



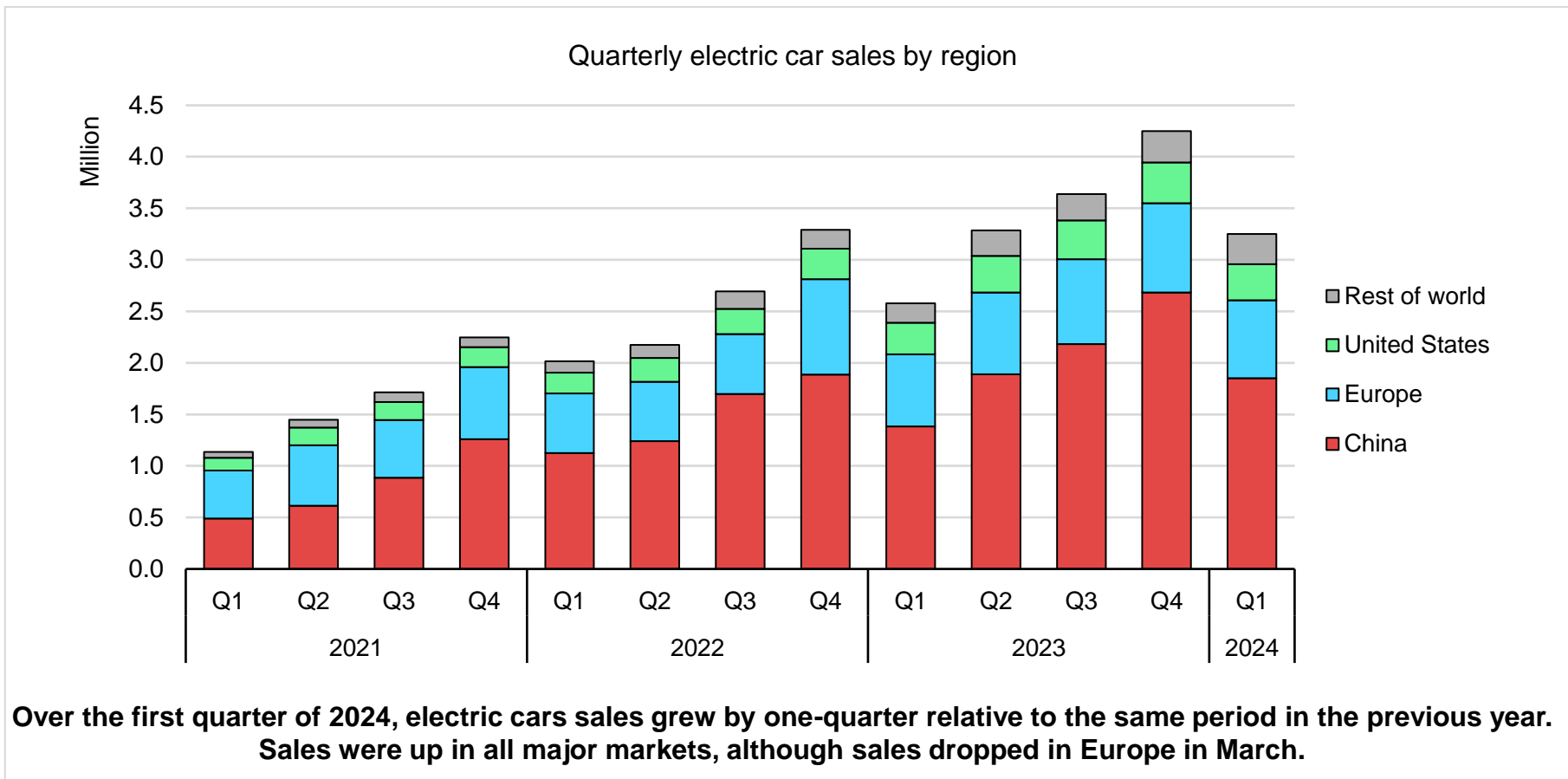
Global EV Outlook 2024

Elizabeth Connelly, PhD

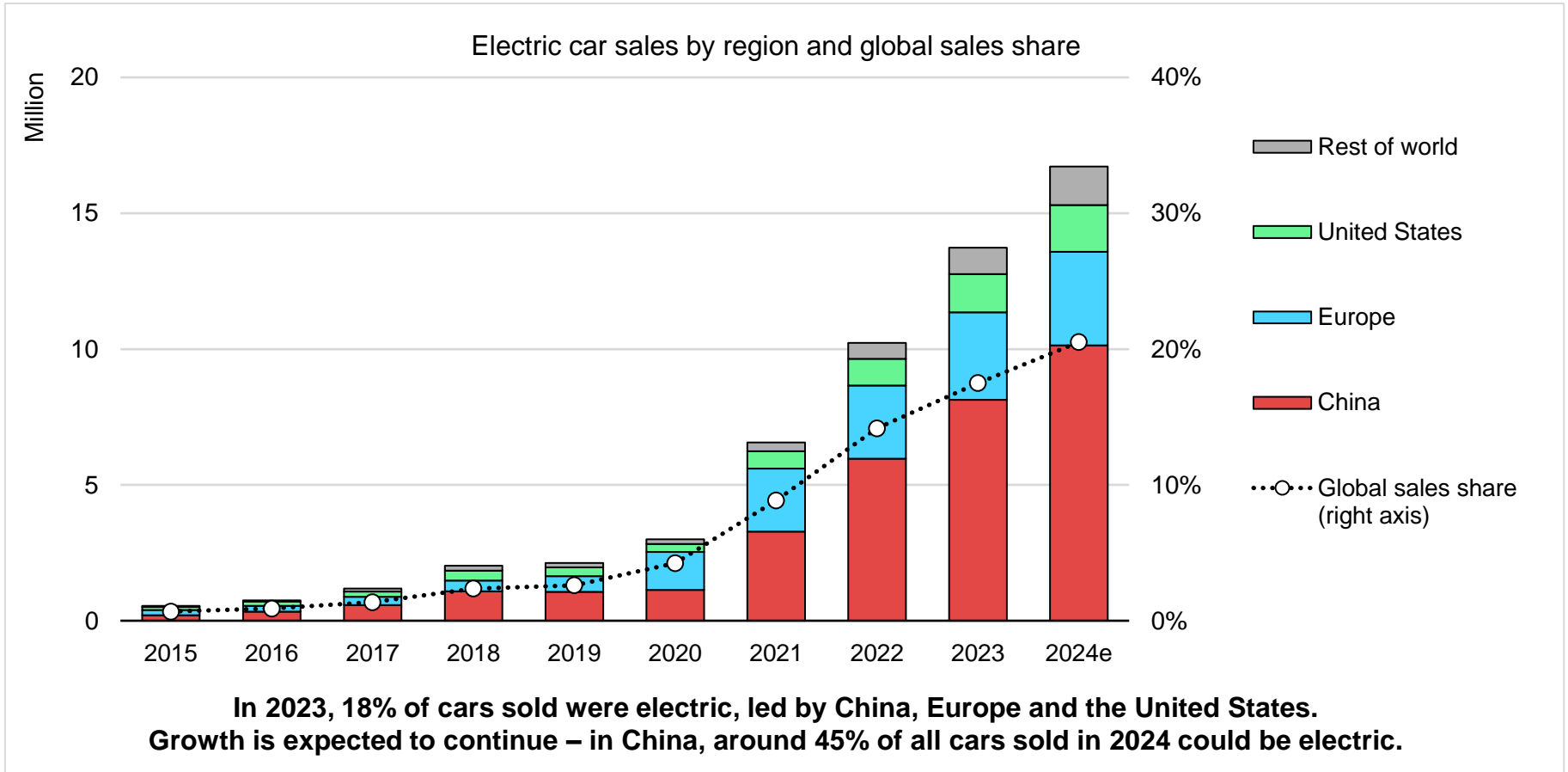
22 May 2024

Electric car sales

The story of electric car growth continues

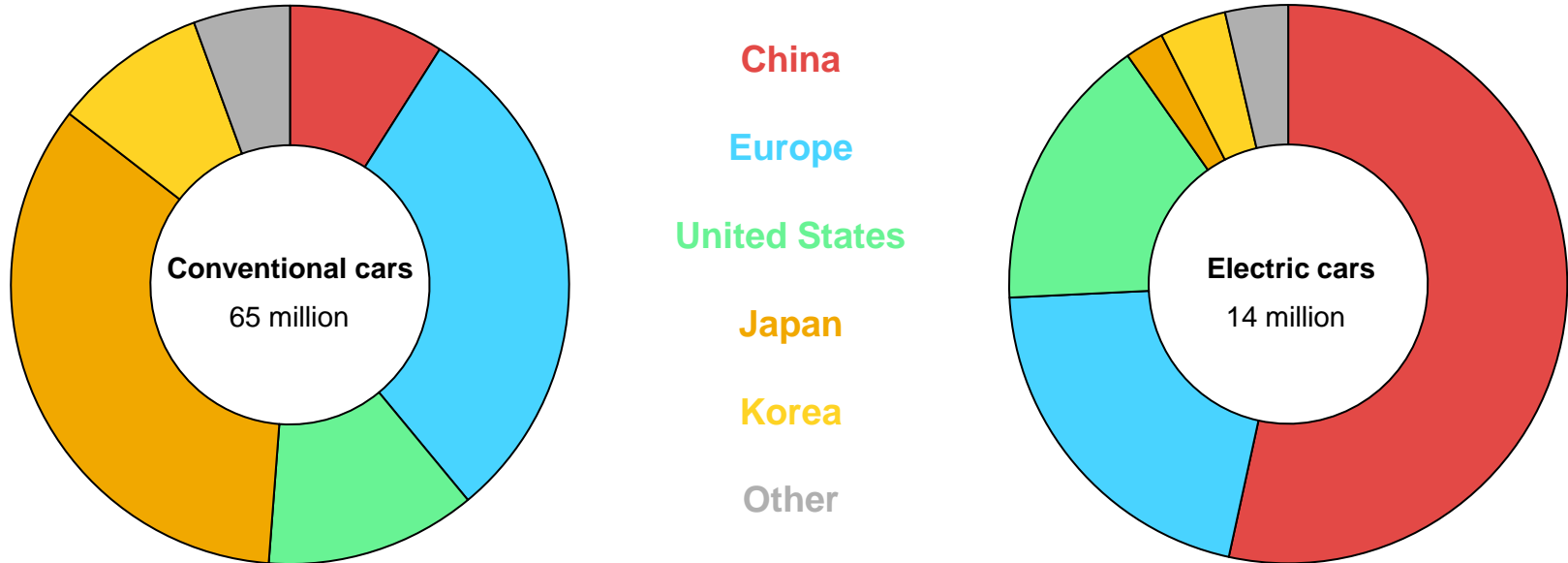


2024 is set to be another record year for electric car sales



