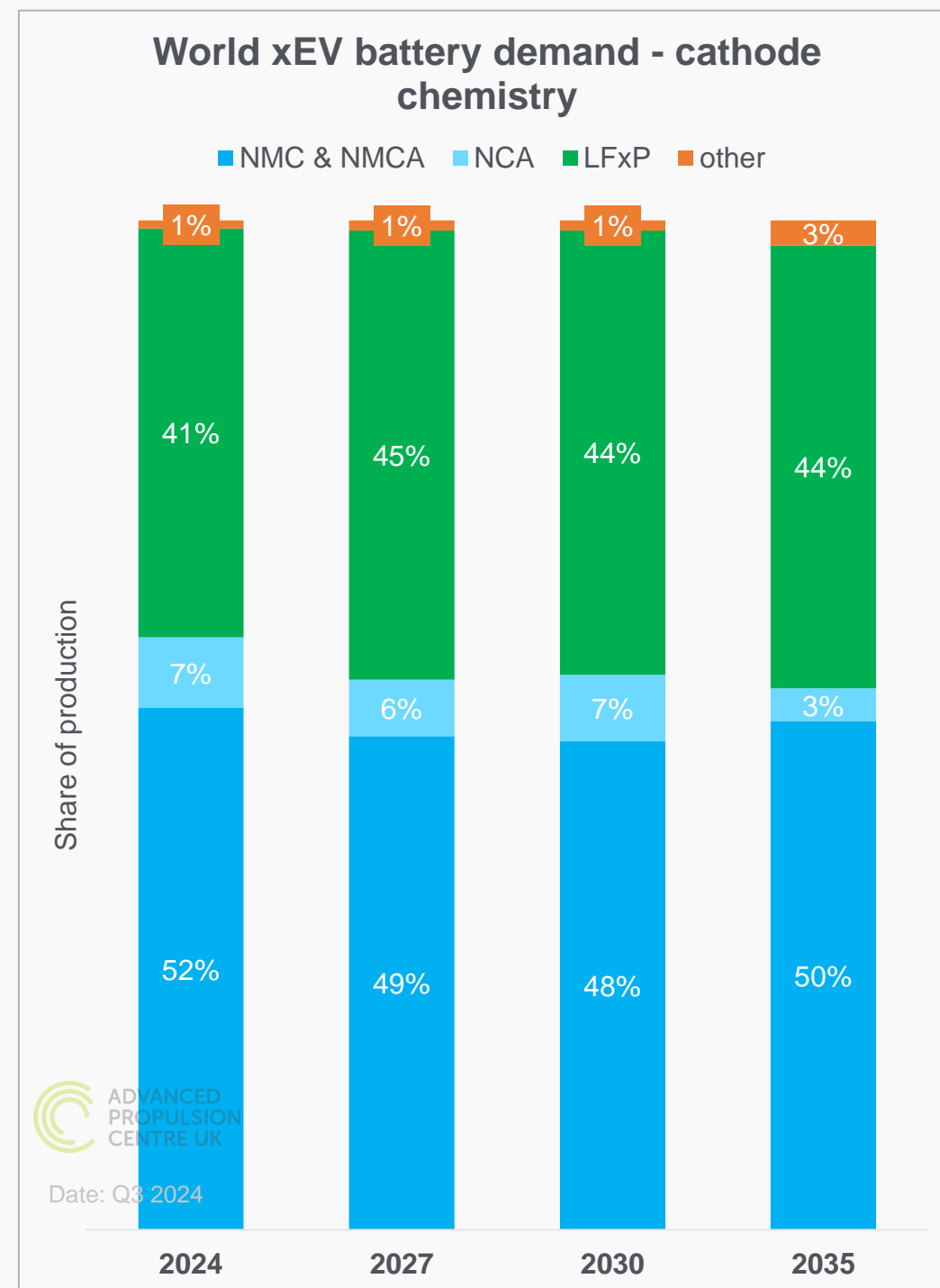


Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), BNEF forecasts (2024)  
 Note: Passenger cars & Light Commercial Vehicles < 3.5t only, \*European forecast includes non-EU countries such as Turkey

# Automotive battery demand by cathode chemistry

## Q3 2024 notes

- Demand for LFP is expected to continue to increase through to 2035, especially