



# Global EV Outlook 2023

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International  
Energy Agency



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## Global EV Outlook 2023

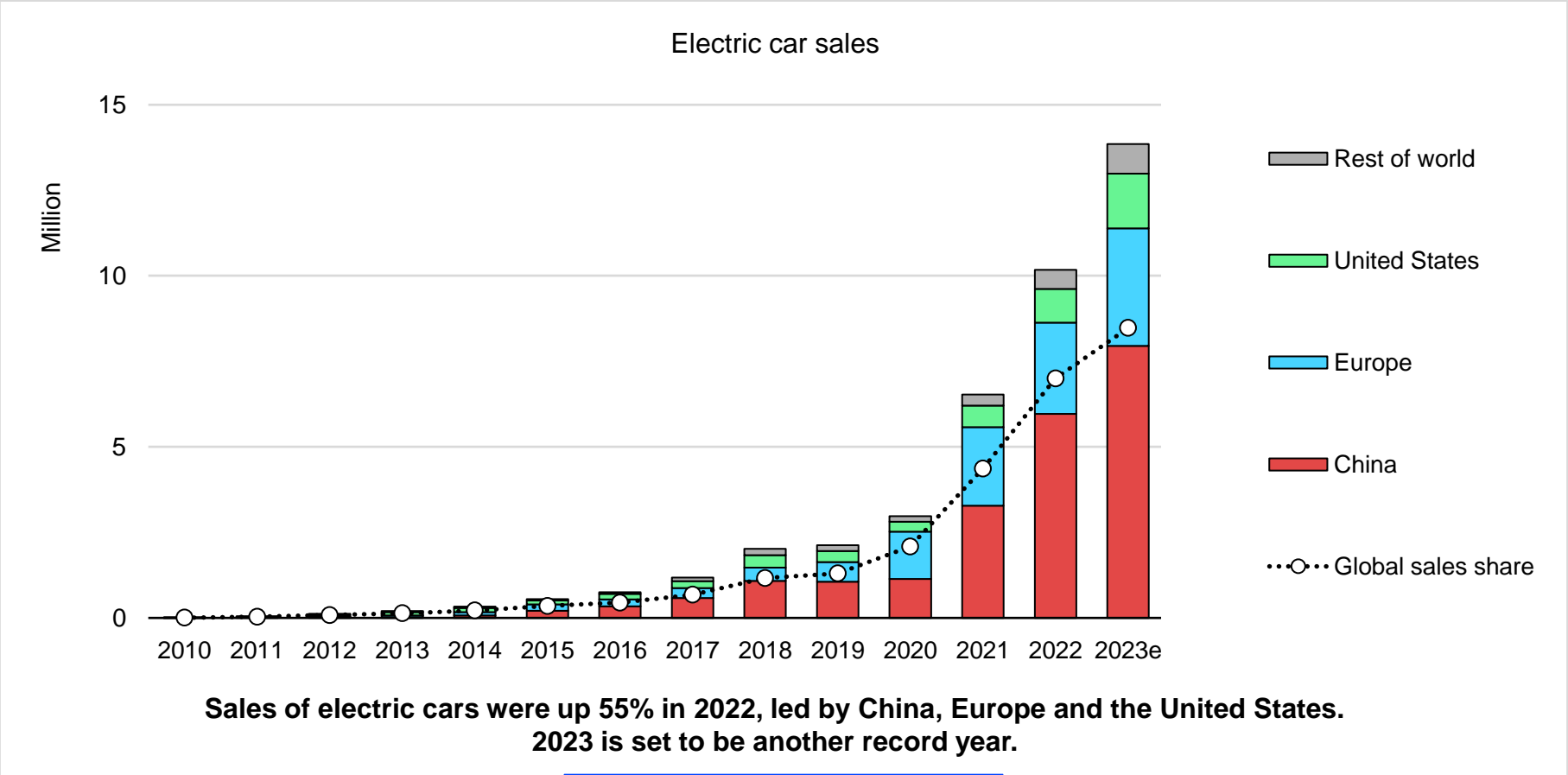
Catching up with climate ambitions



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# Recent trends in electric cars

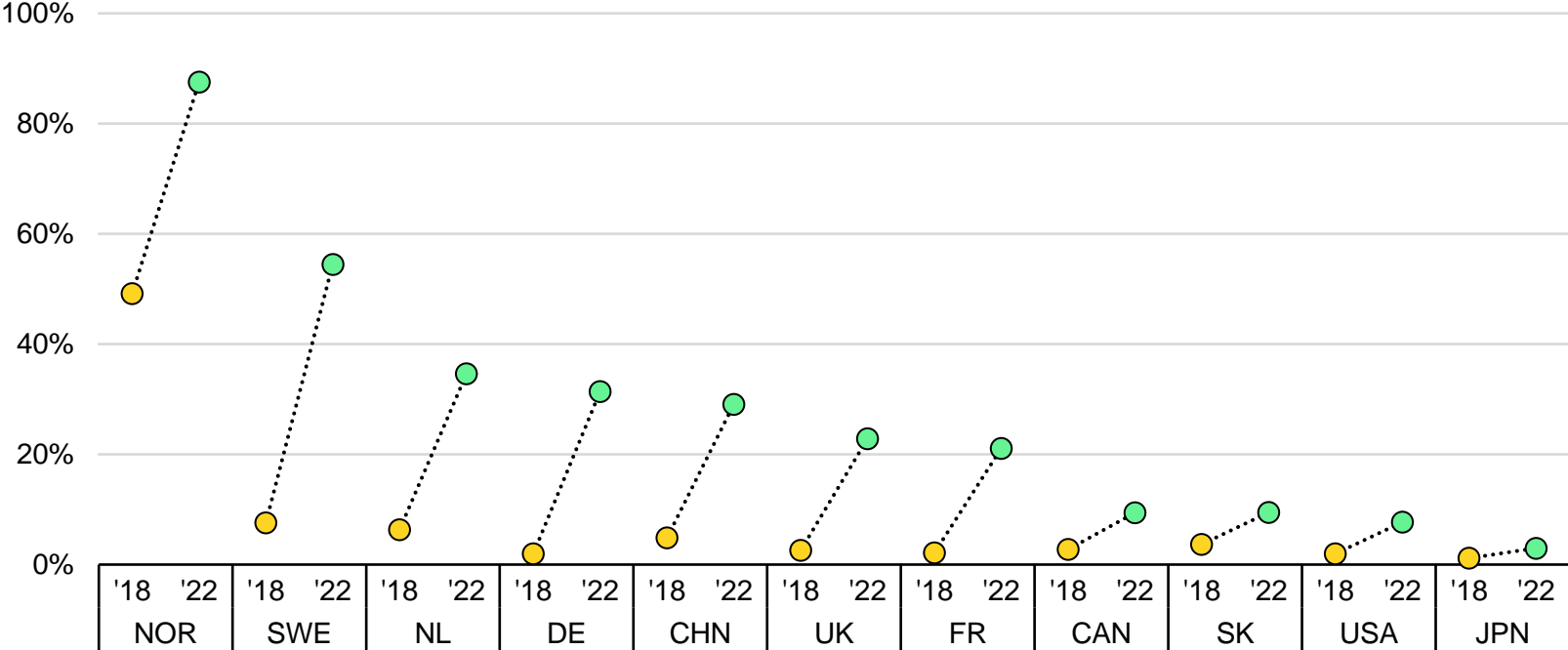
# Electric car sales exceeded 10 million in 2022