A new electric car industry is emerging

Share of global car markets by automaker headquarters, 2023

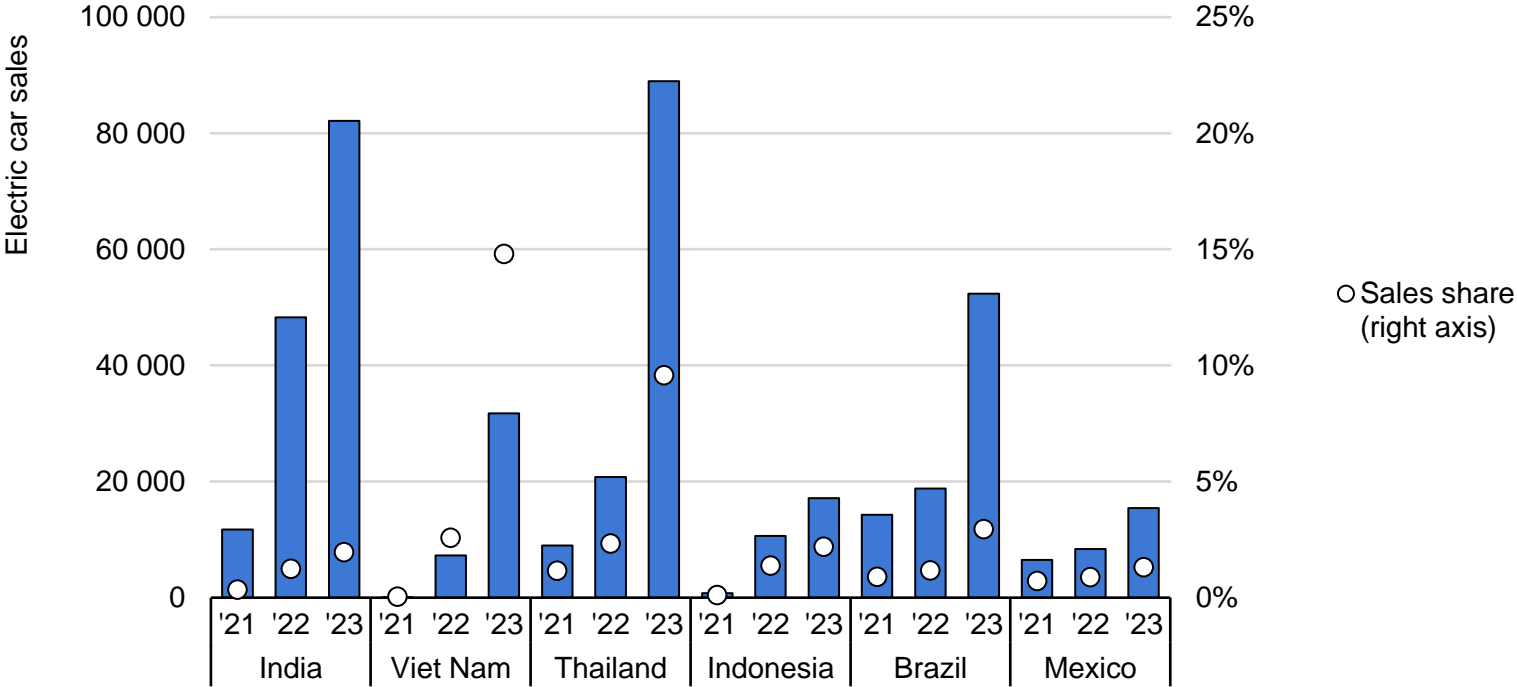


Chinese companies provide more than half of global electric car sales, compared with just 10% for conventional cars.

Sales in emerging markets and developing economies are growing