within Europe and the UK. NCA chemistry demand is decreasing and is expected to only make up marginal demand globally by 2035.
- Within the NMC & NMCA category, the demand for NMC811+ cathode chemistries is estimated to increase to 2035, however, the overall reliance on NMC and NMCA is forecast to decrease.

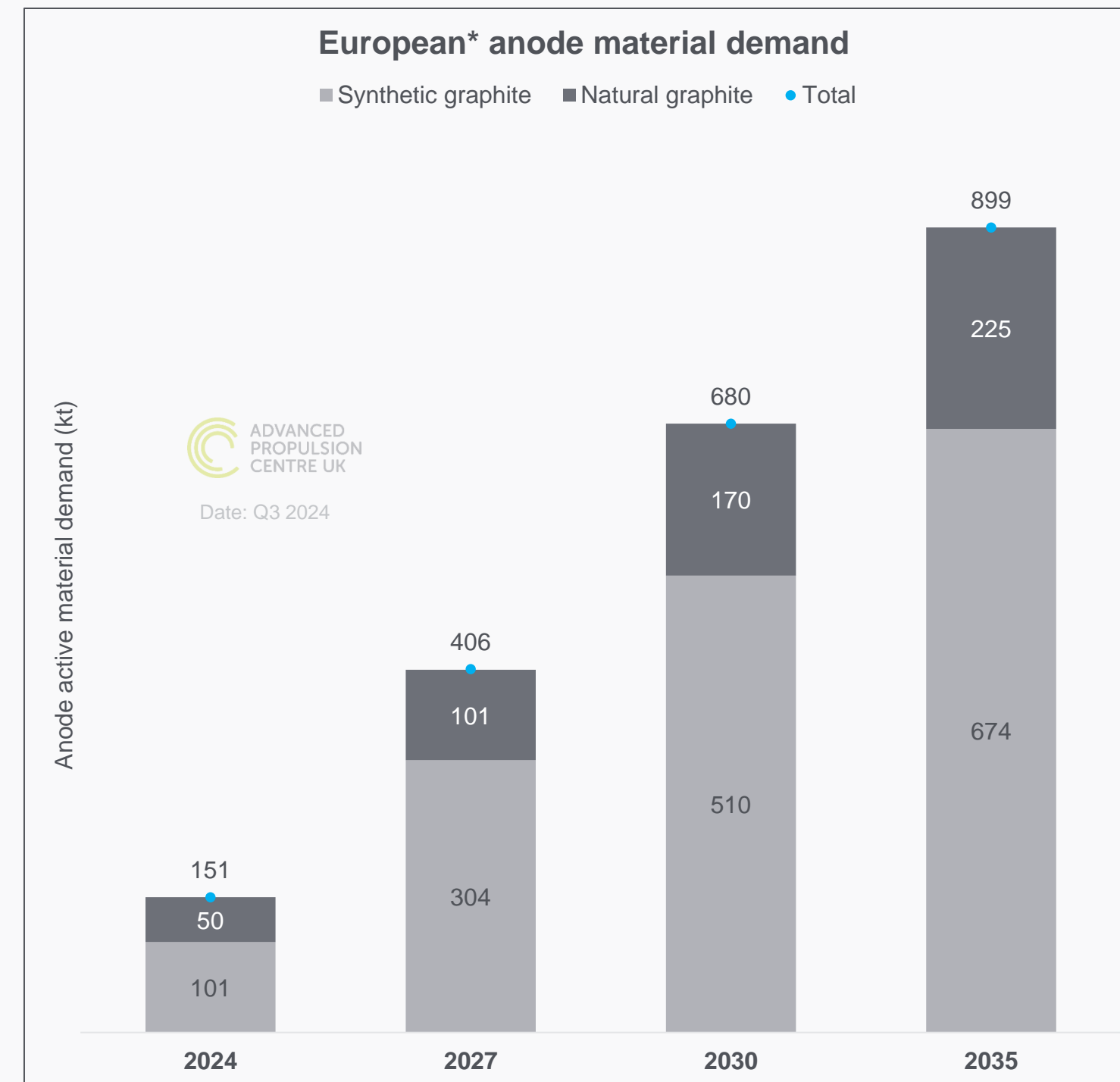
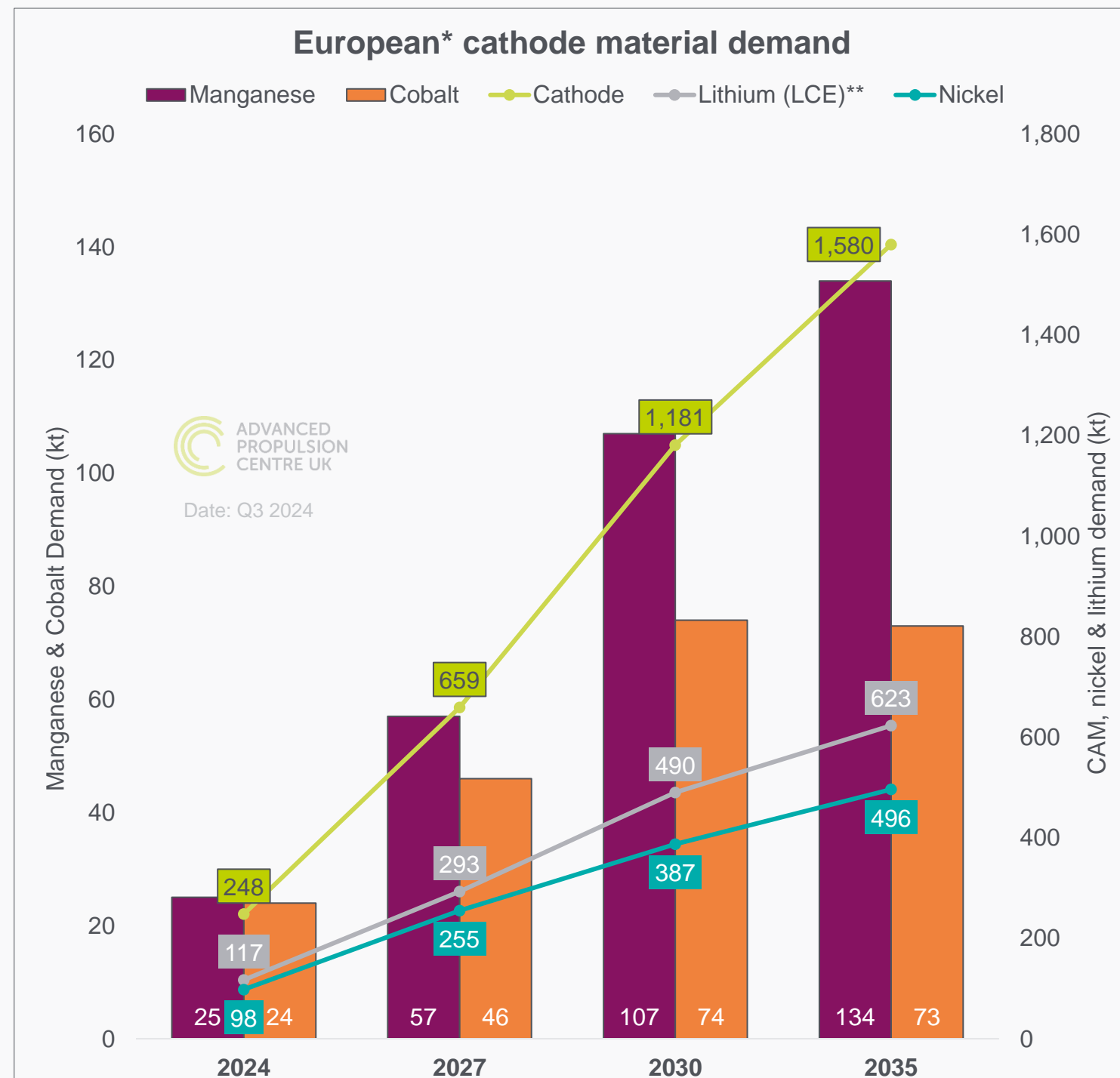




