

# Electric Vehicle Market Outlook

The 6th Korea, China, and Japan EV Business  
Forum, IEVEXPO Jeju

Dr. Ali Izadi

May 3, 2023



BloombergNEF

# BNEF coverage

Strategies for a cleaner, more competitive future

BloombergNEF

## Commodities



Gas & LNG



Power



Oil



Carbon & offsets



Coal



Metals



Chemicals



Agriculture

## Sector transitions

### Clean power



Solar



Wind



Storage



Advanced nuclear



Power systems & networks

### Advanced transport



Electric vehicles



New mobility services & tech



Commercial transport



Aviation & shipping



Renewable fuels

### Buildings & industry



Low-carbon heating & cooling



Circular economy



Green steel & aluminum



Sustainable plastics & chemicals



Low-carbon cement

### Sustainable agriculture



Sustainable proteins & fats



Green agrochemicals



Sustainable intensification



Carbon-smart farming



Biodiversity markets & finance

## Cross-cutting technologies



Industrial digitalization



Hydrogen



Bioenergy



Carbon capture, utilization, storage & removal (CCUSR)



Energy efficiency

## Sustainability



Corporate carbon & climate action



Regulation & reporting



Sustainable finance & ESG



Financial institution transition



Climate risk

Technology & innovation

Forecasts & scenarios

Countries & policy

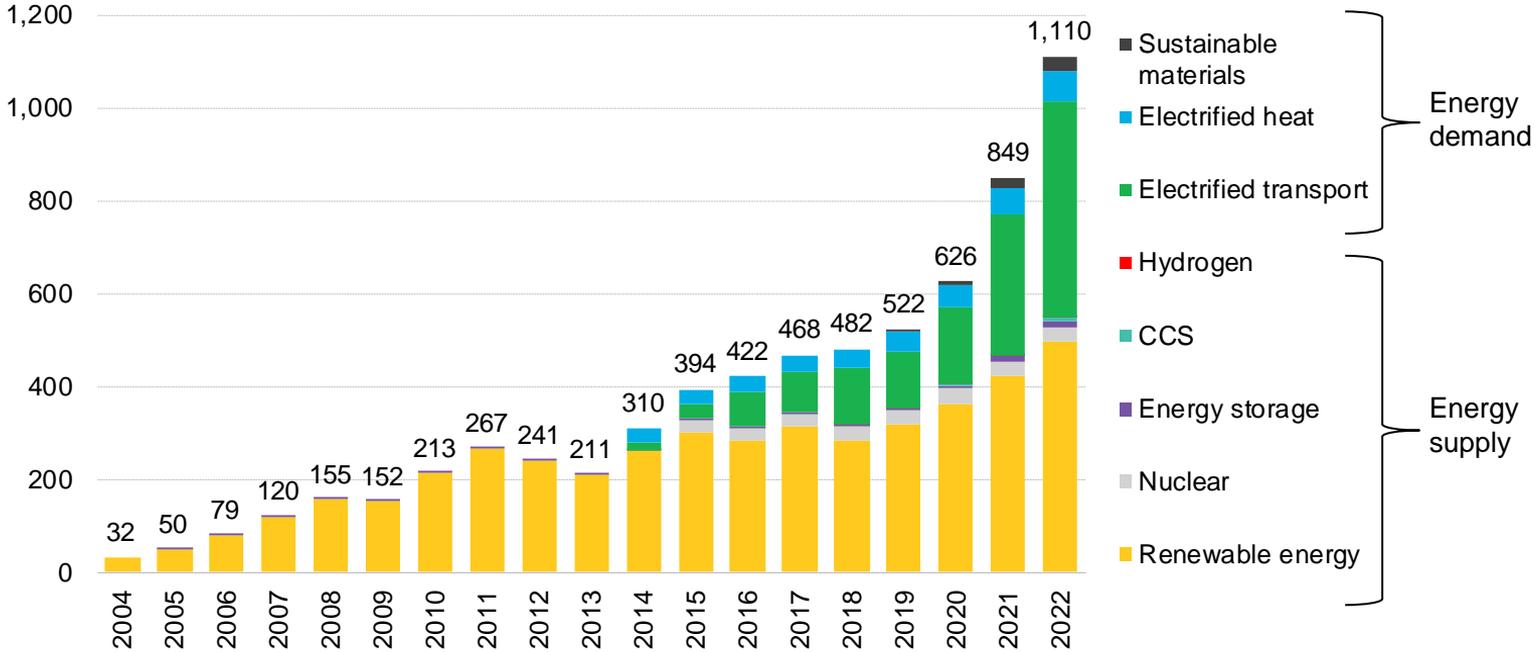
Finance & economics

Consumers

# The pandemic, war and inflation have not derailed the energy transition

## Global investment in energy transition by sector

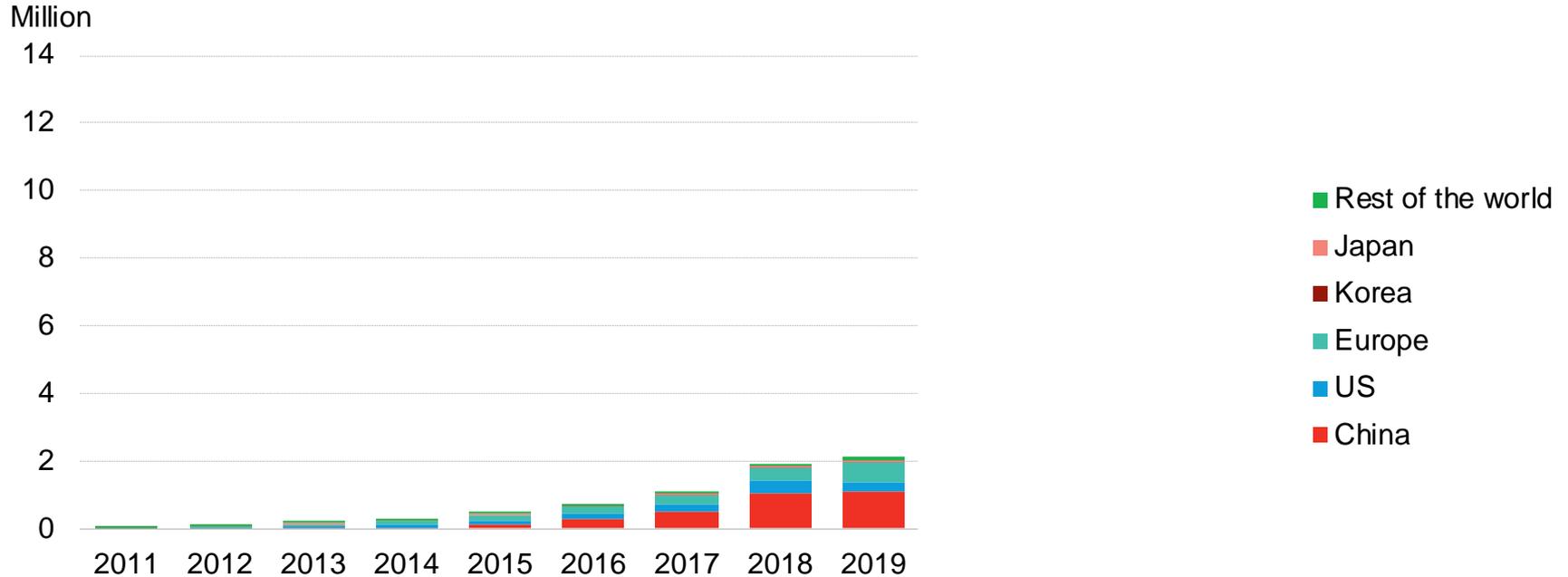
\$ billion



Source: BloombergNEF. Note: start-years differ by sector but all sectors are present from 2019 onwards; see Appendix for more detail. Nuclear figures start in 2015.

# In 2017, passenger EV sales exceeded one million for the first time, then reached two million in 2019

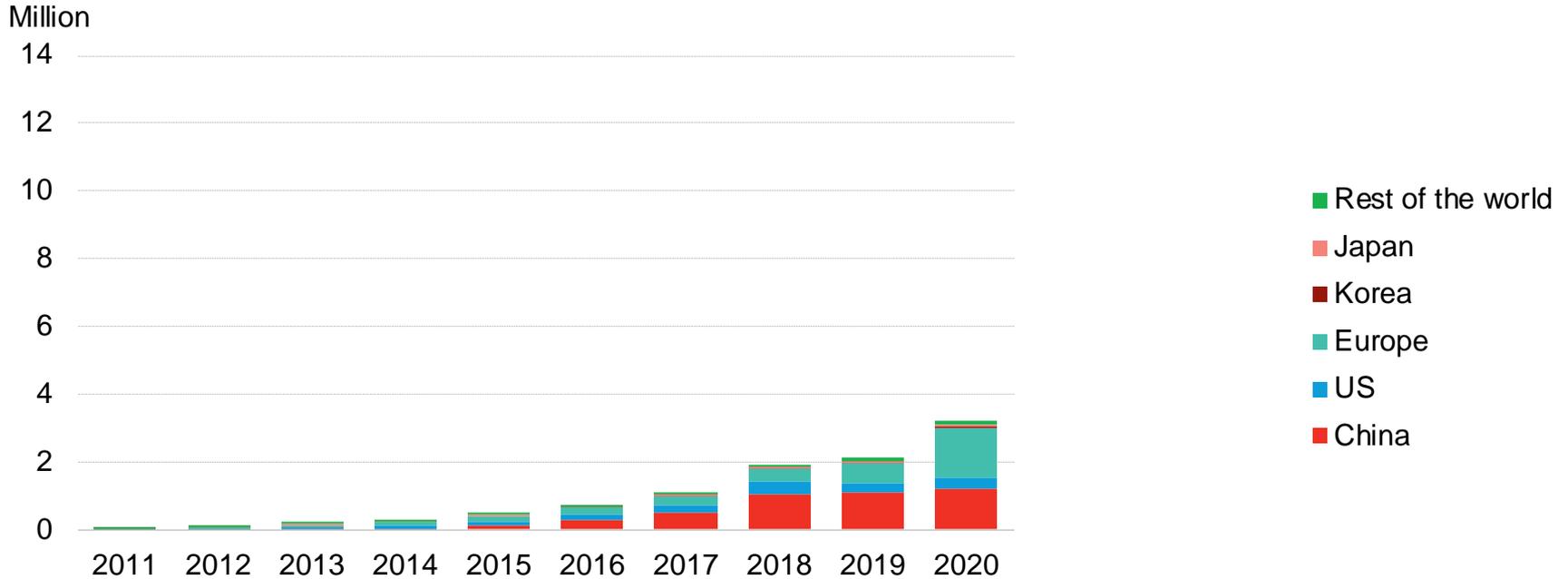
## Annual passenger EV sales by region



Source: BloombergNEF, Marklines. Note: EVs include battery-electric and plug-in hybrid electric vehicles.