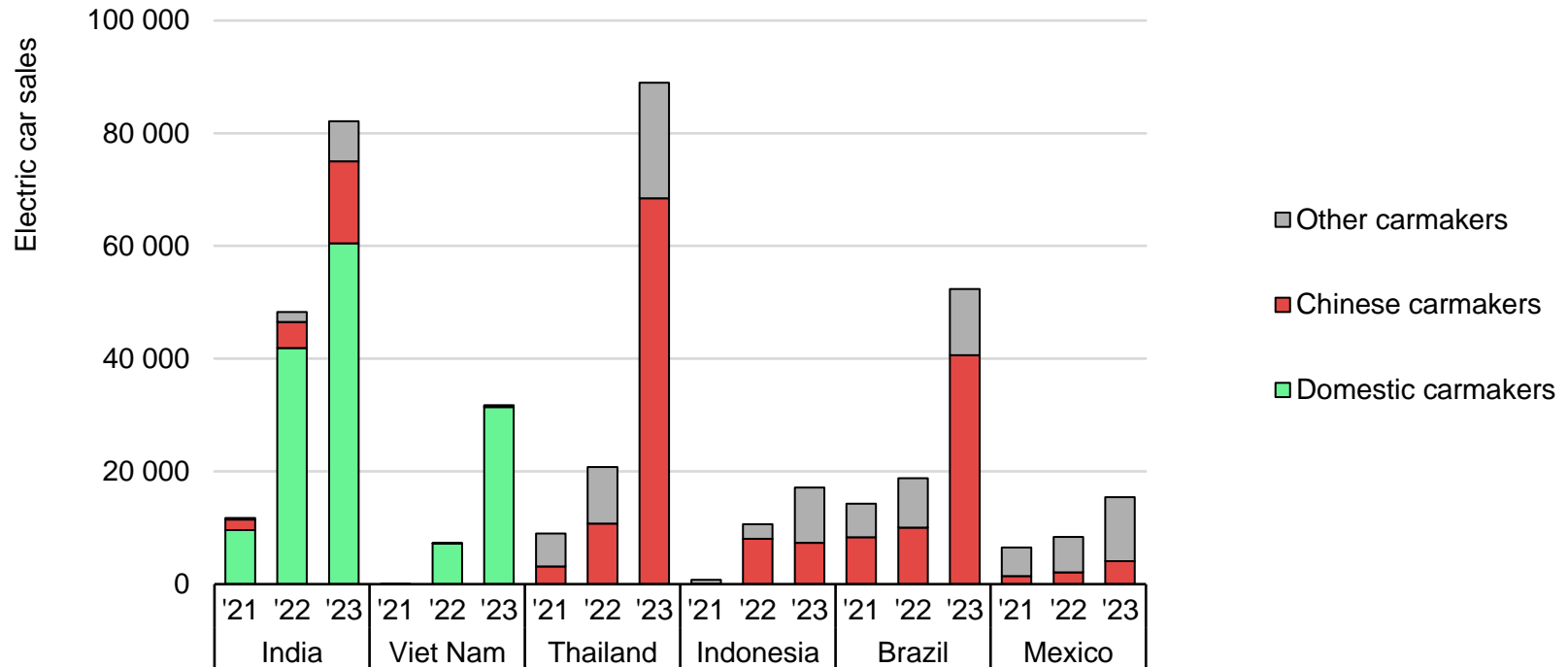
Electric car sales by carmaker headquarters and country, 2021-2023



Electric car sales are growing quickly across major EMDEs, supported by policy. Local champions are emerging in India and Viet Nam, while Chinese carmakers expand elsewhere.