# Electric cars are reaching mass-market adoption in many cases

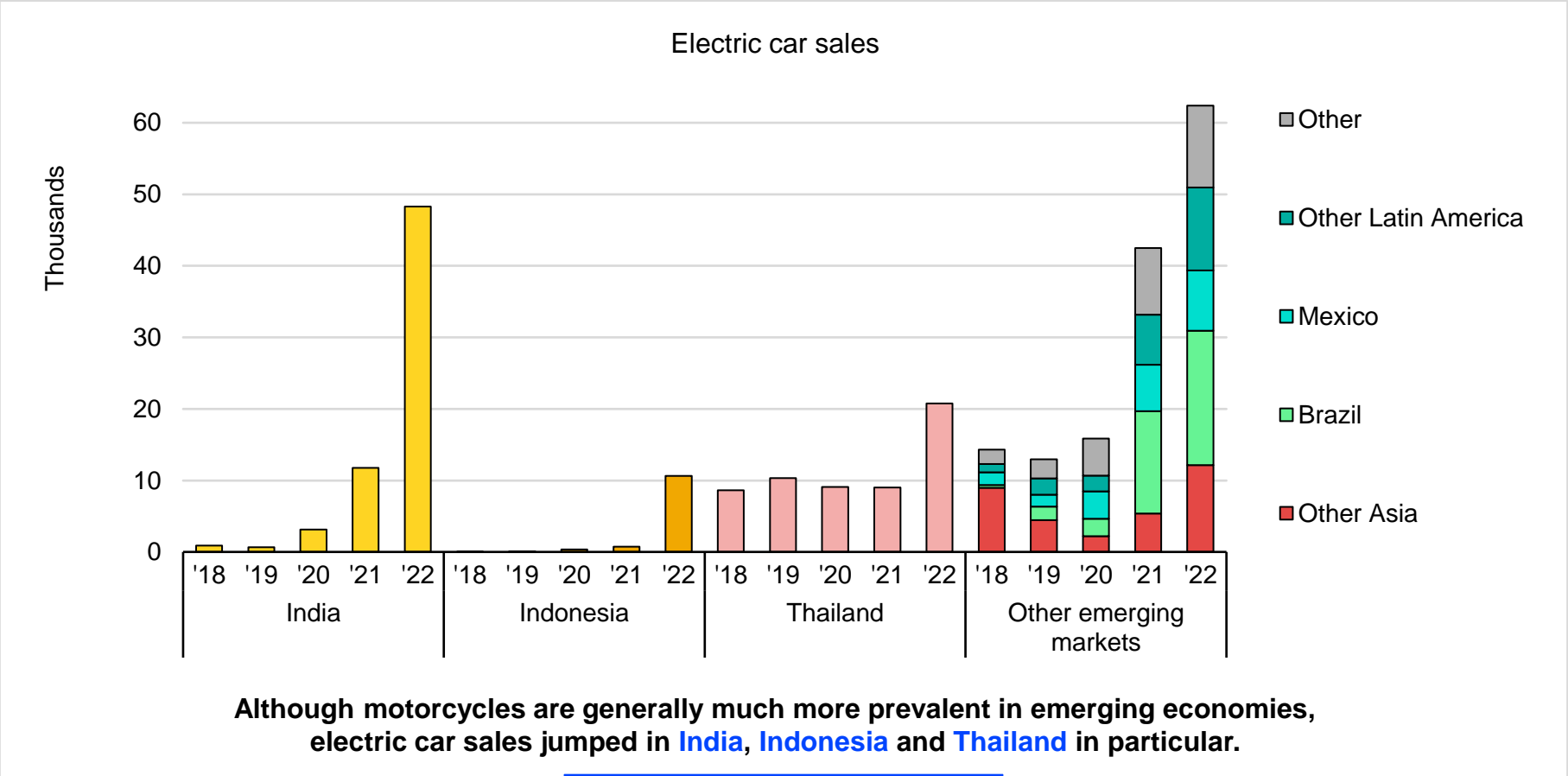


Electric car sales share in selected countries, 2018-2022

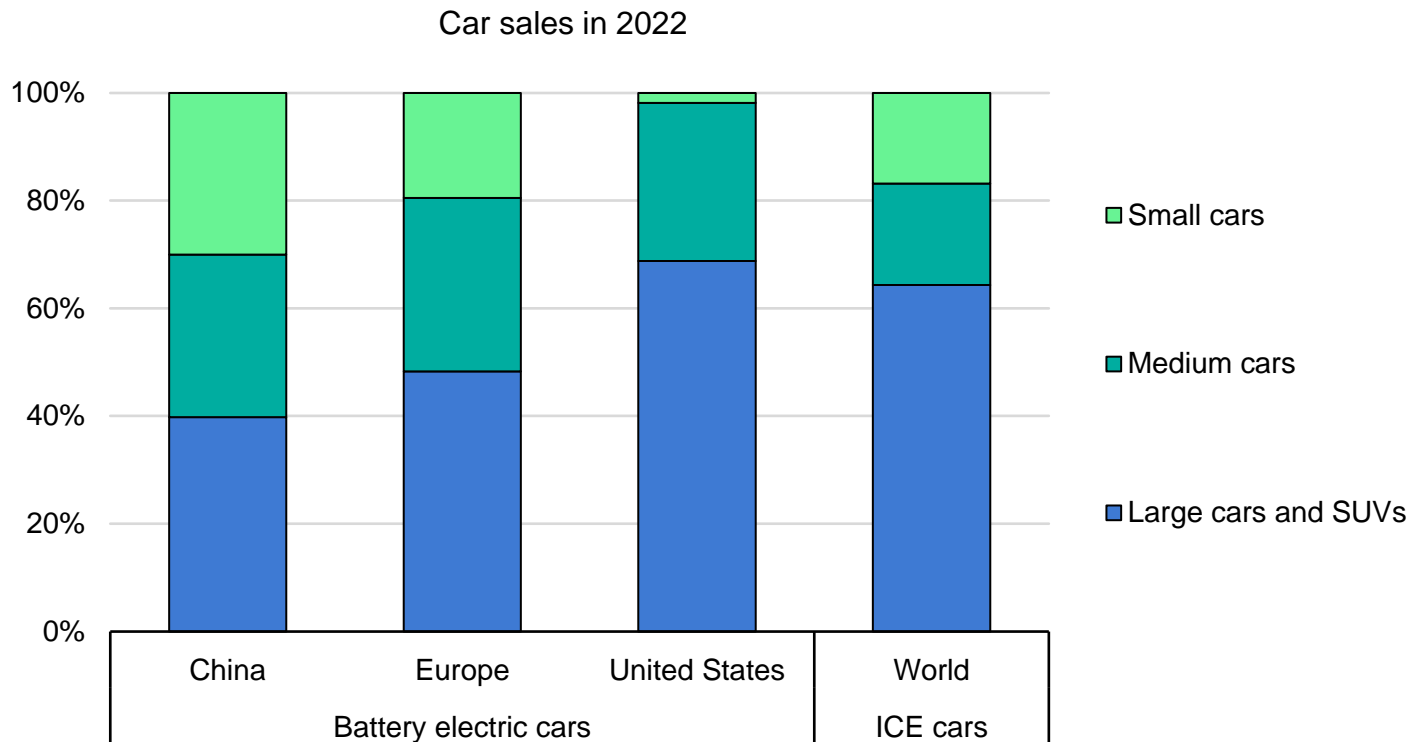


Electric cars account for **more than 20%** of total sales in China and more than 10 European countries. This share is expected to climb much higher by 2030 with current policies.