# Despite the pandemic, passenger EV sales grew to over 3 million in 2020

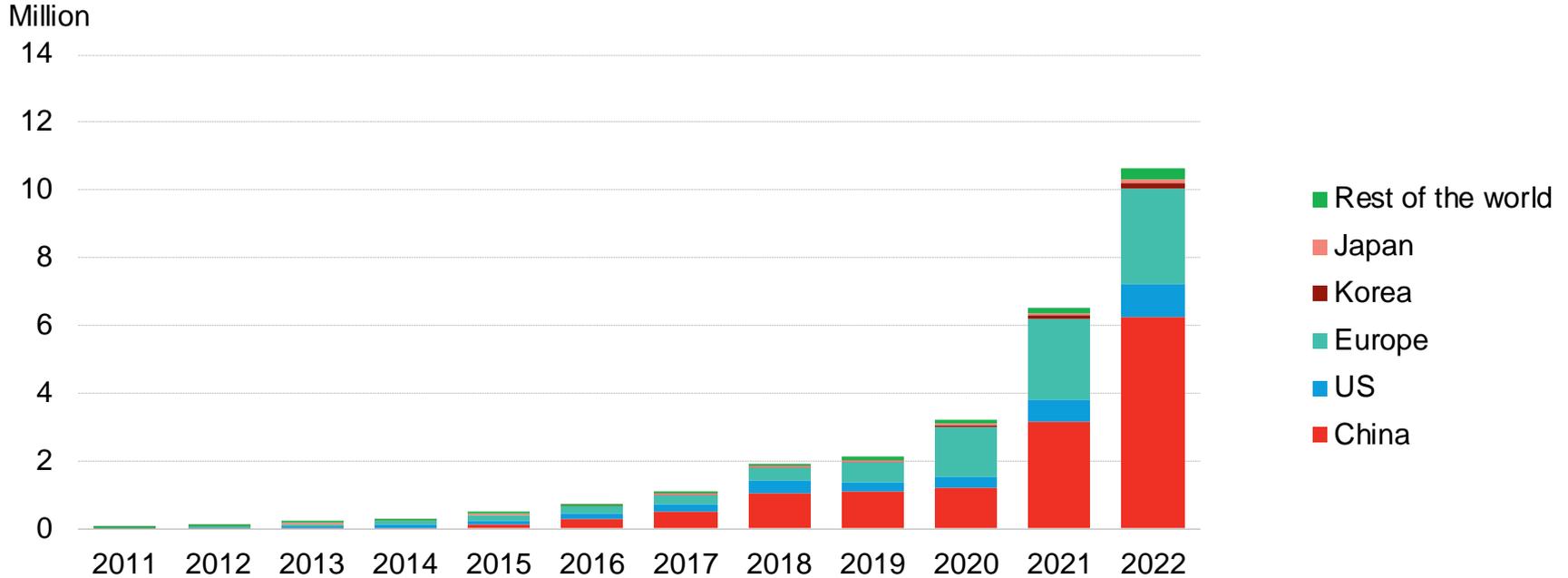
## Annual passenger EV sales by region



Source: BloombergNEF, Marklines. Note: EVs include battery-electric and plug-in hybrid electric vehicles.

# Passenger EV sales exceeded 10 million in 2022

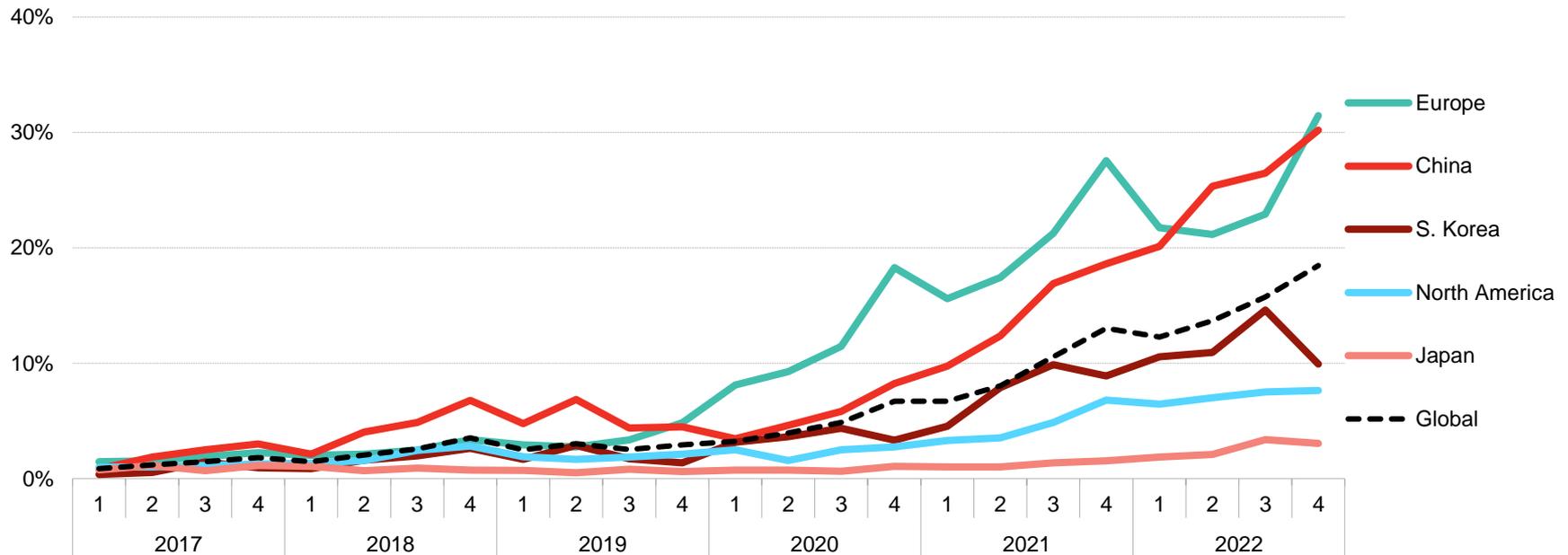
## Annual passenger EV sales by region



Source: BloombergNEF, Marklines. Note: EVs include battery-electric and plug-in hybrid electric vehicles.

# China and Europe have led passenger EV adoption

## EV share of new passenger vehicles sales

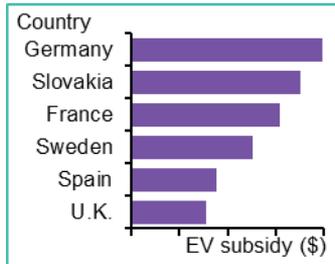


Source: BloombergNEF, Marklines, vehicle registration agencies, JATO

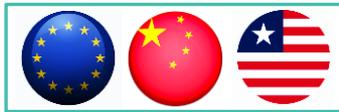
# EV growth is set to continue. Why?