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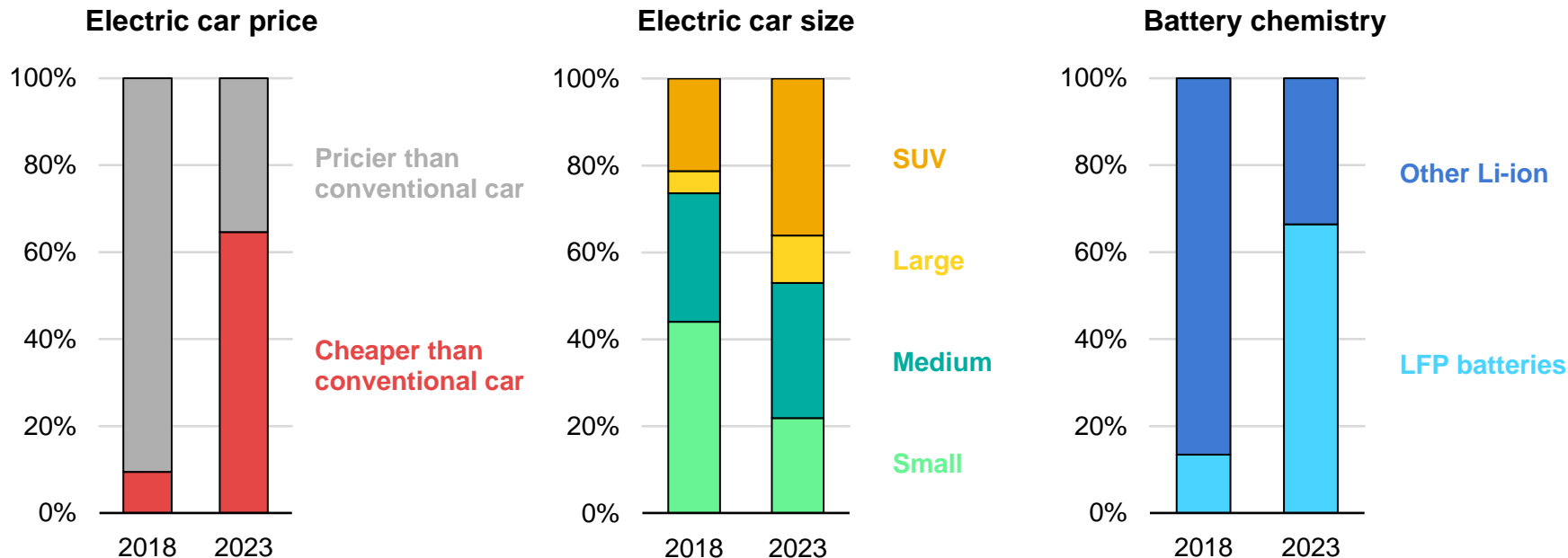
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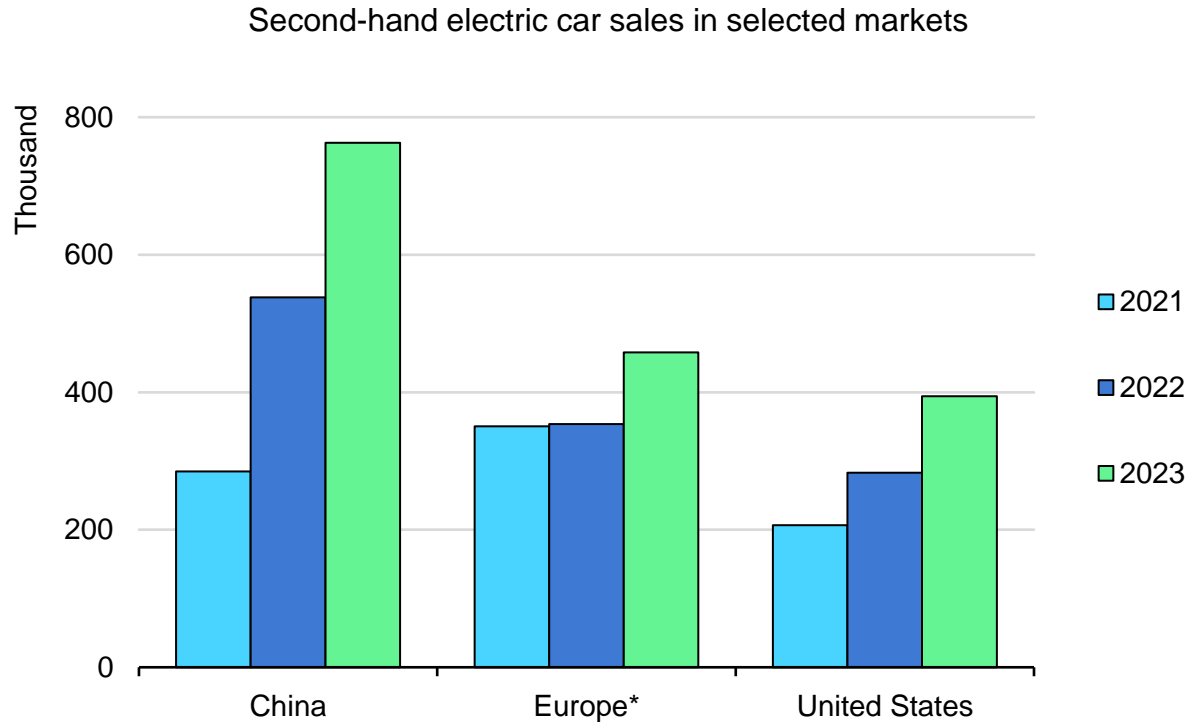
In China, electric cars are getting larger... and cheaper

Share of battery electric car sales in China



In 2023, over 60% of electric cars sold in China were cheaper than their average ICE equivalent. Strong competition in the growing market of electric SUVs and cheaper battery chemistries are bringing prices down.