# Electric cars are beginning to sell in emerging economies



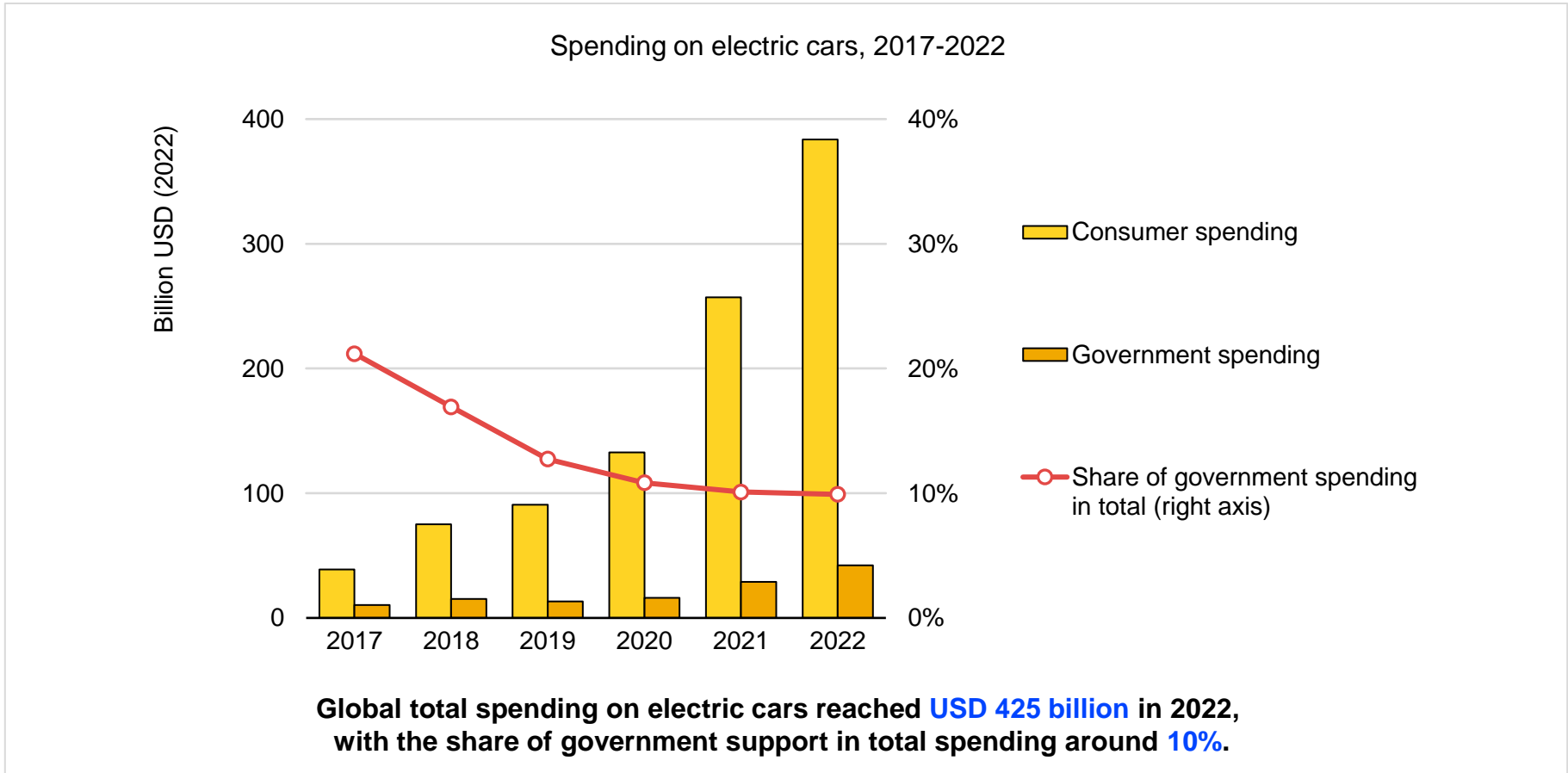
# Large models and SUVs dominate car sales



**Large cars and SUVs made up over 45% of electric car sales in 2022. This has important implications for critical minerals demand.**