# European Cathode Active Material (CAM) demand

## Q3 2024 notes

- By 2035, it is expected that the growth in demand for cobalt will begin to plateau due to a changing chemistry split which does not require cobalt.
- Demand for manganese continues to grow due to use in LFP as well as NMC.
- Demand for graphite is expected to reach over ~900 kt by 2035 despite increasing use of silicon in anodes.

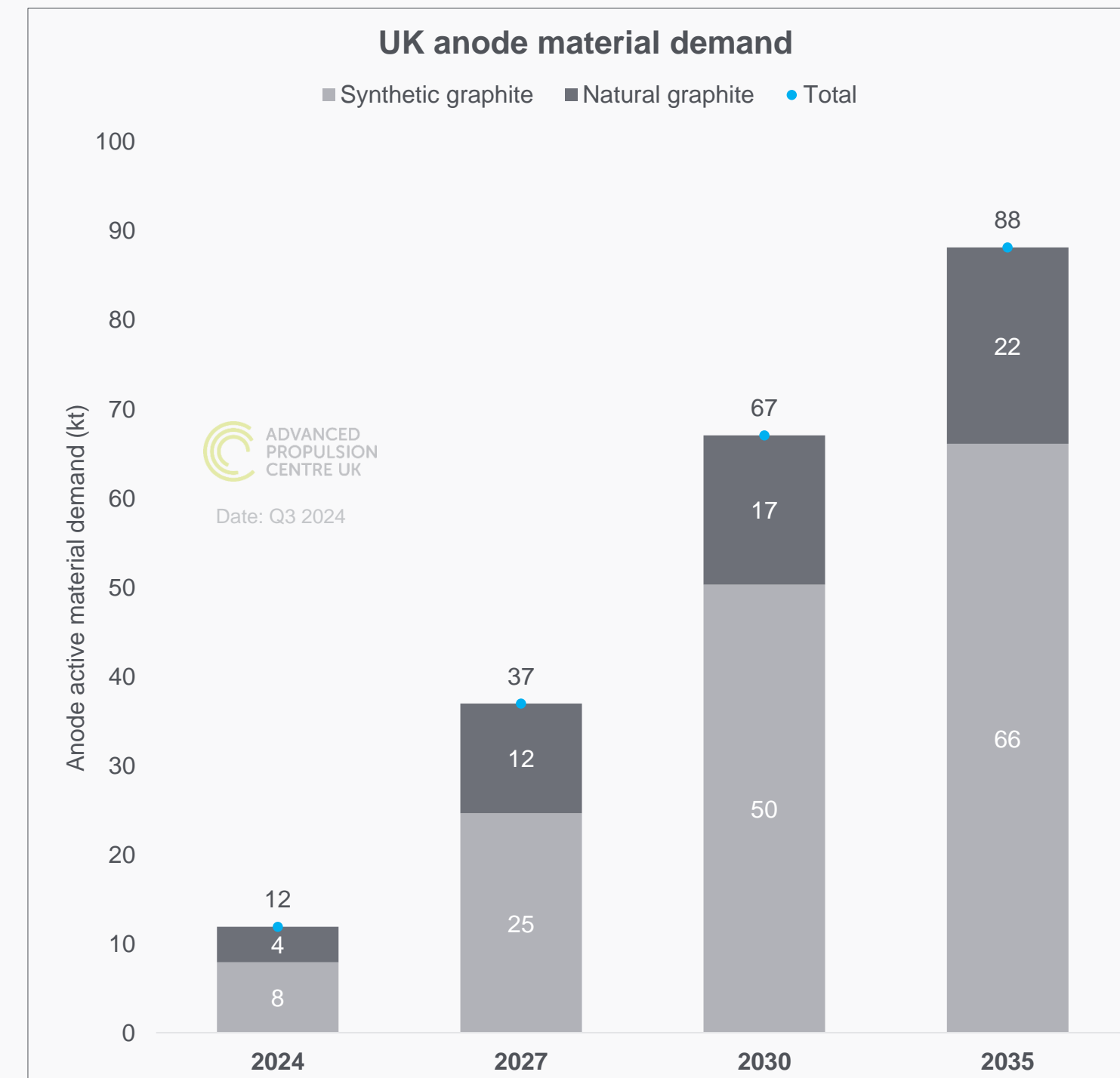
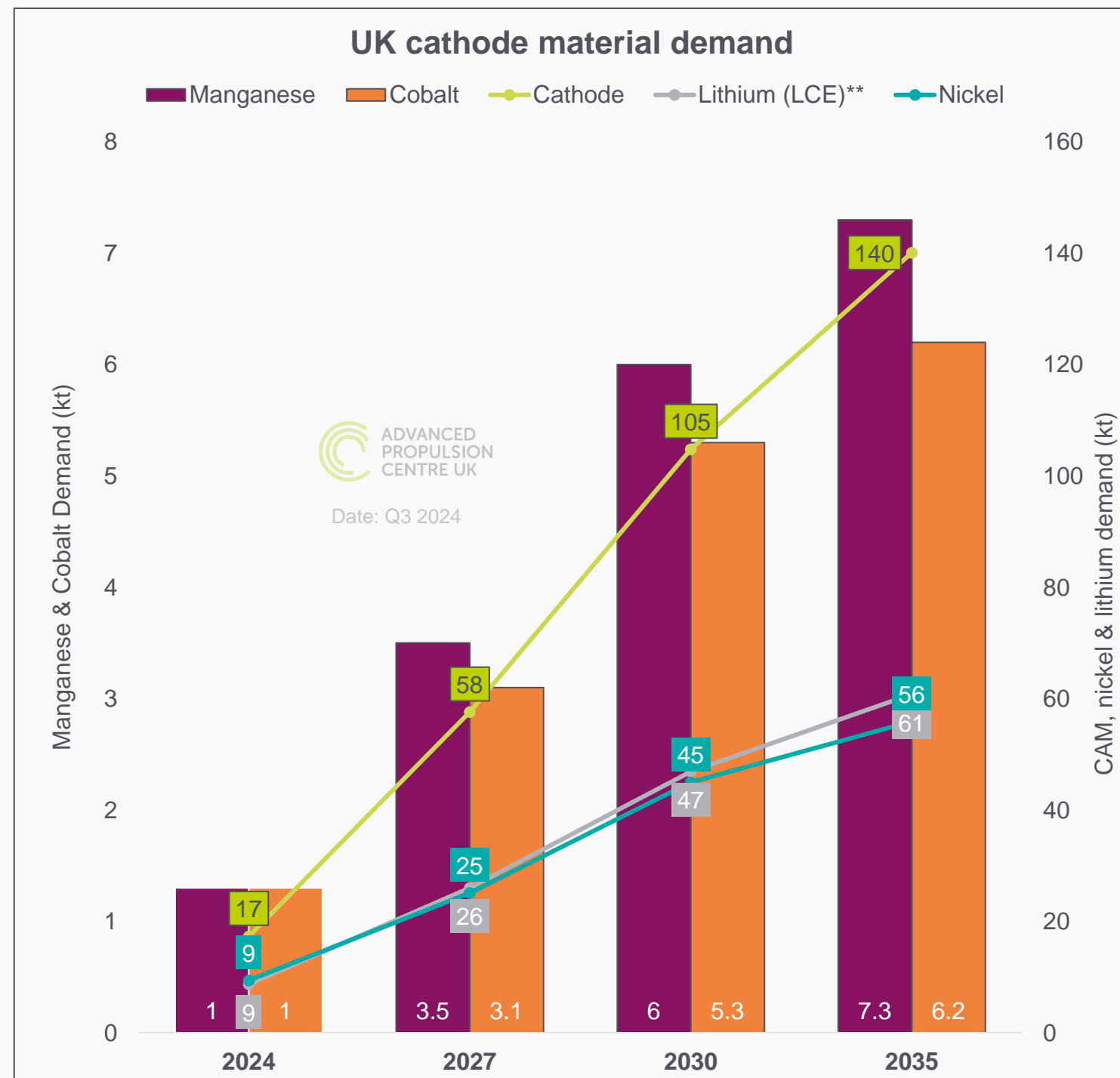