## Policy

- EV purchase subsidies



- Fuel economy regulations

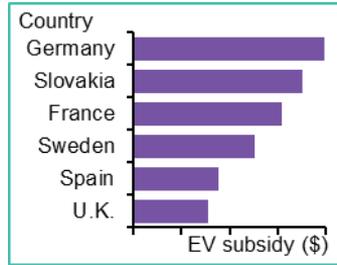


Source: BloombergNEF

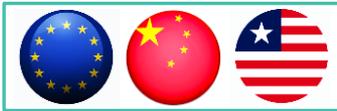
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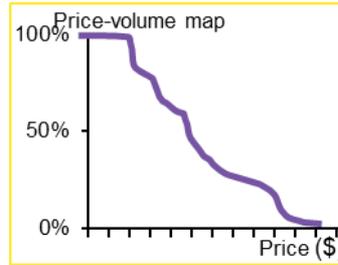
- Fuel economy regulations



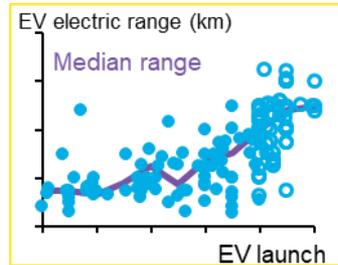
+

## Model availability and addressable market

- EV model segments



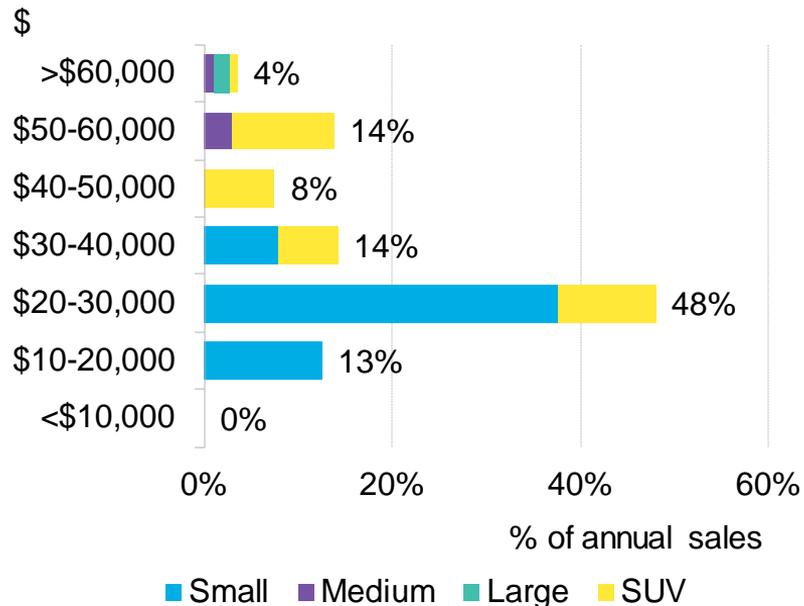
- Improving technology



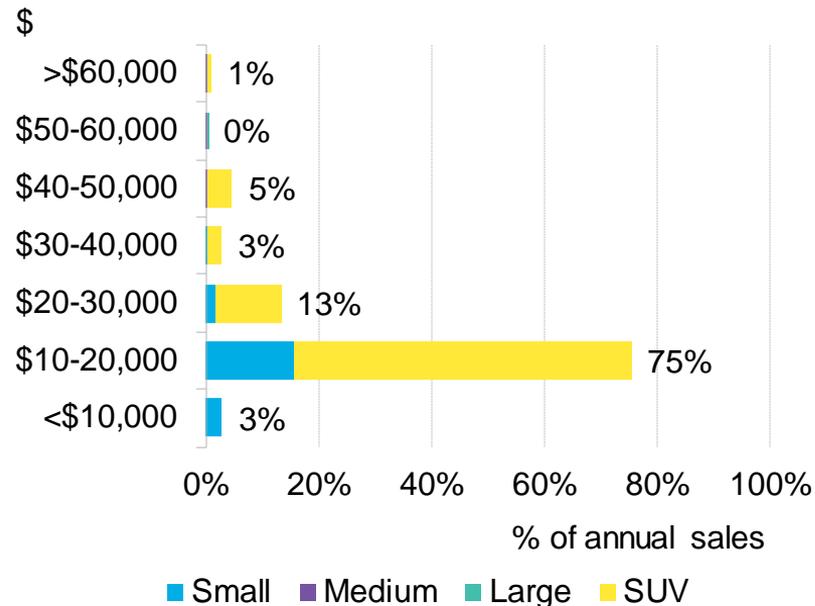
Source: BloombergNEF

# EVs in emerging markets need to compete with affordable mass-market vehicles

Passenger vehicle sales distribution by vehicle price in Thailand



Passenger vehicle sales distribution by vehicle price in Indonesia



Source: BloombergNEF, Thailand Department of Land Transport, Gaikindo, Zigwheels. Note: Vehicle sales for the year 2019. Vehicle prices are the average suggested retail price in Bangkok and on-the-road price in Jakarta as of 1Q 2020. SUV also includes multi-purpose vehicles

# A flurry of new models from China is changing this dynamic



Wuling Air EV  
(\$16,000-20,000)



Ora Good Cat  
(\$24,000-38,000  
after subsidy)



BYD Atto 3  
(\$32,000-36,000  
after subsidy)