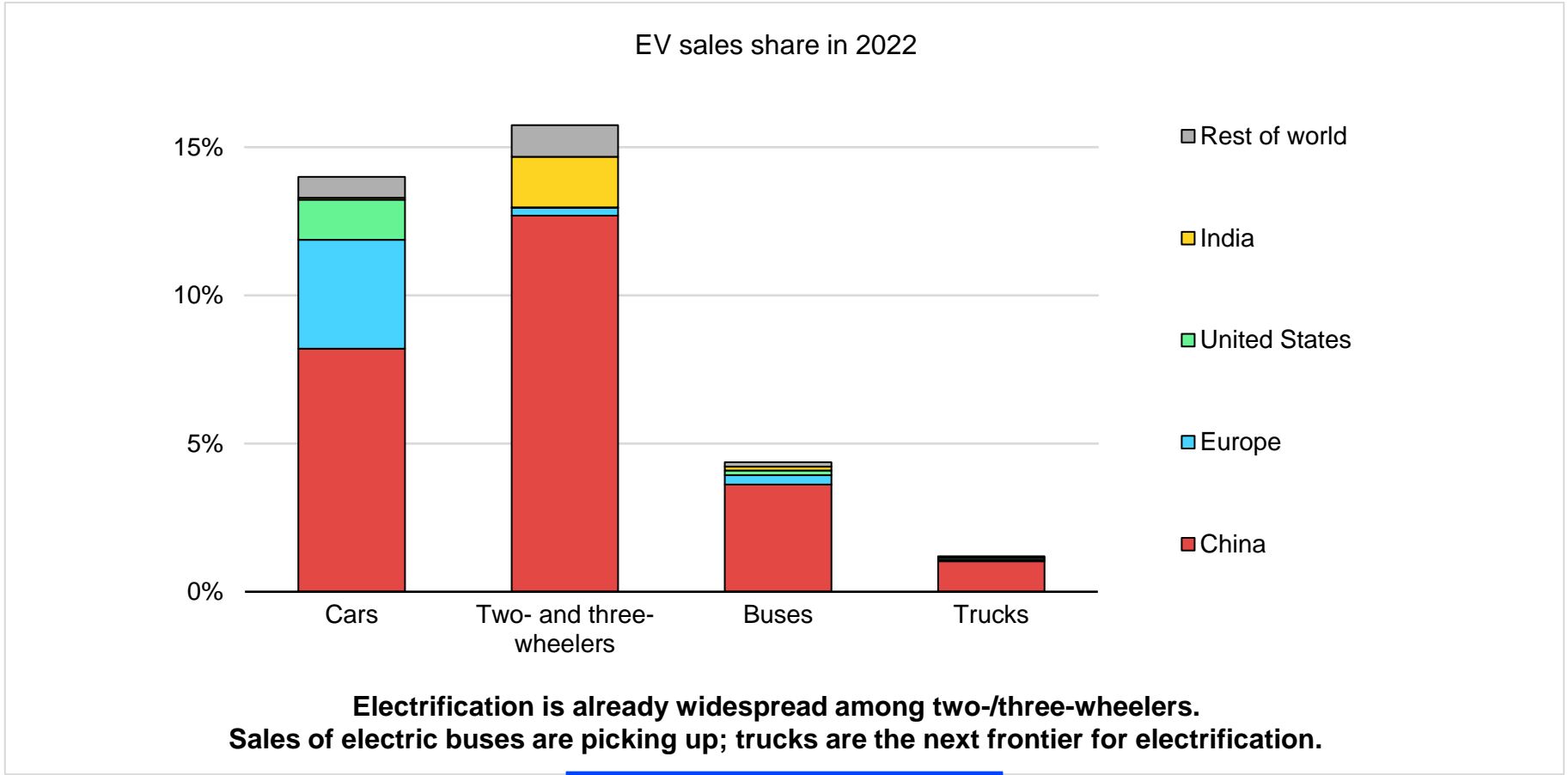


# Sustained policy support underpins EV growth



# Recent trends in other vehicle segments

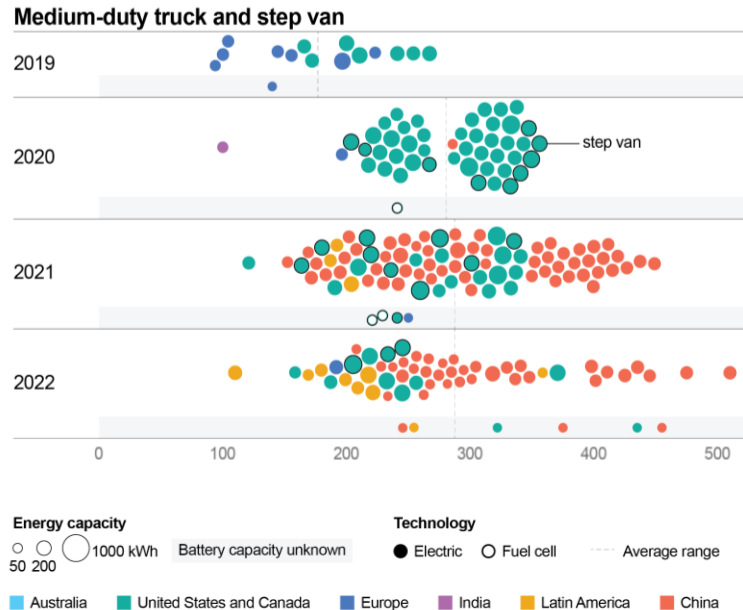
# Transport electrification is not only about cars



**Electrification is already widespread among two-/three-wheelers.  
Sales of electric buses are picking up; trucks are the next frontier for electrification.**

# Model availability widens for electric medium and heavy-duty trucks

Current and announced zero emissions commercial vehicle models by type, release date and range, 2019-2024



**China accounts for the vast majority (with 54 000 bus sales and 52 000 medium- and heavy-duty truck sales), but sales in the United States and Europe are rising, with more available models and more viable use cases.**

# Model availability widens for electric medium and heavy-duty trucks

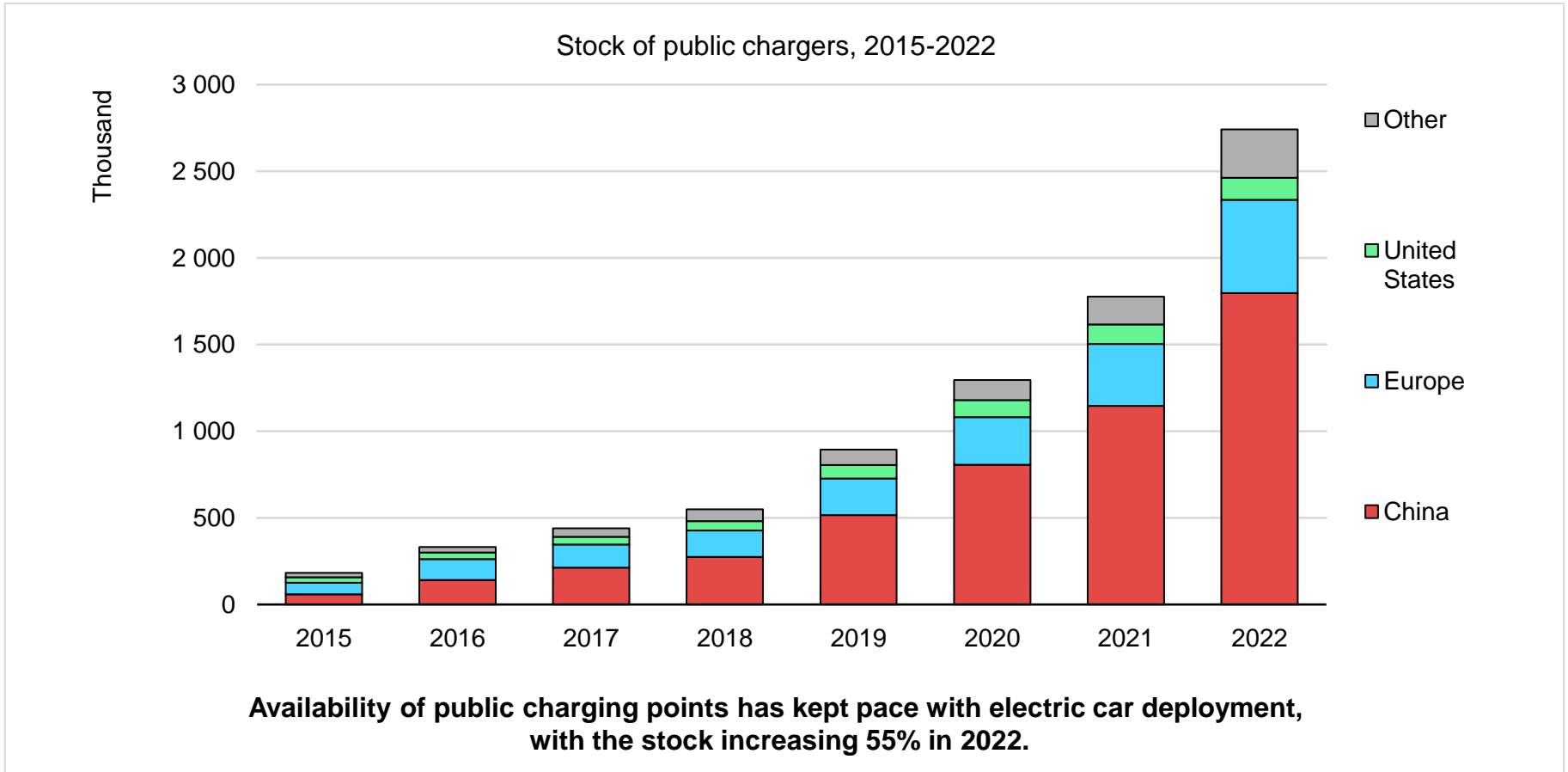
Current and announced zero emissions commercial vehicle models by type, release date and range, 2019-2024



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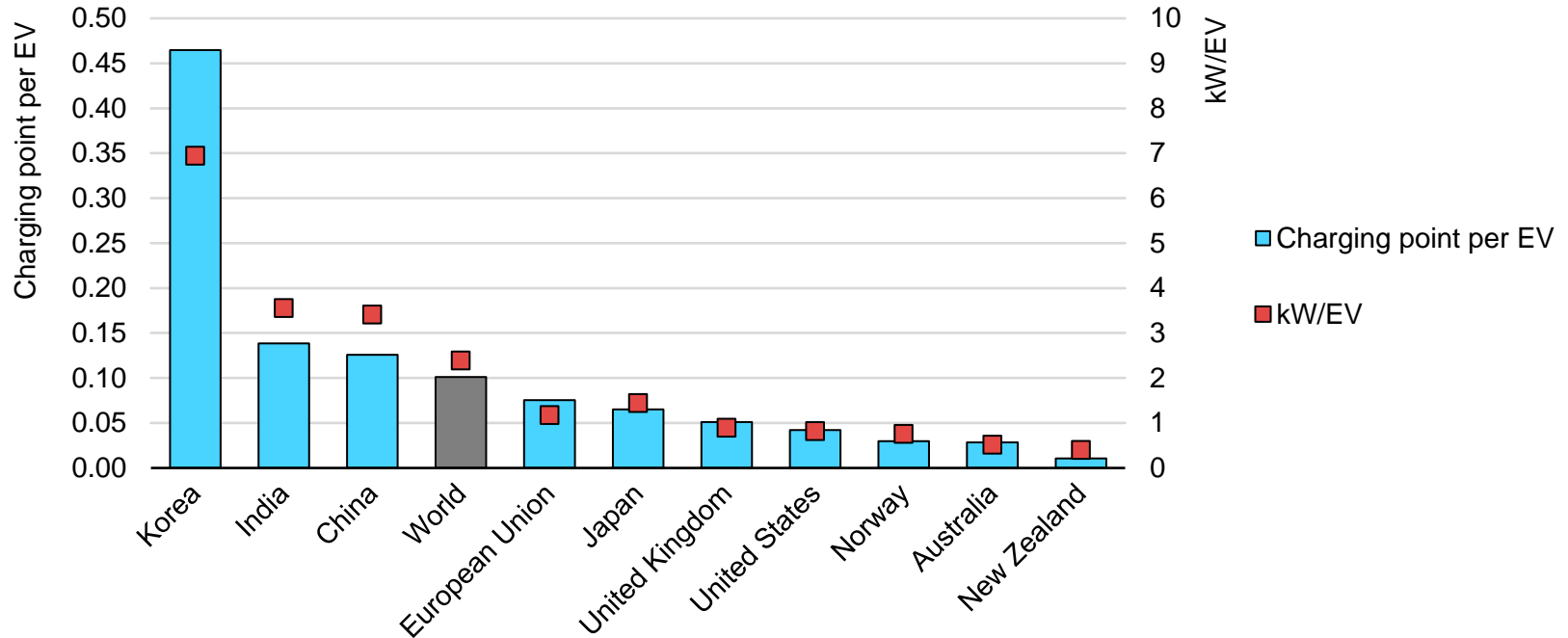
# Trends in charging infrastructure