Second-hand electric car markets are growing

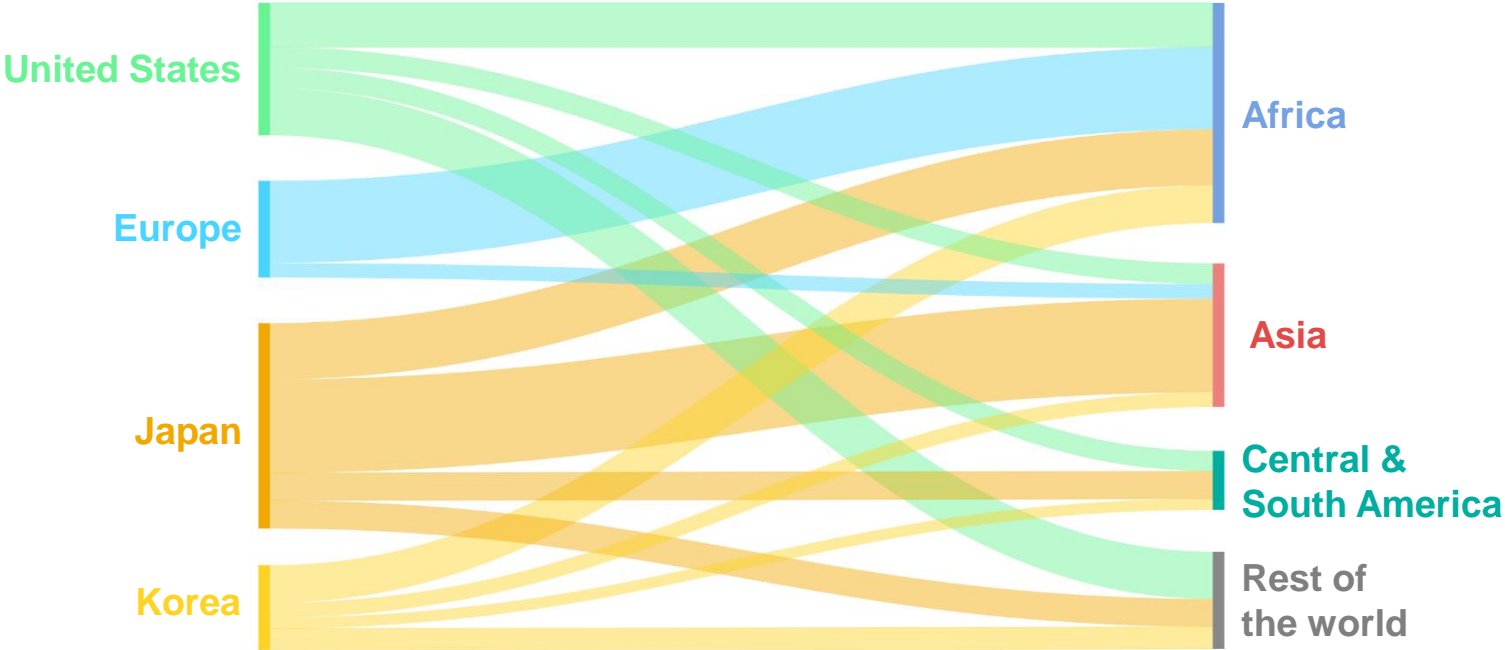


On aggregate, global second-hand electric car sales in the major EV markets were roughly equal to new electric car sales in the United States in 2023.

Used vehicle flows may have important implications for EV adoption



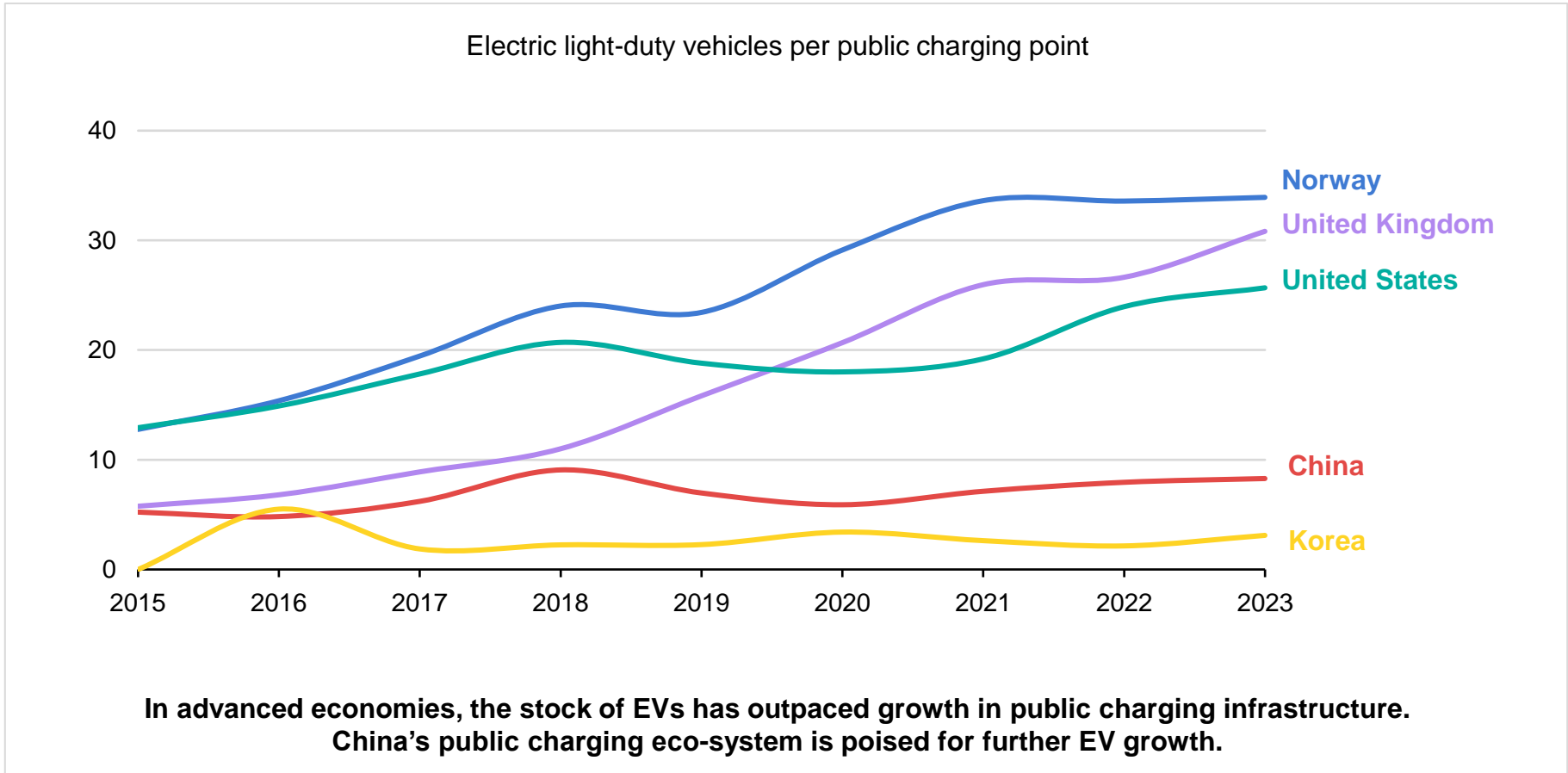
Common trade flows for conventional used exports between advanced and emerging economies, 2020



African countries represent around 40% of used vehicle imports according to the United Nations Environment Programme.