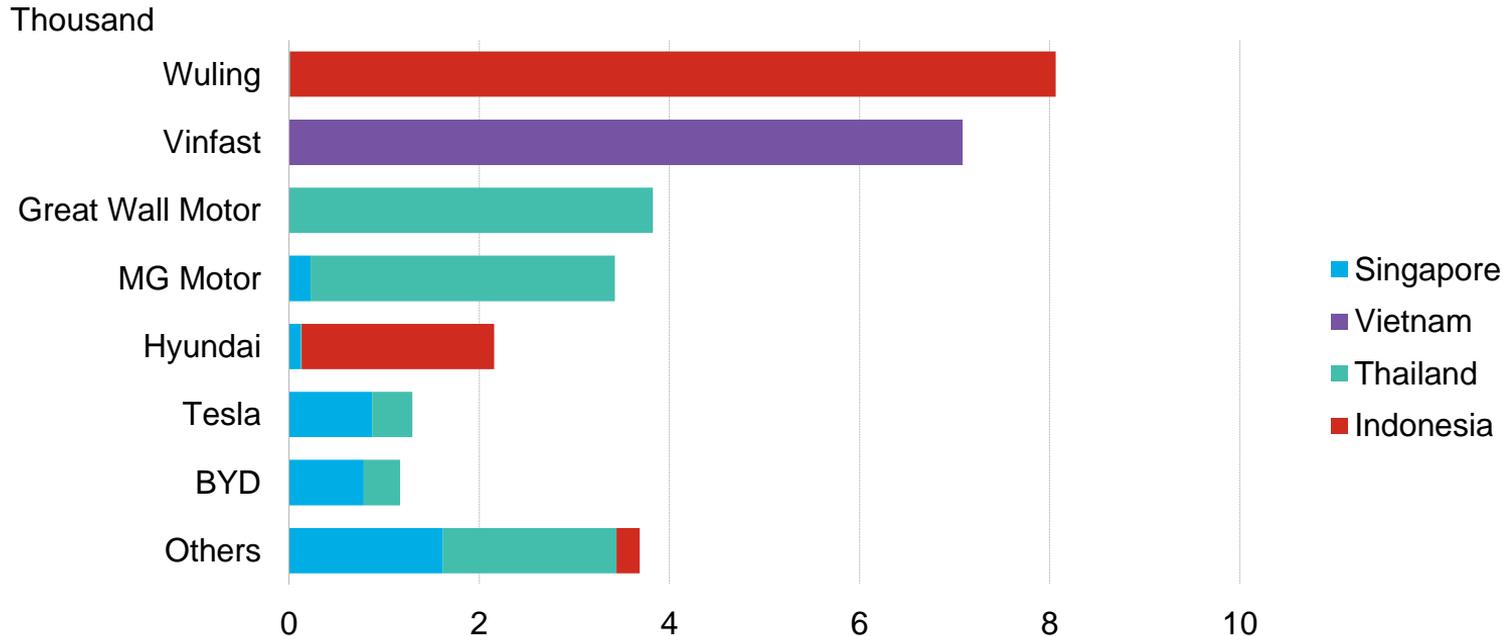


BYD Dolphin  
(\$23,500)

Source: [www.oto.com](http://www.oto.com), Great Wall Motor, BYD, Imagesource: [carandbike.com](http://carandbike.com), Great Wall Motor, Wuling

# Chinese brands accounted for over 50% of Southeast Asia battery EV sales in 2022

## Battery electric car sales in selected Southeast Asia markets in 2022

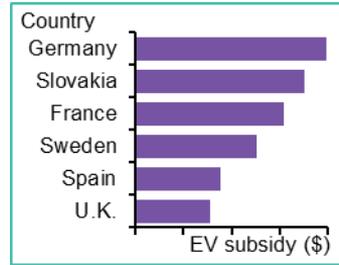


Source: BloombergNEF, Gaikindo, Thailand Land Transport Department, Vinfast.

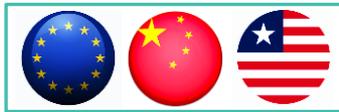
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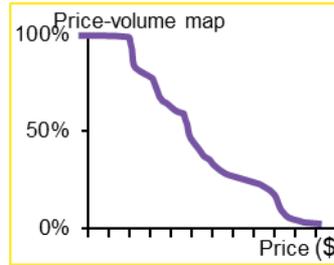