# The global stock of public chargers has reached 2.7 million



# Globally, there is a ratio of 10 EVs per public charging point

Number of public charging points and kW per electric light-duty vehicle, 2022

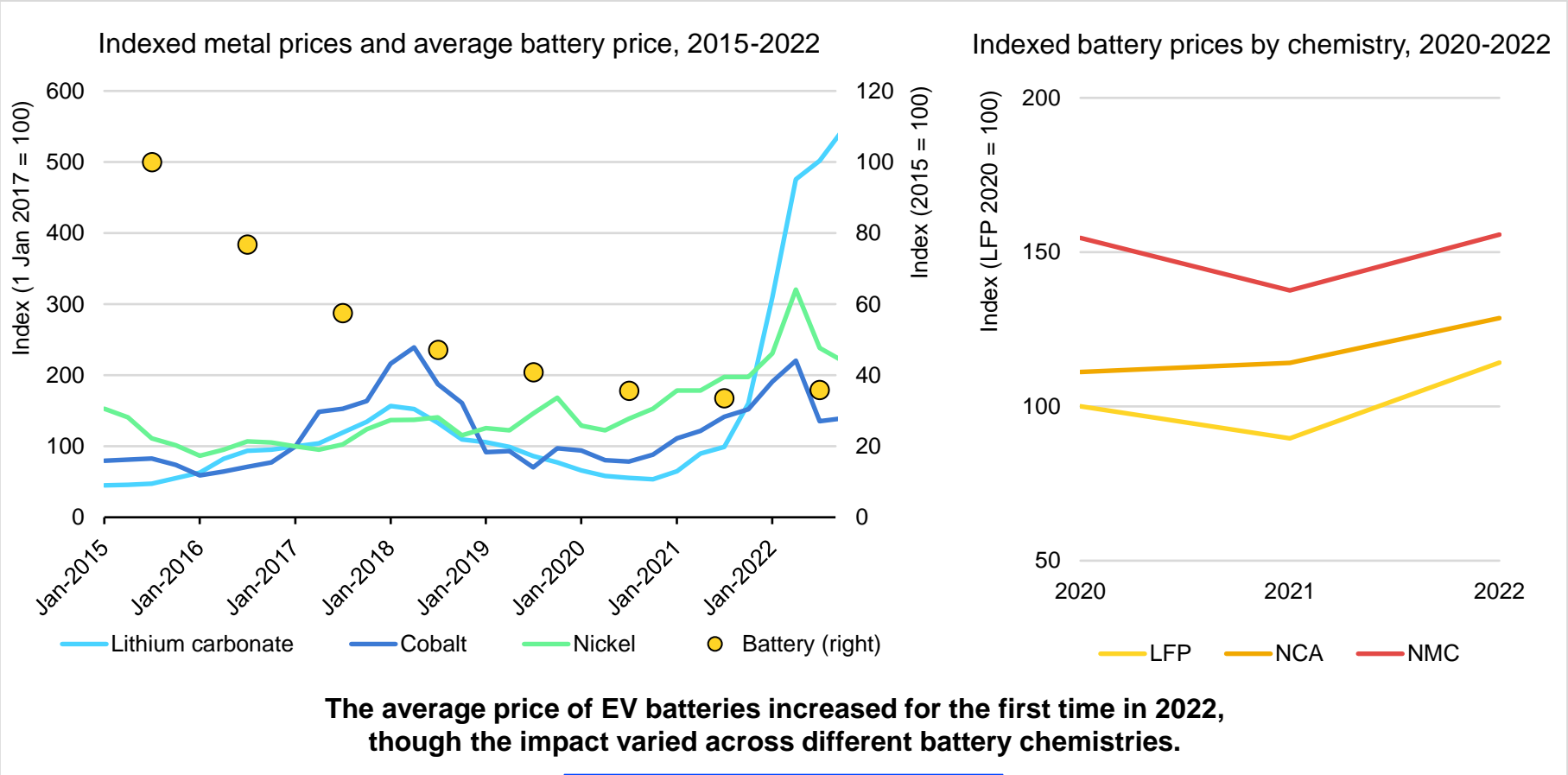


**The availability of public charging points varies widely across regions. On average there is 2.4 kW of public charging capacity per EV worldwide.**



# Trends in EV batteries

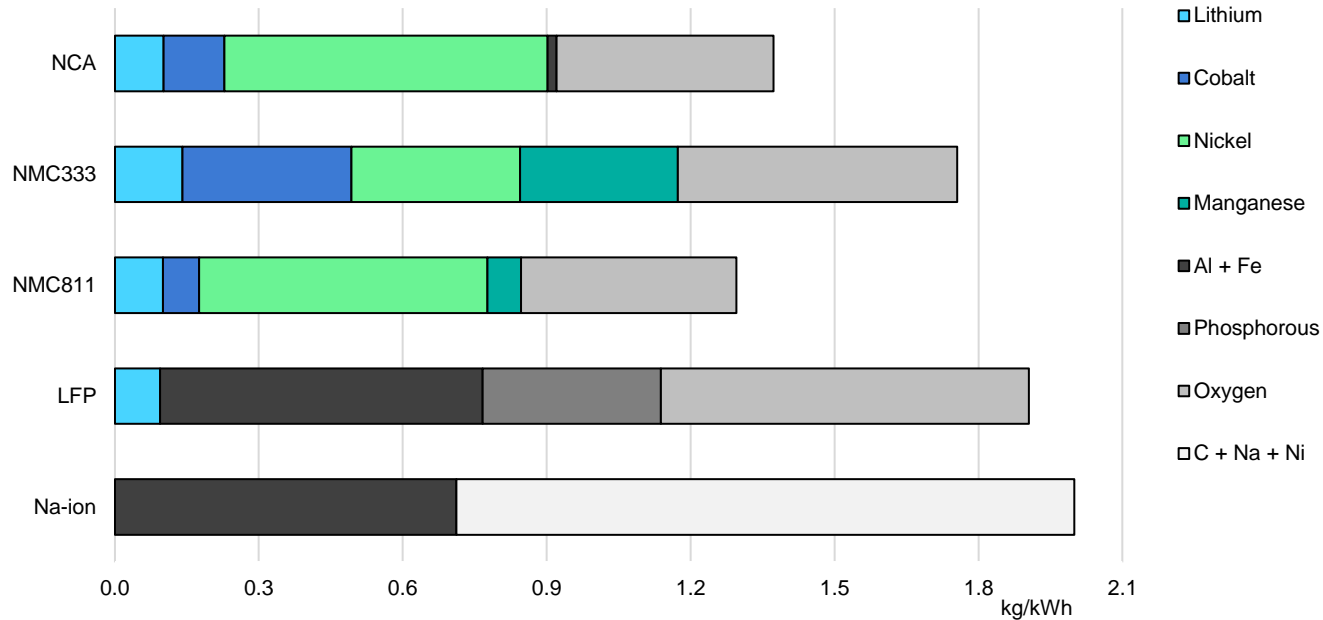
# Battery material prices increase in 2022