Charging

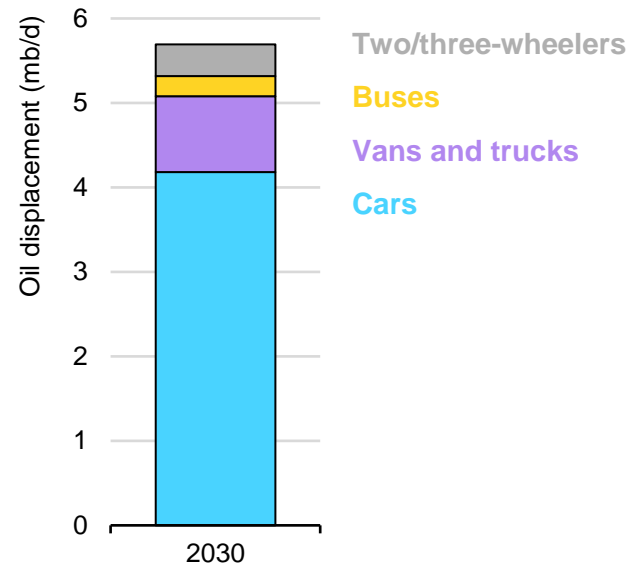
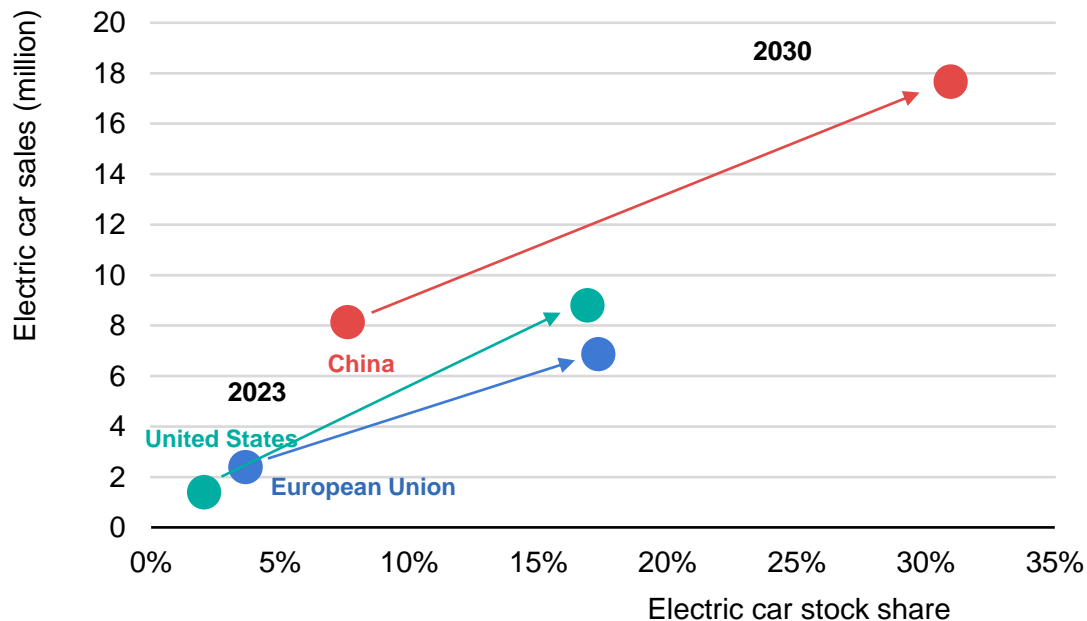
Roll-out of public charging is critical to enable mass EV adoption



Outlook

The electric car fleet is set to grow quickly

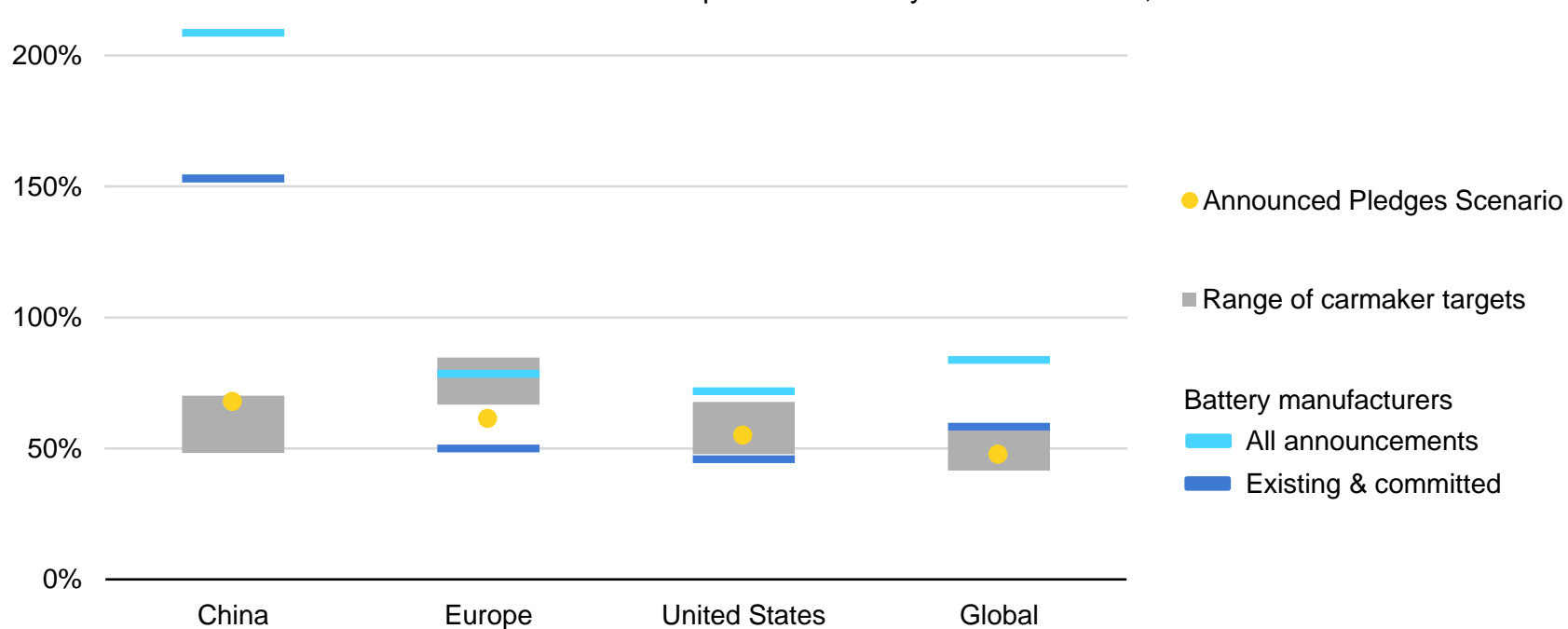
Electric car sales, stock share and oil displacement in the Stated Policies Scenario, 2023-2030