- Fuel economy regulations

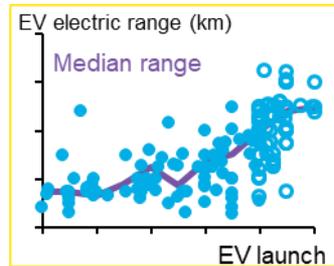


## Model availability and addressable market

- EV model segments

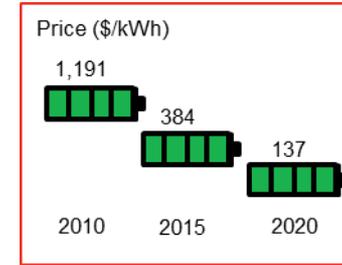


- Improving technology

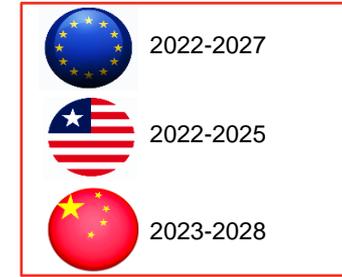


## Upfront cost parity

- Battery prices decline



- BEV prices decline

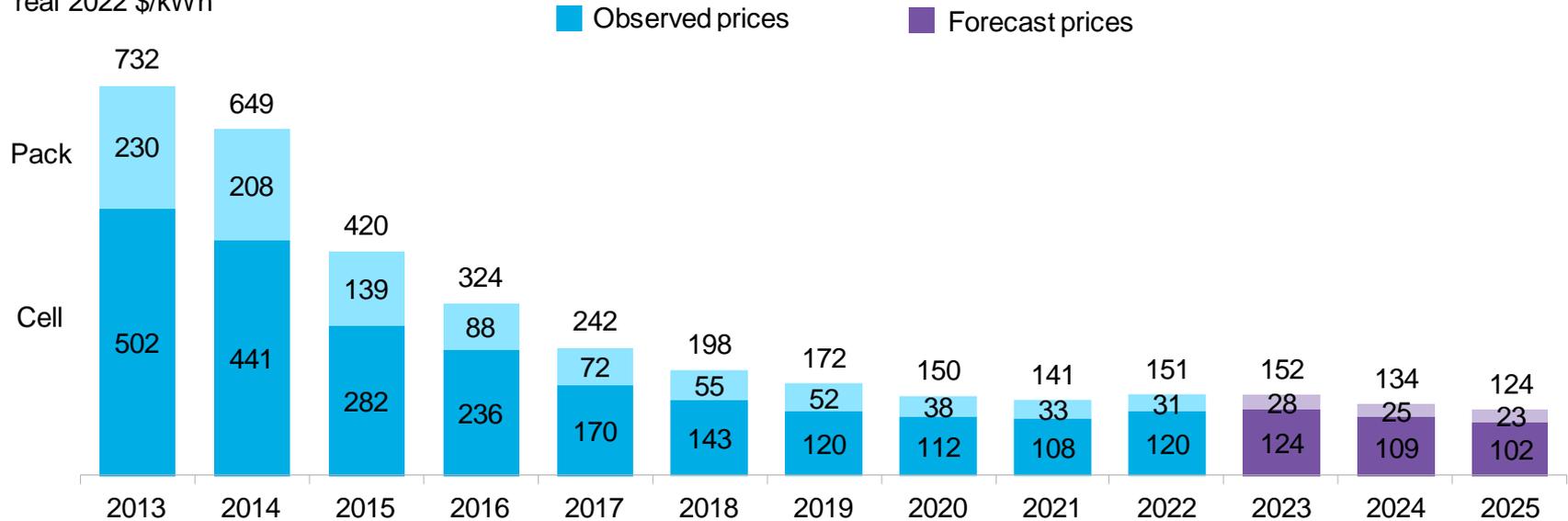


Source: BloombergNEF

# While average EV battery pack prices rose in 2022, we expect prices to revert back to declining

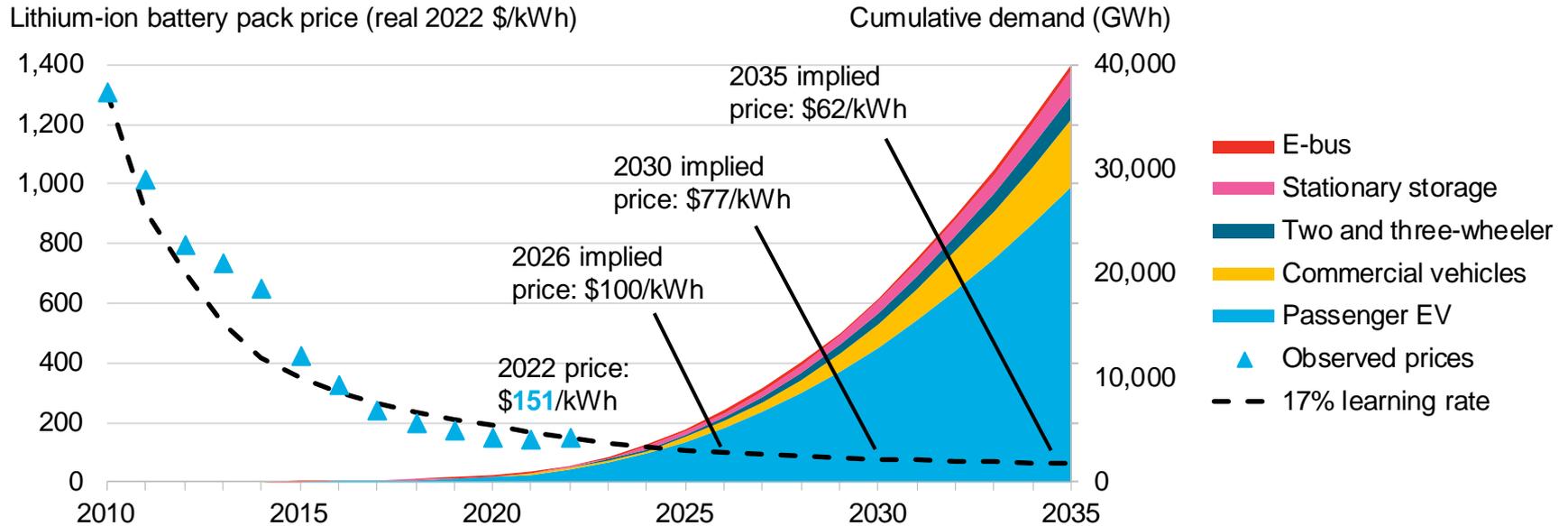
## Lithium-ion battery volume-weighted average price survey results and near-term forecast

real 2022 \$/kWh



Source: BloombergNEF. Note: Historical prices have been adjusted using June 2021 to June 2022 inflation rates based on US Consumer Price Index (CPI) index.

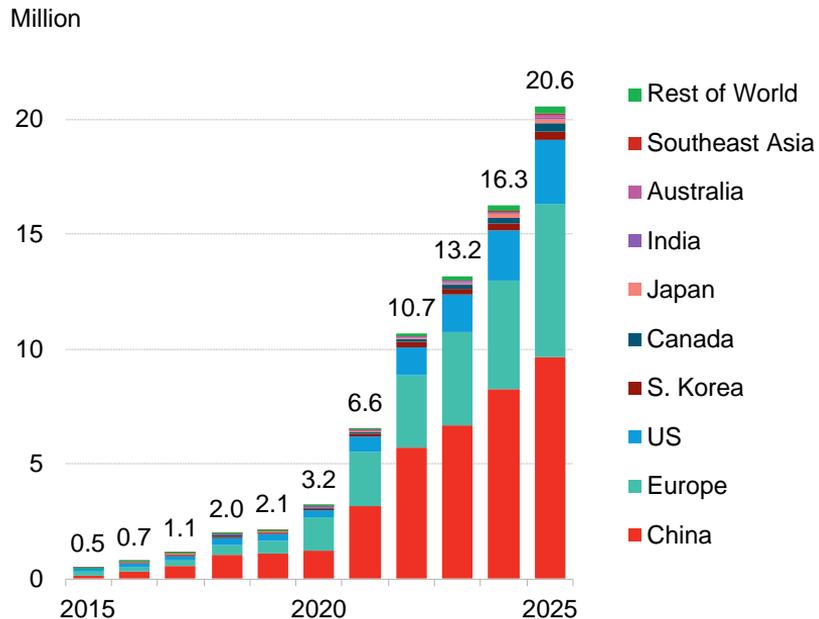
# Lithium-ion battery pack price and demand outlook