**The average price of EV batteries increased for the first time in 2022, though the impact varied across different battery chemistries.**

# Alternative battery chemistries on the rise

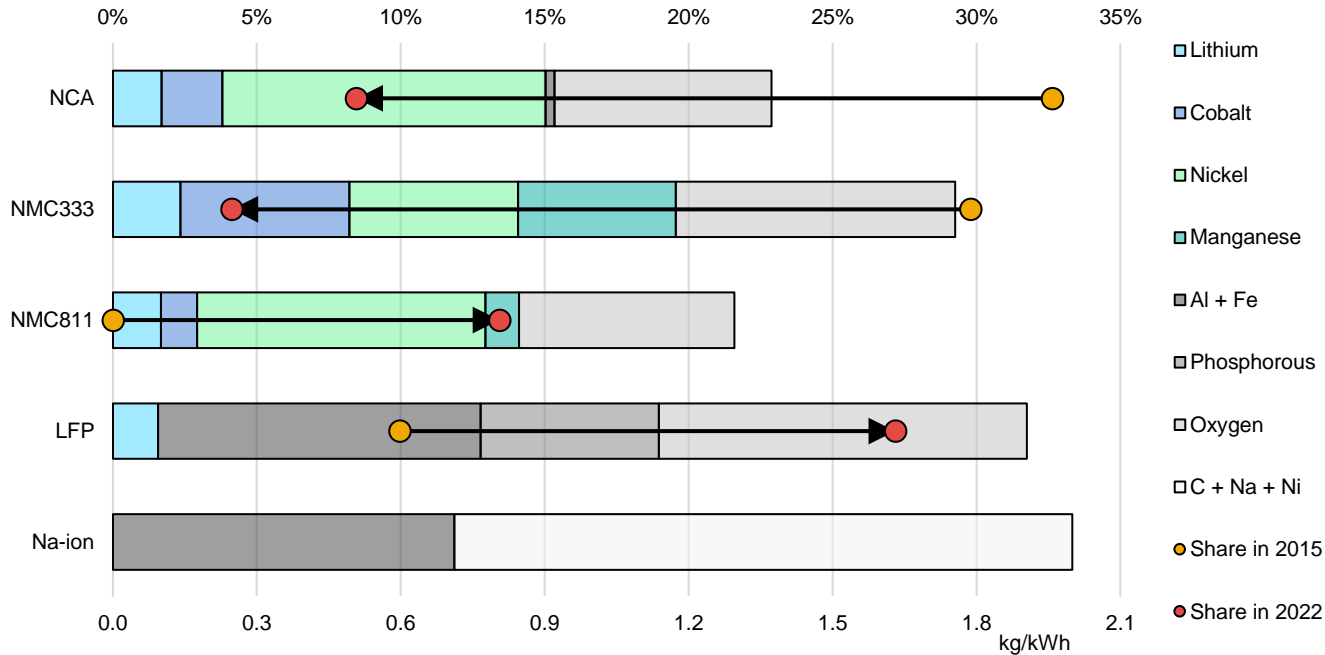
Material content and market share for different cathodes



**LFP batteries rely less on expensive metals like cobalt and nickel, leading to their recent increase in market share. Sodium-ion batteries which avoid lithium altogether are only now beginning to enter the market, mainly in China.**