By 2030, under current policy settings, electric cars represent more than 30% of the China's car fleet and around one-fifth of the car stock in the European Union and United States.

Manufacturers could deliver government ambitions

Electric car sales shares compared to industry announcements, 2030

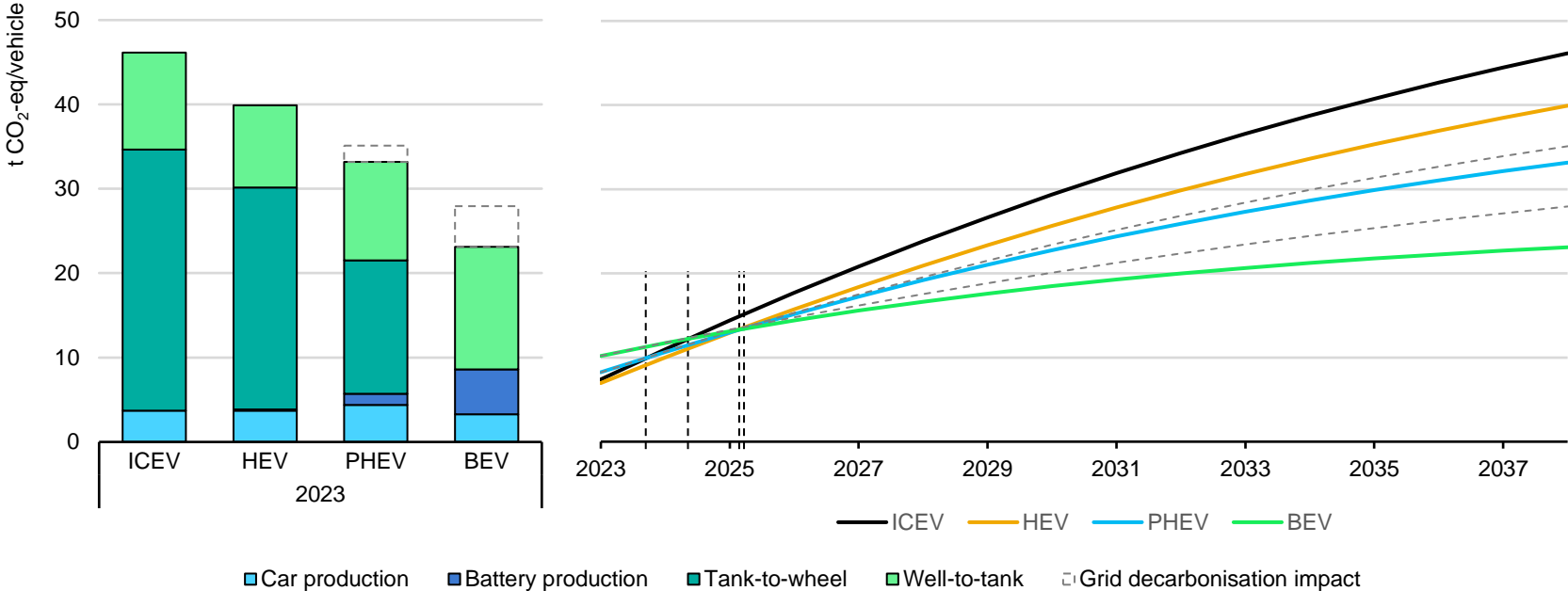


Automaker targets and battery manufacturing plans are in line with 2030 government targets. Existing & committed battery manufacturing projects are practically sufficient to reach NZE deployment needs across all of road transport.