Source: BloombergNEF

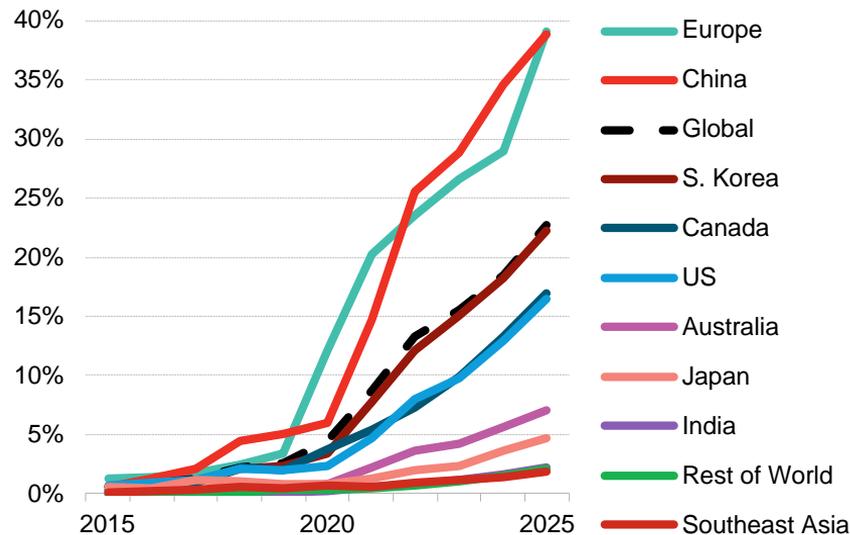
# Passenger and commercial EV fleet set to top 80 million by 2025

## EV sales by market



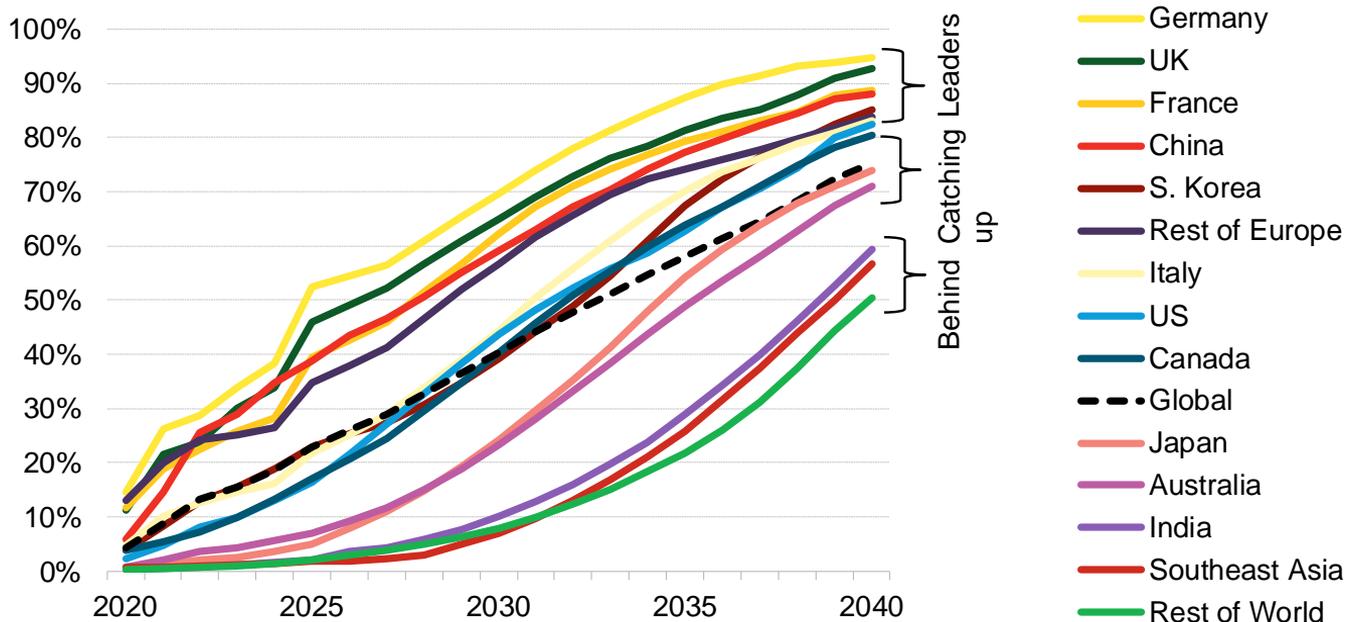
Source: BloombergNEF EVO 2022. Note: Includes BEVs and PHEVs.

## EV share of new car sales by market



# Hitting net zero means accelerating adoption in lagging countries

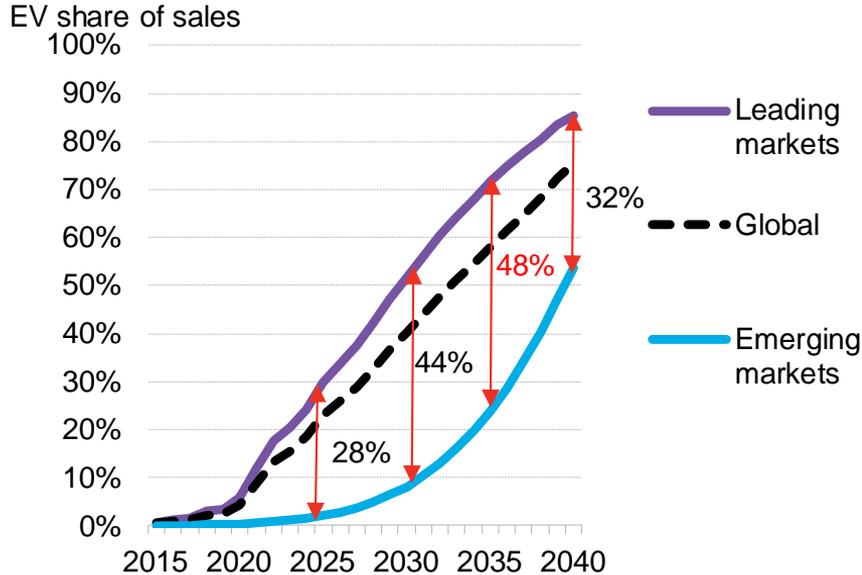
## Passenger EV share of sales – Economic Transition Scenario