Source: APC Demand Databases using S&P Global AutoTechInsight (Sep 2024), Rho Motion data (2024), BNEF forecasts (2024)  
 Note: Passenger cars & Light Commercial Vehicles < 3.5t only, \*European forecast includes non-EU countries such as Turkey, \*\*Contained Li metal would be 5.3x lower  
 Anode material demand model assumption: Synthetic to natural graphite demand ratio 3 : 1

# UK Cathode Active Material (CAM) demand

## Q3 2024 notes

- UK LDV demand is showing a decrease by 2027 and 2030, compared to previous forecasts, due to the slow-down in BEV and xEV demand.

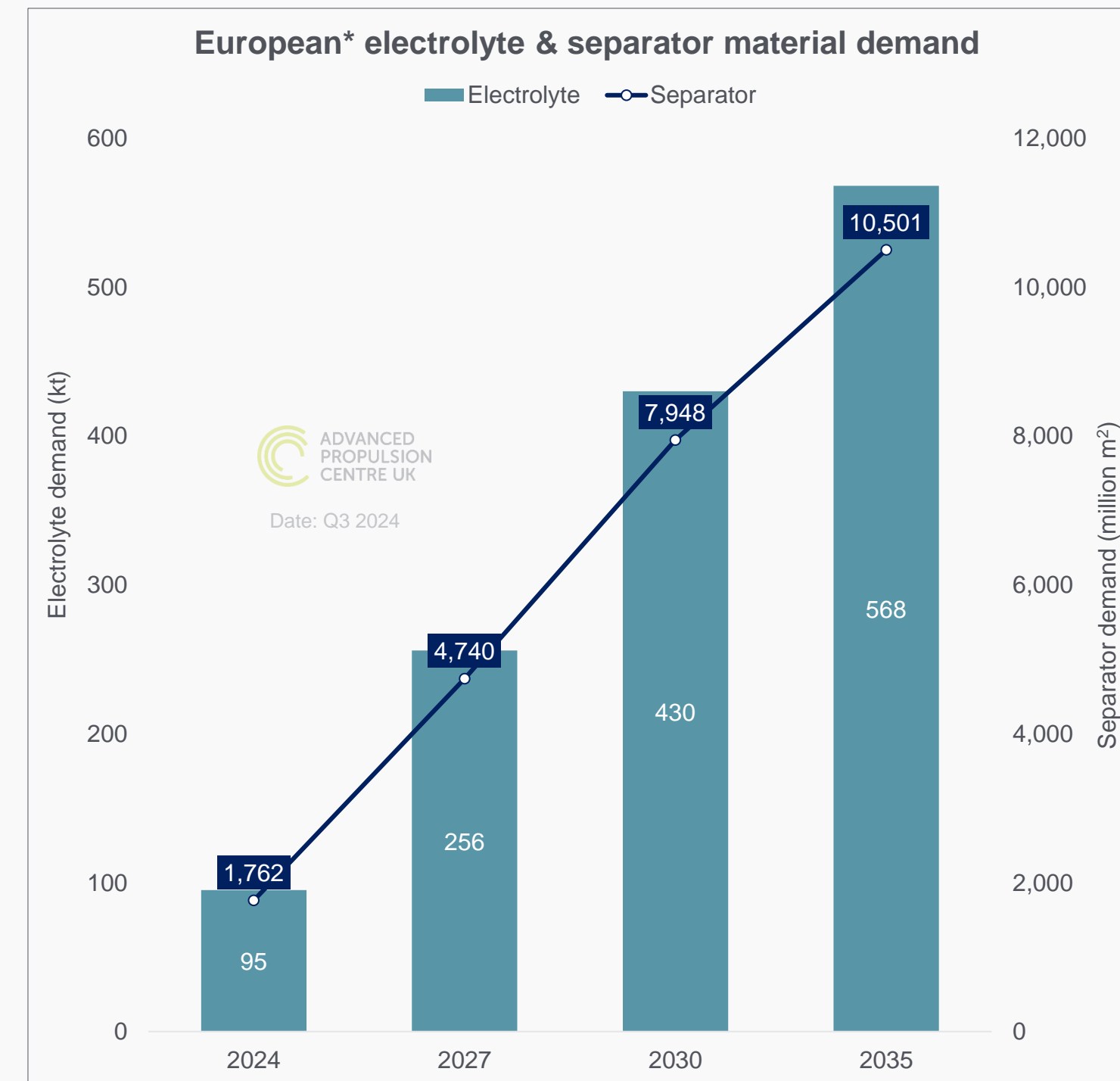
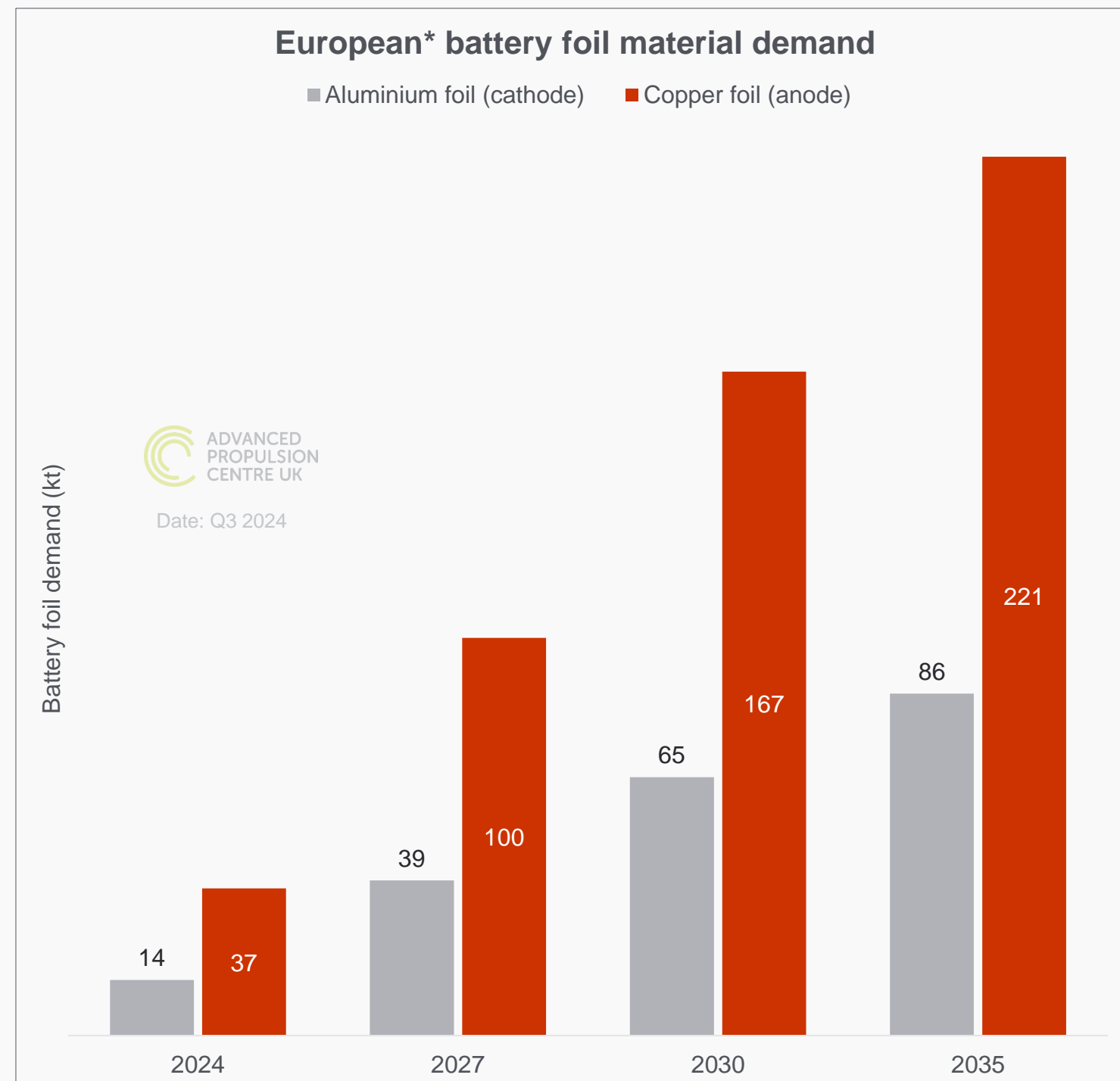