Lifecycle analysis

EVs already significantly outperform ICEs in terms of emissions

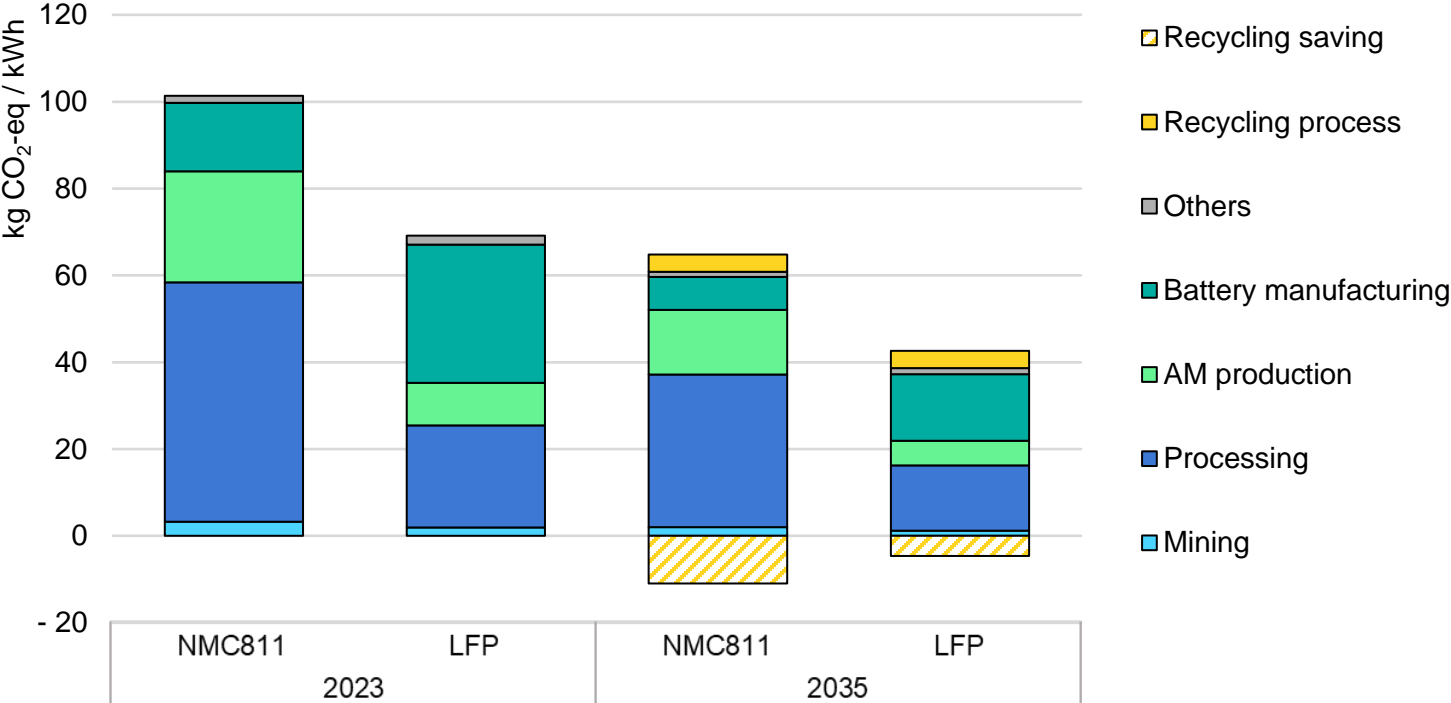
Global average medium-car lifecycle emissions by powertrain in STEPS, 2023



EVs can pay back the additional emissions associated with battery production in around 2 years, while grid decarbonisation over the vehicle lifetime boosts emissions savings by over 25%

Battery chemistry impacts lifecycle emissions

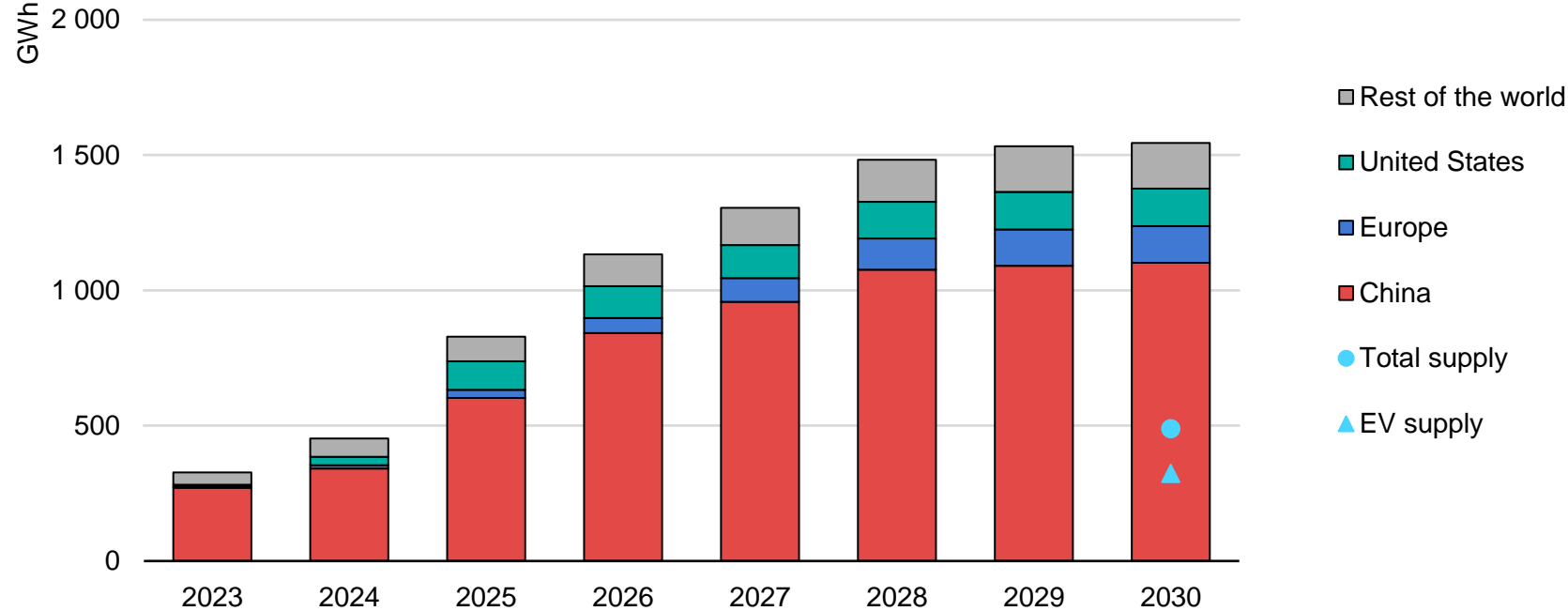
Battery pack lifecycle emissions by chemistry in the Announced Pledges Scenario, 2023-2035



LFP battery lifecycle emissions are about one-third lower than those for NMC811. The decarbonization of different chemistries require focusing on different parts of the supply chain.

Battery recycling capacity set to increase 3-fold by 2030

Expected battery recycling capacity by region based on current announcements and potential supply in APS, 2023-2030



Recycling capacity diversifies from today to 2030, with Chinese share decreasing from over 80% to 70%. Recycling capacity could be 3 times higher than supply in 2030, but retired EV batteries grow rapidly in the 2030s.

Recommendations

1

Maintain and adapt support for electric cars

2

Promote adoption in emerging and developing economies

3

Enable the heavy-duty market

4

Expand EV infrastructure and smart grids

5

Ensure secure, resilient and sustainable EV supply chains

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