# Alternative battery chemistries on the rise

Material content and market share for different cathodes

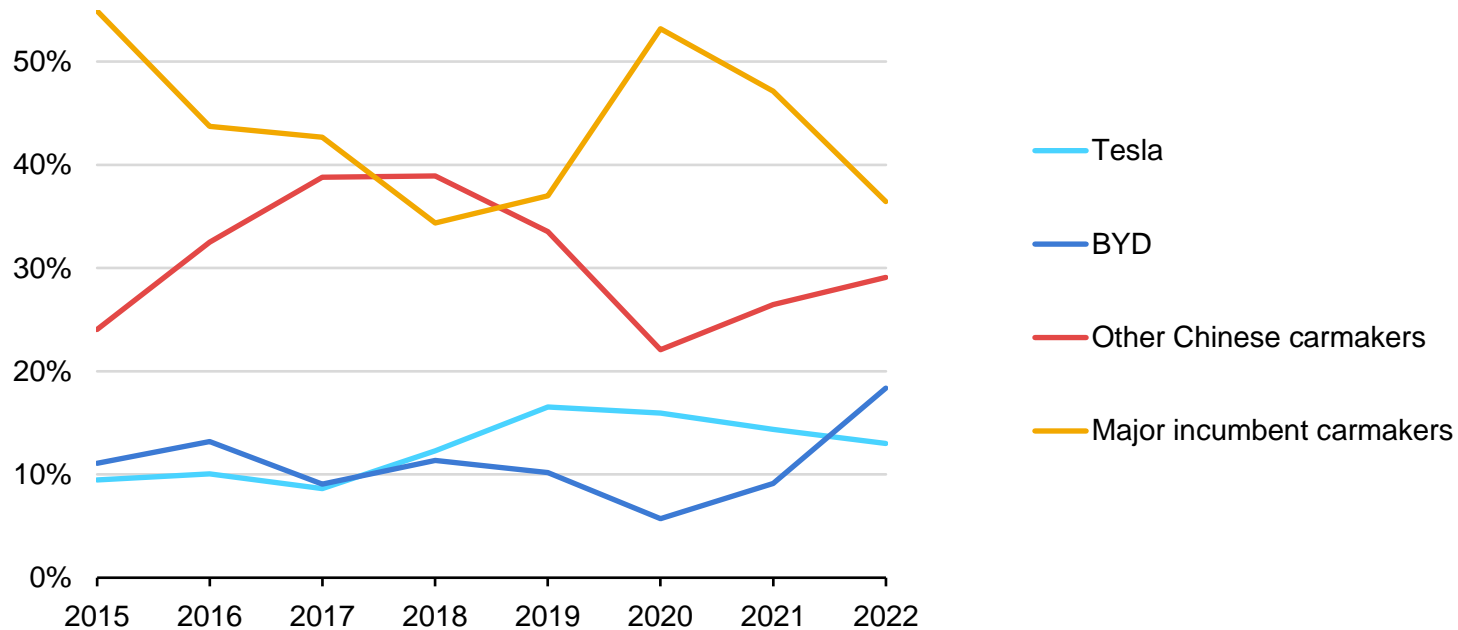


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# Finance and trade

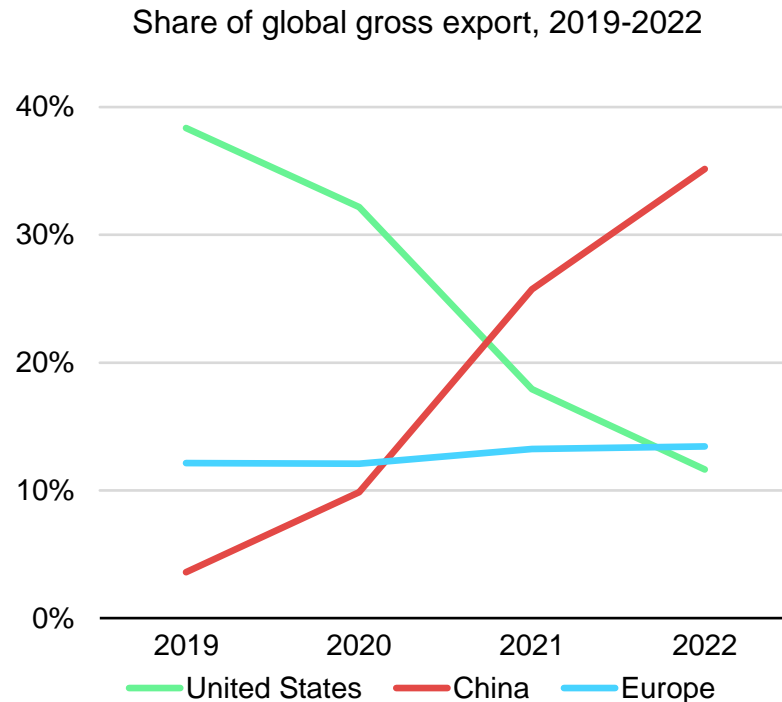
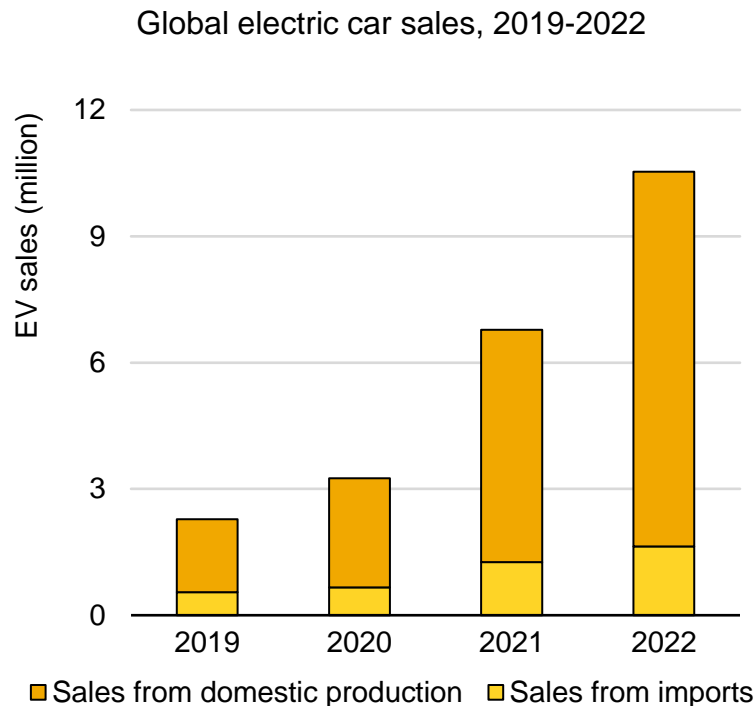
# Carmakers are facing tough competition, especially from China

Share of global electric car markets, 2015-2022



**Tesla and BYD dominate global electric car markets, together accounting for over 30% of sales. Major incumbents and Chinese carmakers are racing to capture global market share.**

# International trade of electric vehicles is increasing



**Between 2019 and 2022, the share of traded EV went from quarter to just a sixth of global sales. Since 2021, China has become the largest exporter of electric vehicles, overtaking the US.**

# Policies to promote EV deployment



## Global EV Policy Explorer

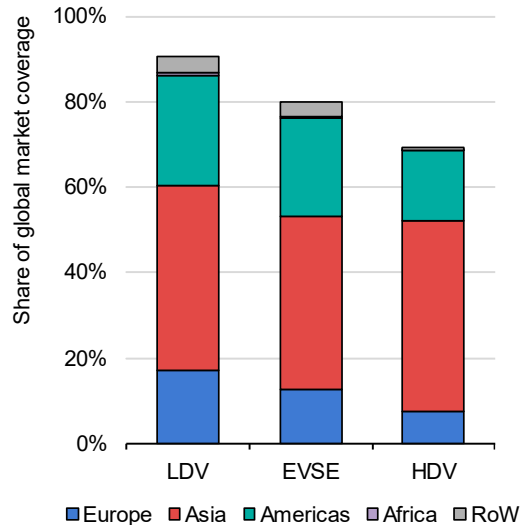
Key policies and measures that support the deployment of electric and zero-emission vehicles

Region <b>Any</b> ▼	Country/Economy <b>Any</b> ▼	Level <b>All</b> ▼	Policy type <b>All</b> ▼	Category <b>All</b> ▼
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*Easily search of filter by region, category, and others*

## Global EV Policy Explorer

Key policies and measures that support the deployment of electric and zero-emission vehicles



**LDVs remain the primary focus with over 90% of global sales covered...**

**A key barrier for many, EVSE policy coverage continues to increase...**

**Adoption of bus targets in particular sees coverage of HDVs rise...**

# Suites of policies were released in major markets



## Inflation Reduction Act

- Clean Vehicle Tax Credit
- Clean Heavy-Duty Vehicle Program
- Commercial Clean Vehicle Credit
- And others..



## Green Deal Industrial Plan

- Net Zero Industry Act
- Critical Mineral Act
- EU Battery Directive
- Plus revised CO<sub>2</sub> standards, Euro 7 regulations, and the Alternative Fuel Infrastructure Directive