Source: APC Demand Databases using S&P Global AutoTechInsight (May 2024), Rho Motion data (2024), BNEF forecasts (2024)  
 Note: Passenger cars & Light Commercial Vehicles < 3.5t only, \*\*Contained Li metal would be 5.3x lower  
 Anode material demand model assumption: Synthetic to natural graphite demand ratio 3 : 1

# European demand for battery foils, electrolyte, and separator material

## Q3 2024 notes

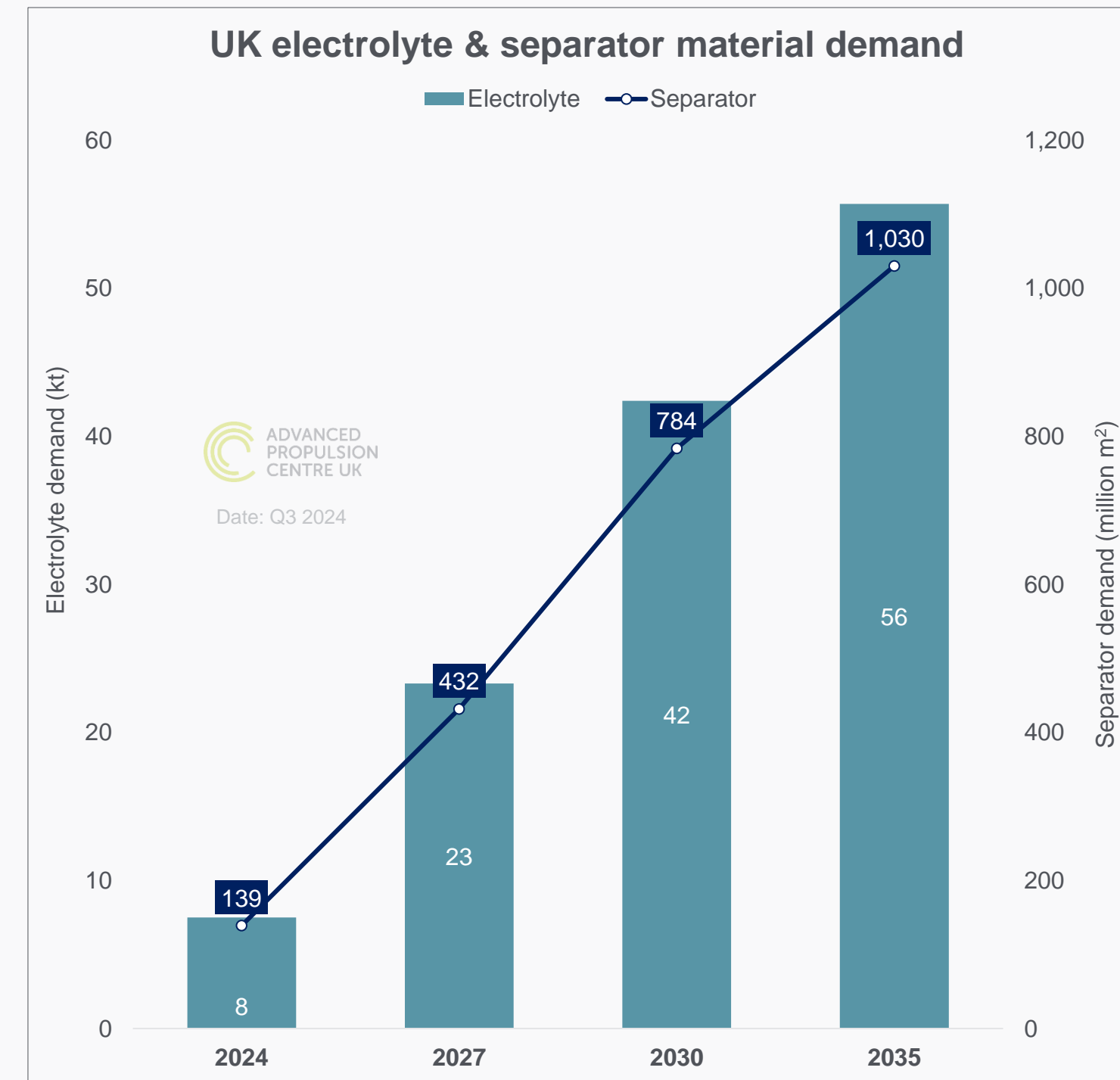
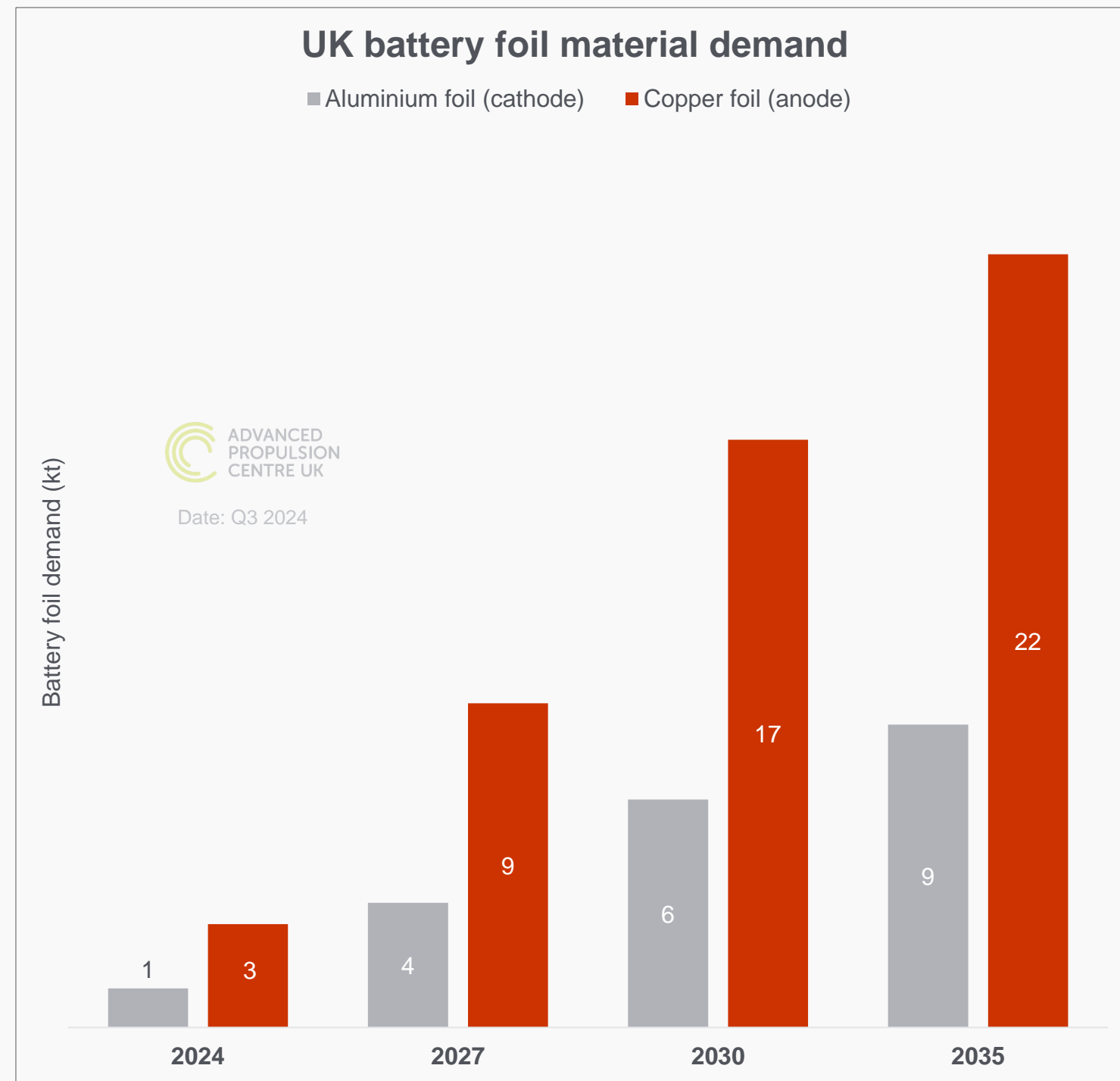
- Demand for electrolyte, separator material, and battery foils is expected to grow six-fold in the next decade, due to an increase in battery cell production.
- These materials will increase in importance to meet local content requirements and yet remain underinvested in, mainly due to a shorter lead-time for establishing the supply chain for them.



# UK demand for battery foils, electrolyte, and separator material

## Q3 2024 notes

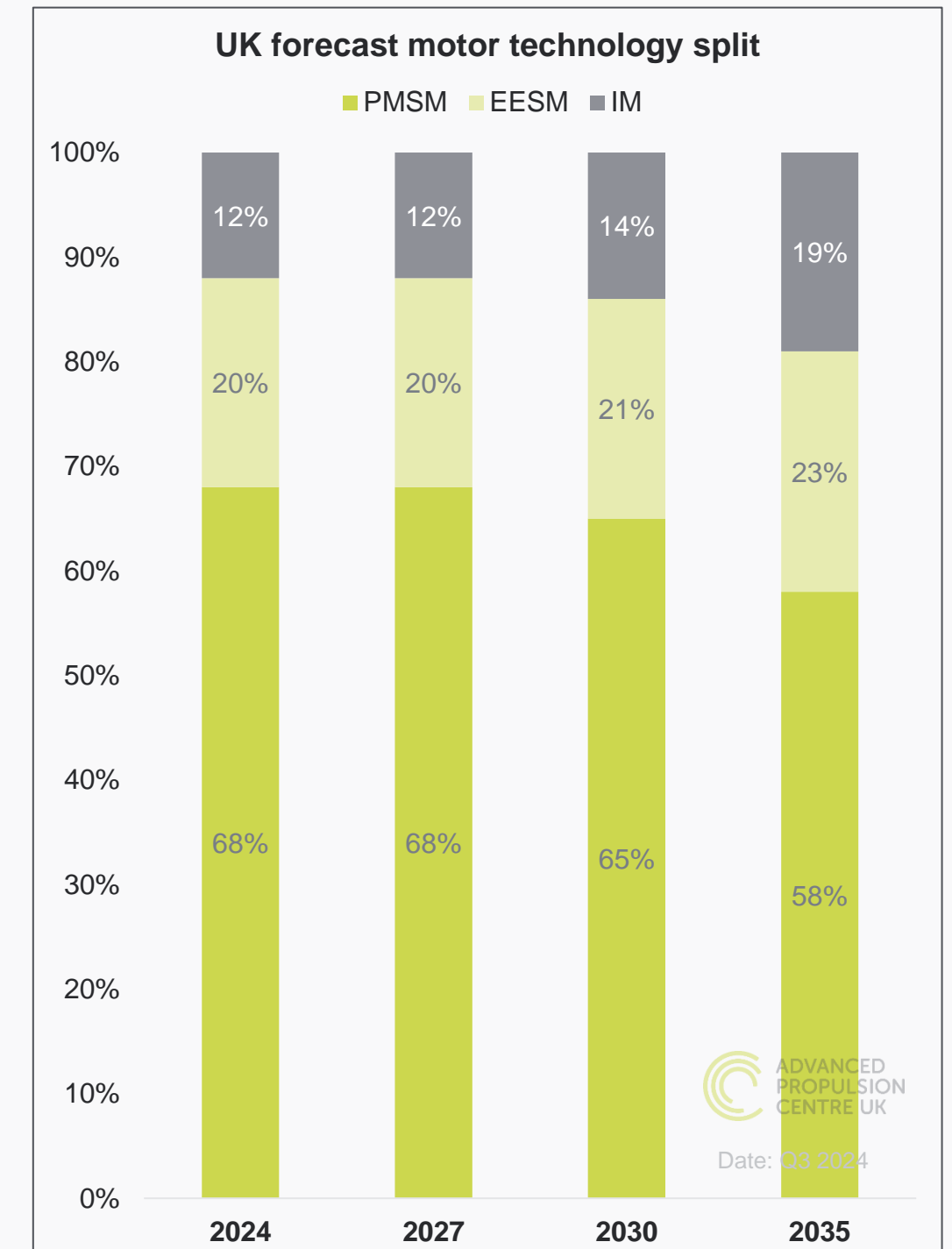
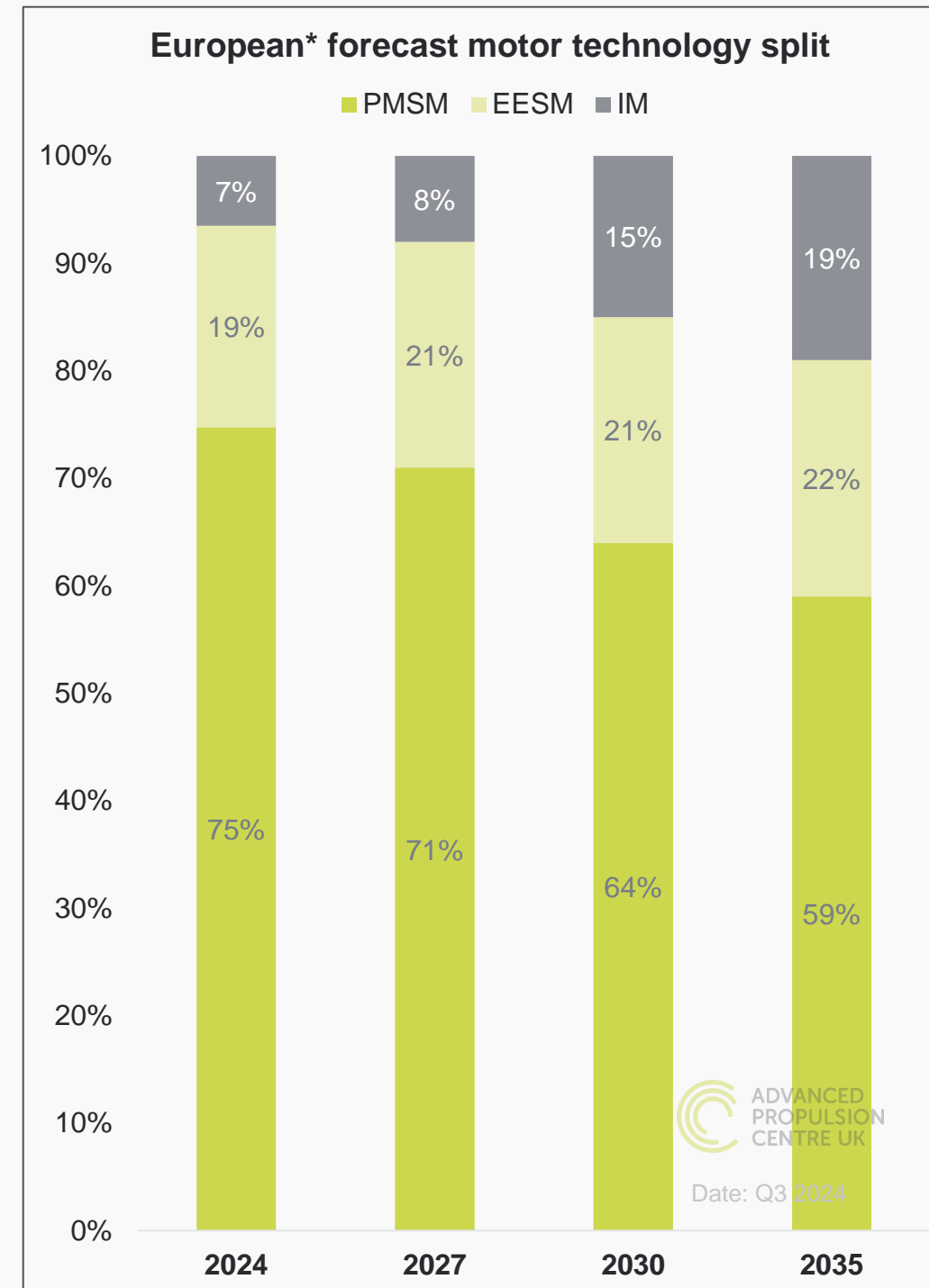
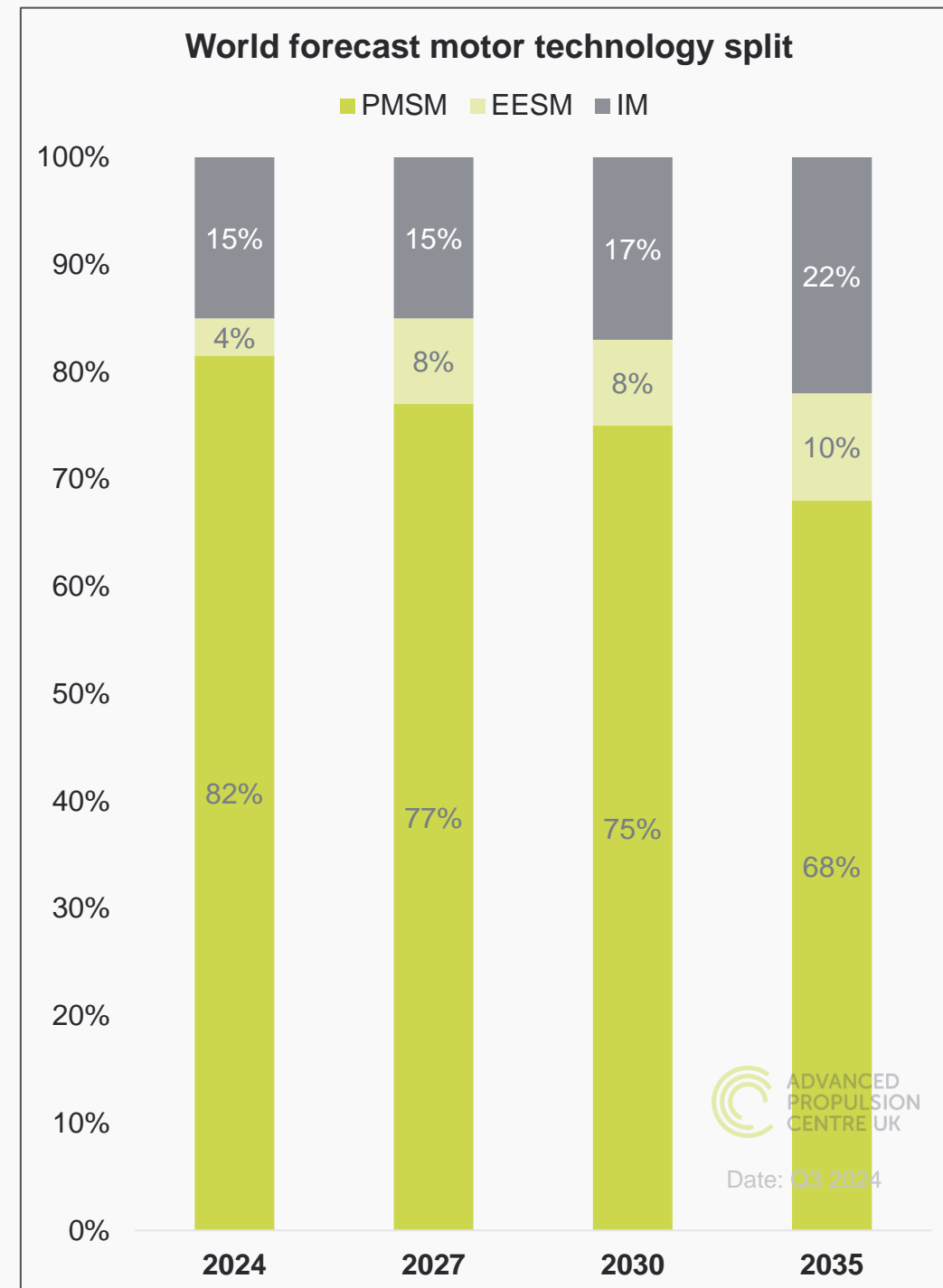
- Much like Europe, the UK will see significant growth in the demand for electrolyte, separators, and battery foils and, as with Europe, risks a reliance on external supply chains without investment.