## Examples of key EV related policies

OEM sales mandate



Production Linked Incentive



2022

Critical Minerals Strategy



Indonesia Battery Corporation



Critical Minerals Strategy



2023

Battery Strategy



Supply

Demand

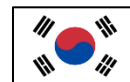
Multiple state level EV policies



EV incentives



EV incentives



EV incentives

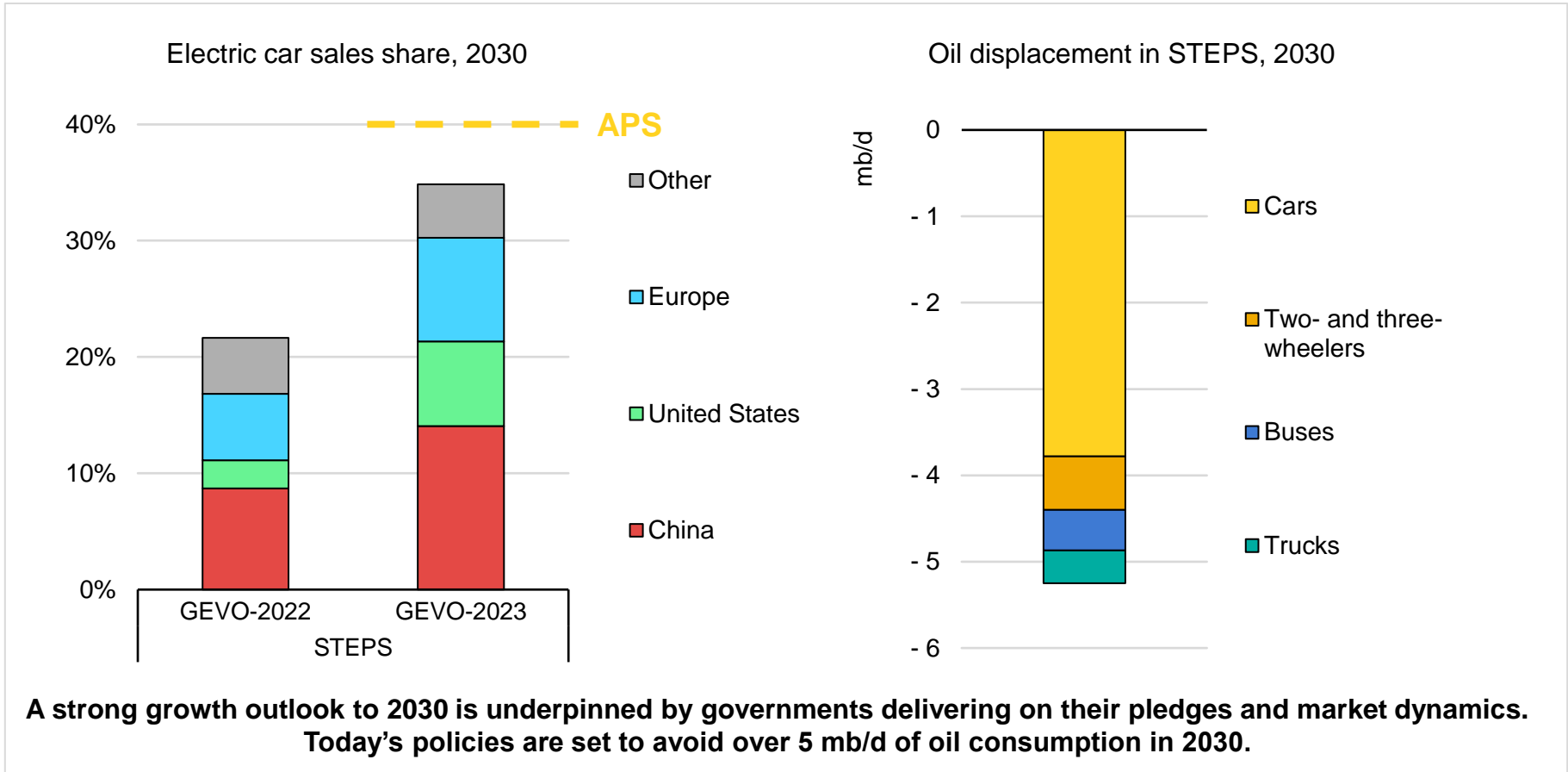


EV Strategy

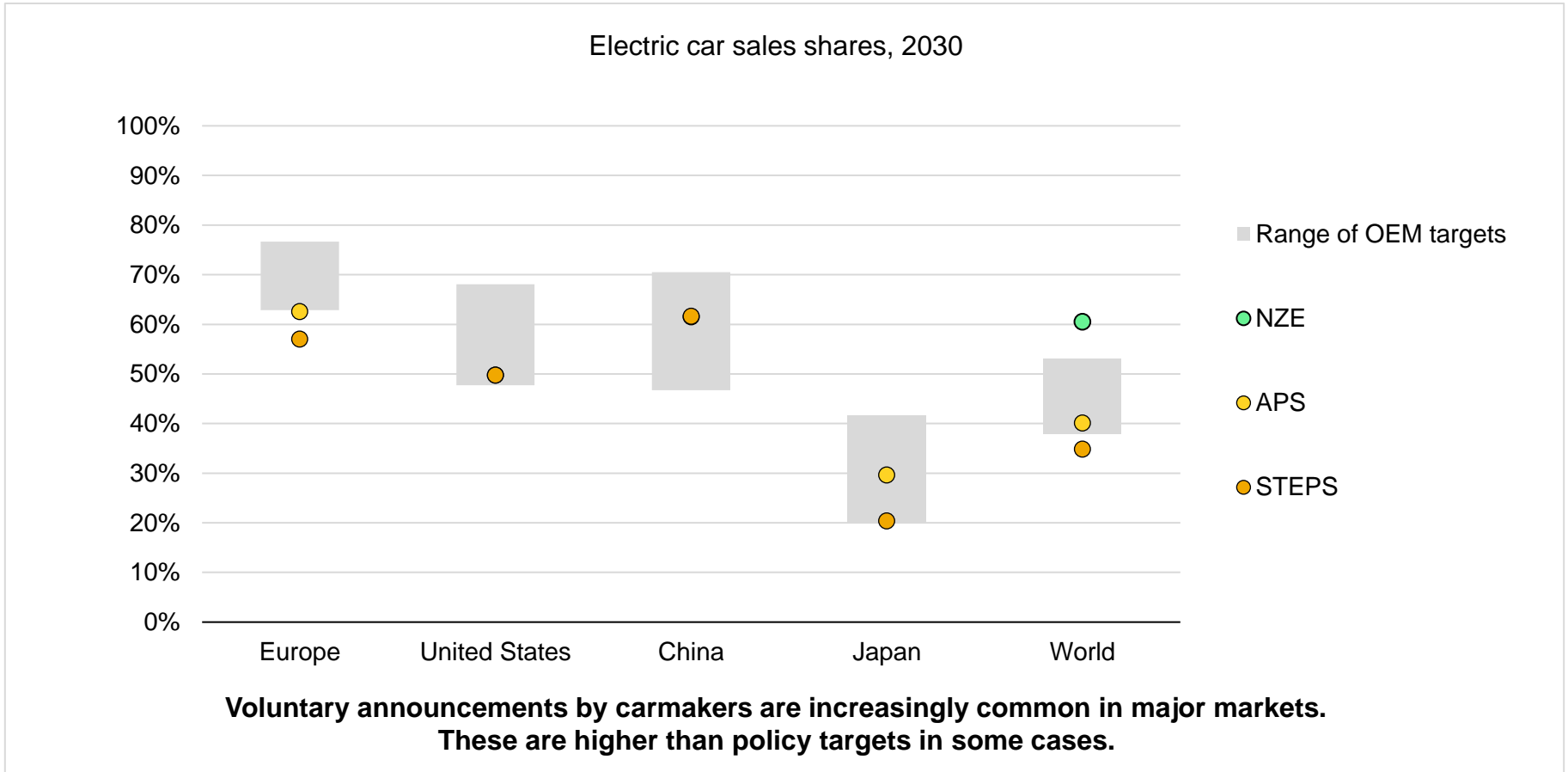


# Outlook for electromobility

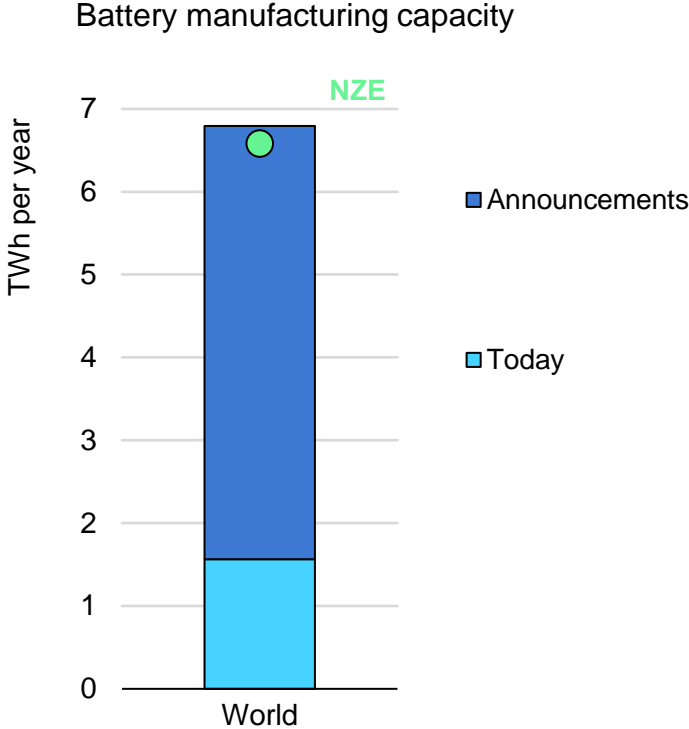
# Policy implementation is catching up with targets



# Major carmakers anticipate higher policy ambitions



# Battery supply chains are essential to the transition



**Battery manufacturing capacity needs to grow two- to fourfold by 2030.  
Policy must ensure that investment flows effectively to all steps of the supply chain.**

# Policy recommendations



# Five recommendations to governments

1

Adapt support for electric cars

2

Expand EV infrastructure

3

Kickstart the heavy-duty market

4

Promote adoption in emerging and developing economies

5

Ensure secure, resilient and sustainable EV supply chains

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