# Forecasts for automotive traction motor demand by technology

## Q3 2024 notes

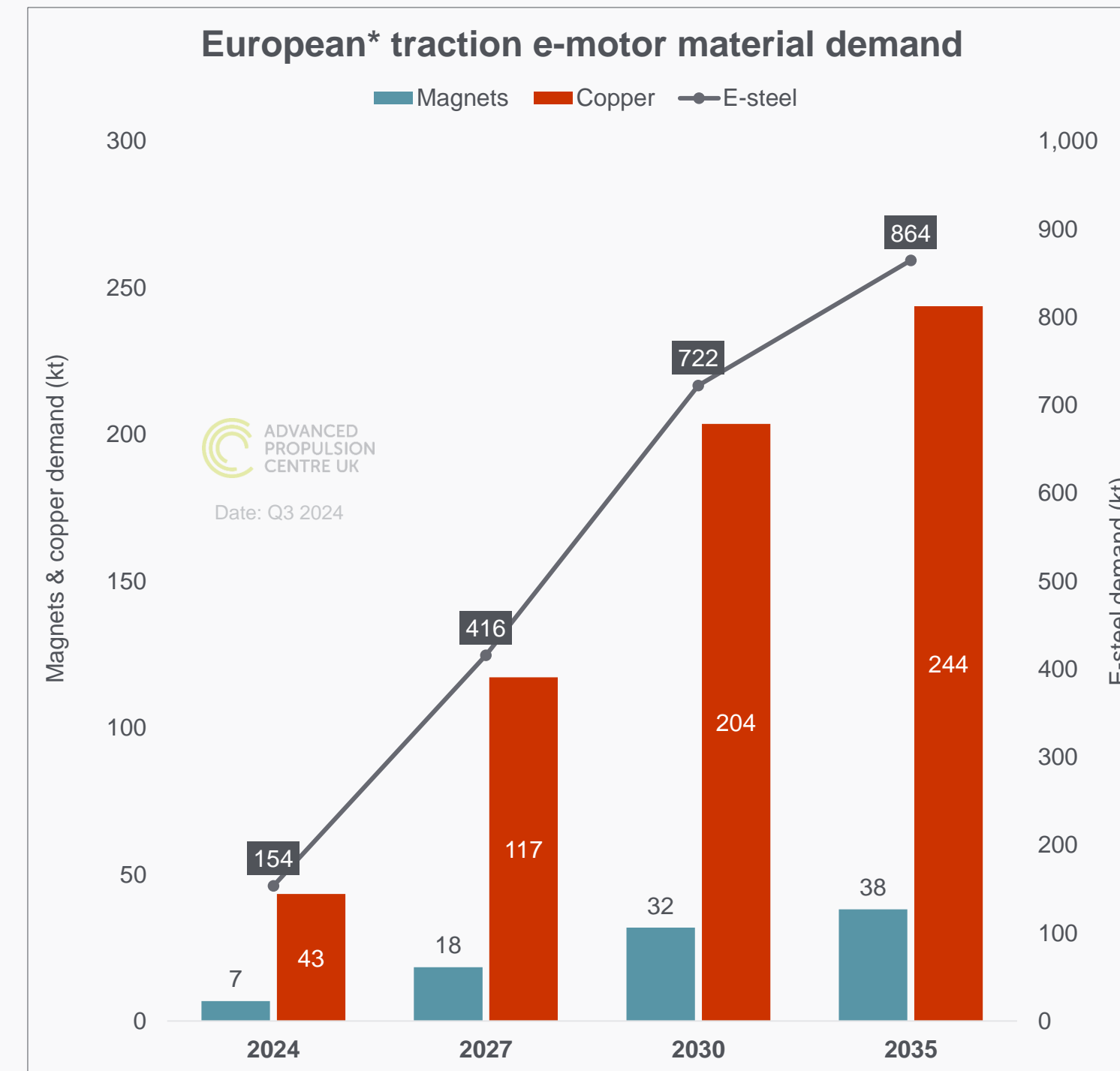
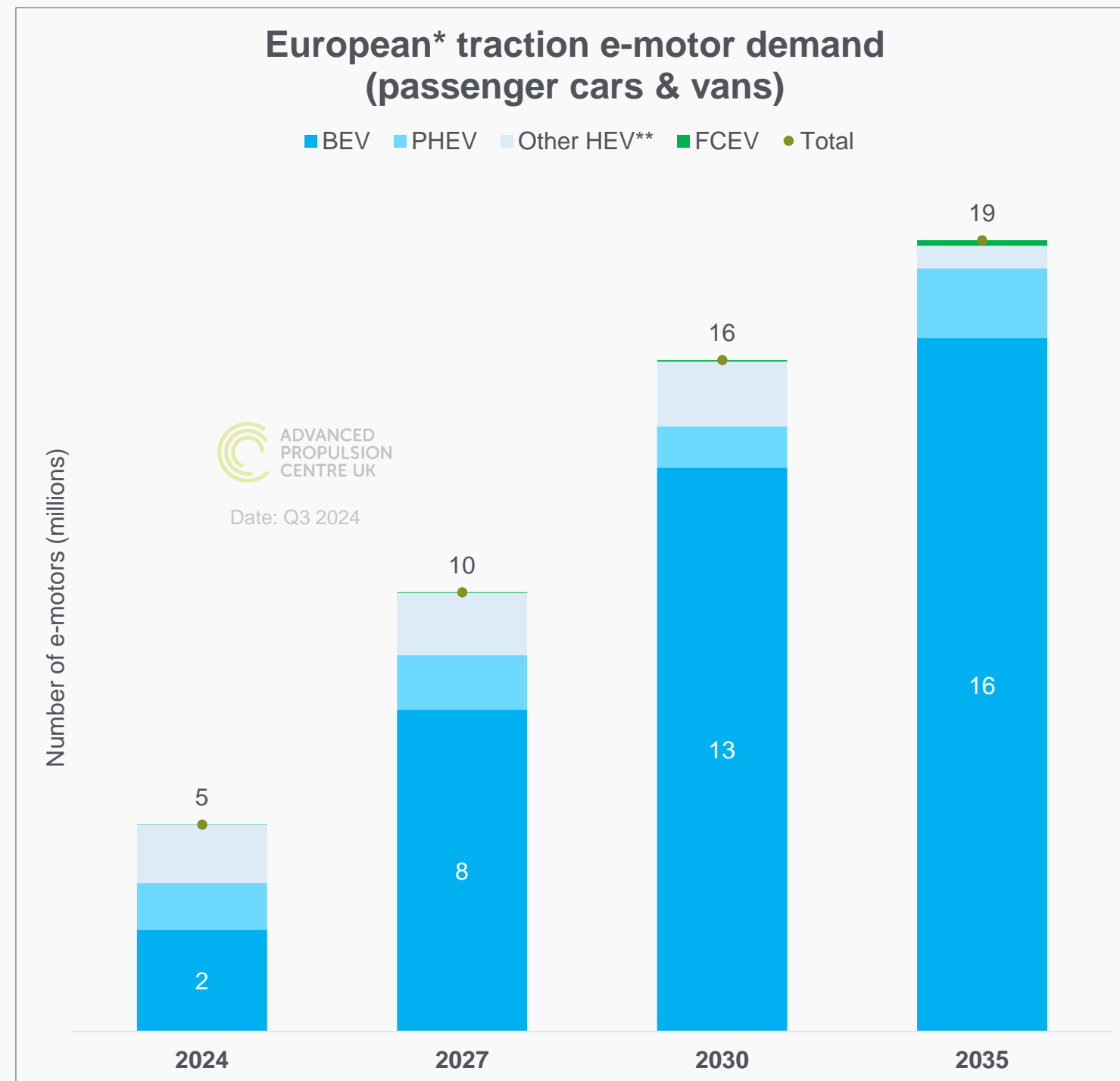
- Motor technology forecast split into:
  - PMSM – permanent magnet synchronous motor
  - EESM – electrically excited synchronous motors
  - IM – induction motor



# European demand for traction electric motors

## Q3 2024 notes

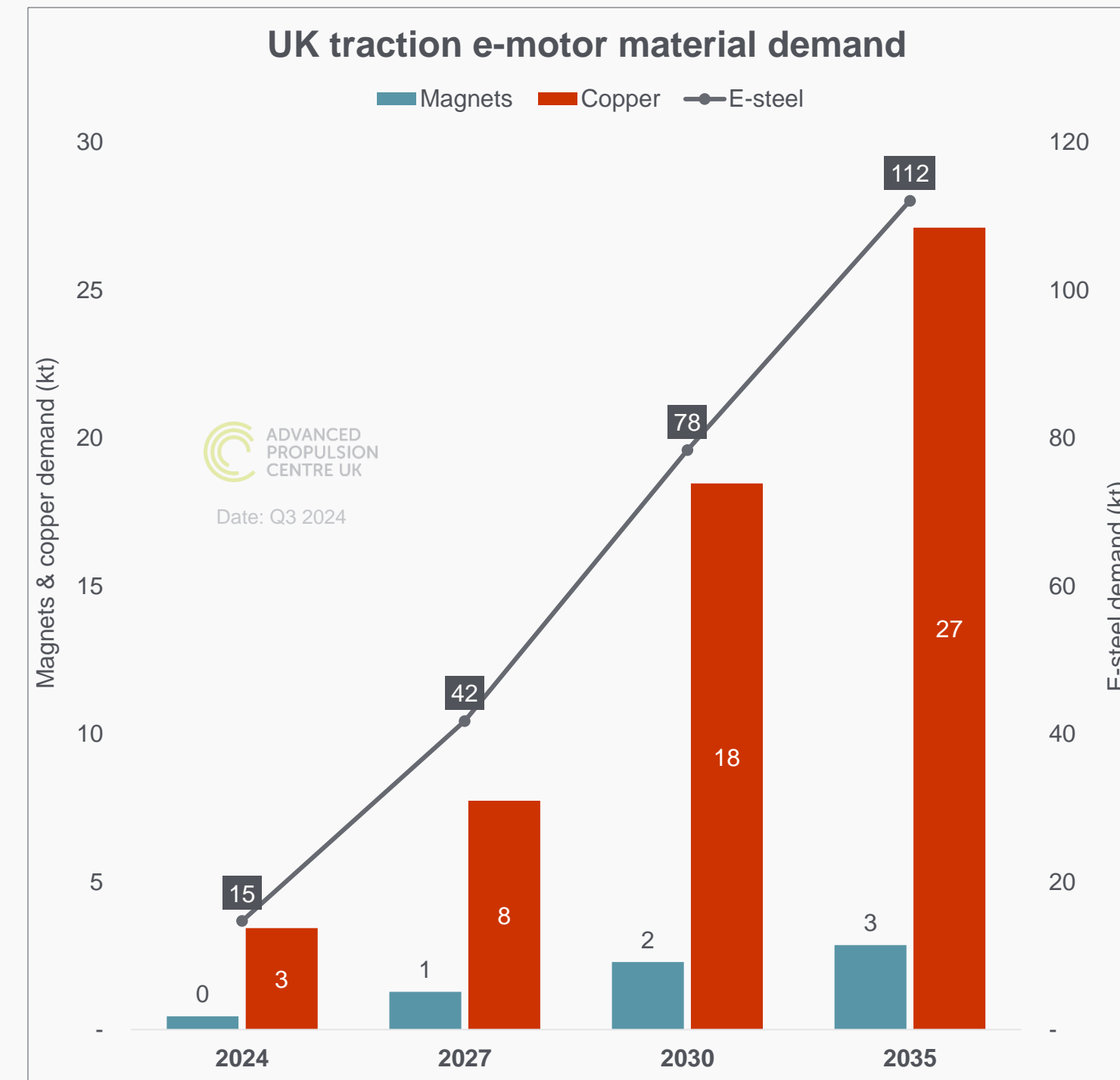
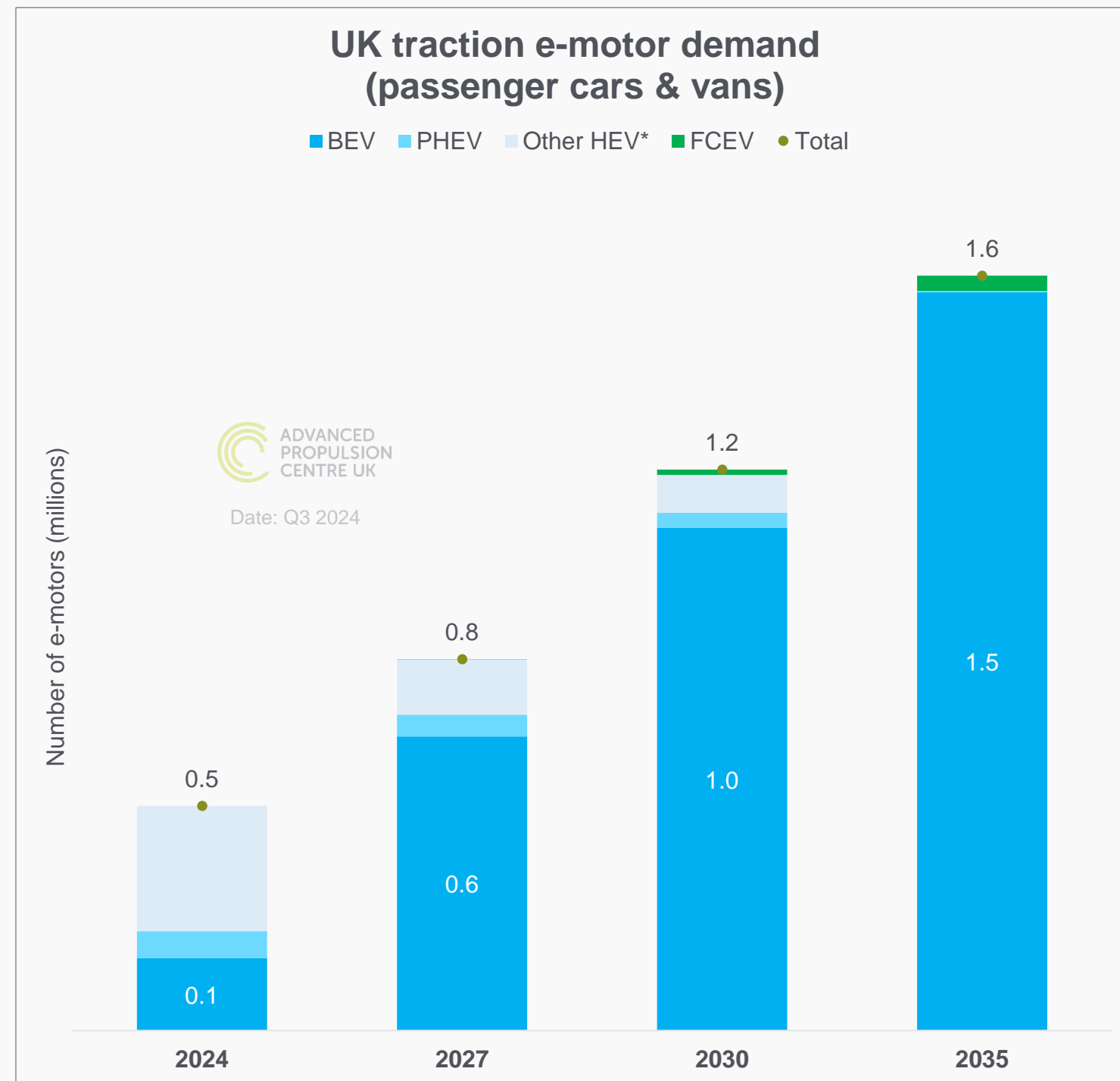
- Demand for 19 million motors in Europe by 2035.
- Magnet material covers all magnets with varying material composition. There is the potential for a significant change in the material used for permanent magnets, as the demand for permanent magnet electric motors surges, leading to increased demand.



# UK demand for traction electric motors

## Q3 2024 notes

- UK demand for traction motors is expected to reach close to 1.6 million by 2035, a decrease of ~300K since the last forecast.





# Glossary



## Glossary

<b>BEV</b>	Battery Electric Vehicle
<b>CAM</b>	Cathode Active Material
<b>EESM</b>	Electrically Excited Synchronous Motor
<b>FCEV</b>	Fuel Cell Electric Vehicle
<b>HGV</b>	Heavy Goods Vehicle
<b>IM</b>	Induction Motor
<b>LCE</b>	Lithium Carbonate Equivalent
<b>LCV</b>	Light Commercial Vehicle
<b>LDV</b>	Light Duty Vehicle
<b>LFxP</b>	Lithium iron phosphate (LFP) lithium-ion cathode which can include manganese (LFMP)
<b>NCA</b>	Nickel Cobalt and Aluminium lithium-ion cathode
<b>NMC</b>	Nickel Manganese Cobalt lithium-ion cathode
<b>NMCA</b>	Nickel Manganese Cobalt and Aluminium lithium-ion cathode
<b>OEM</b>	Original Equipment Manufacturer
<b>Other-HEV</b>	Non-plug-in hybrid vehicles, including full and mild hybrids that combine an internal combustion engine and a battery to deliver power
<b>Pass Car</b>	Passenger car
<b>PHEV</b>	Plug-in hybrid electric vehicle combining an internal combustion engine and an electric powertrain
<b>PMSM</b>	Permanent Magnet Synchronous Motor
<b>xEV</b>	Electrified vehicle including BEV, PHEV, HEV, FCEV
<b>ZEV</b>	Zero Emission Vehicle

This Q3 2024 automotive demand forecast is provided by the Technology Trends team at the APC.

Q3 spans 1 July - 30 September 2024.

If you have any questions or would like more detail on any of the graphs or data email: [info@apcuk.co.uk](mailto:info@apcuk.co.uk)