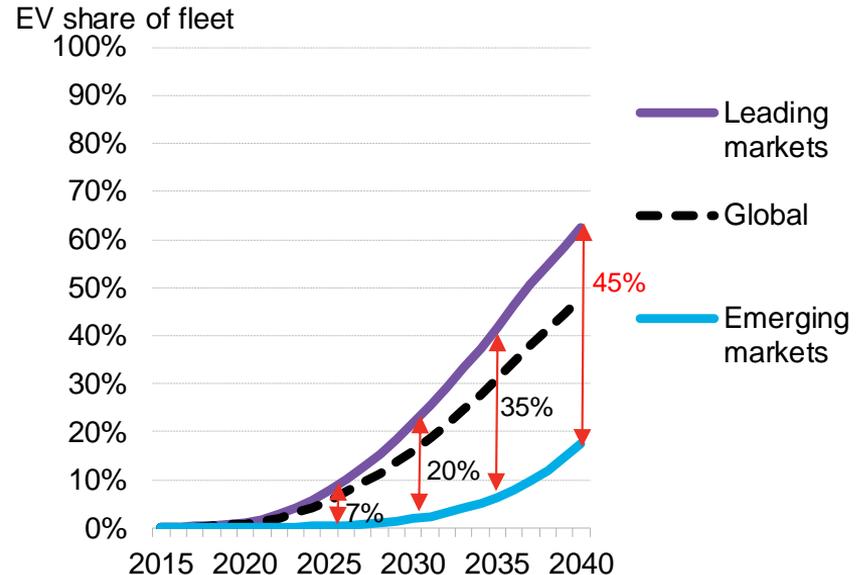
Source: BloombergNEF EVO 2022

# ZEV adoption gap between leading and emerging countries is increasing

## Passenger EV share of sales – ETS



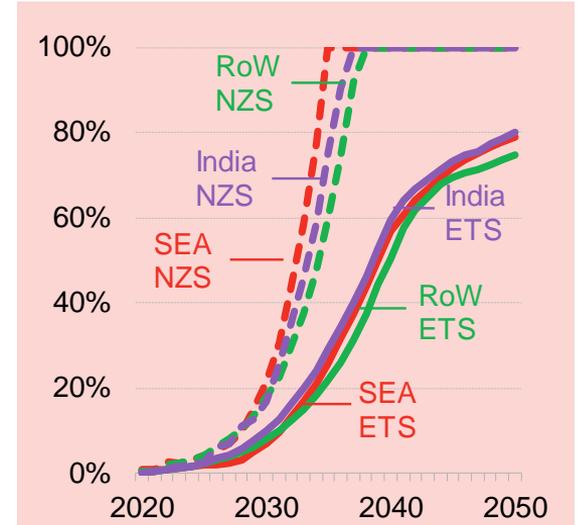
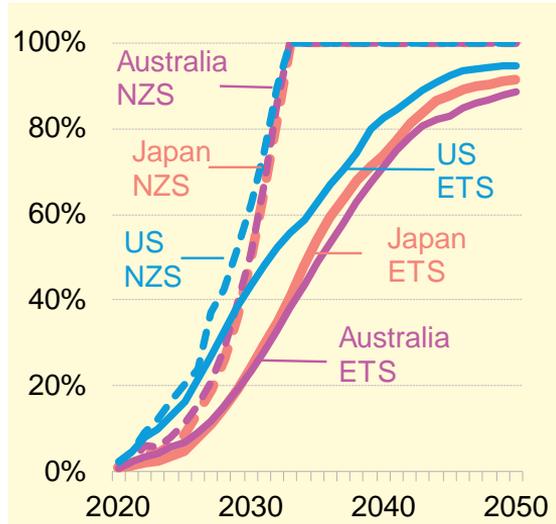
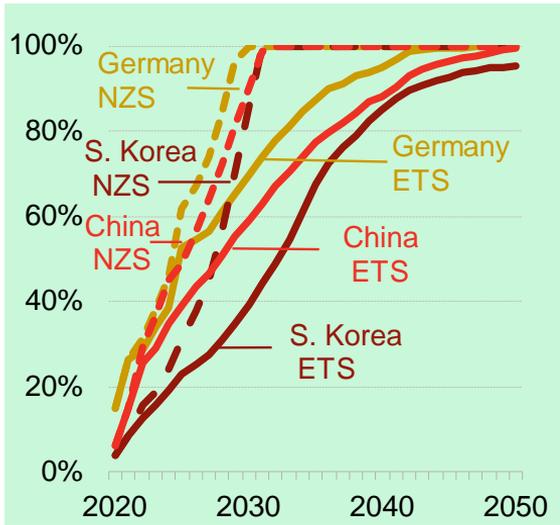
## Passenger EV share of fleet – ETS



Source: BloombergNEF EVO 2022. Note: ETS stands for Economic Transition Scenario. Includes battery electric, plug-in hybrid and fuel cell vehicles

# The window for net zero by 2050 is still open

## EV share of passenger car sales



Almost on track

Positive trajectory

Not on track

ETS

NZZ

Source: BloombergNEF EVO 2022

# The window for net zero by 2050 is still open

Segment	Current share of road transport CO2 emissions	Current estimated global fleet size	Zero-emission vehicle (ZEV) fleet share in 2050 – Economic Transition Scenario	Level of policy intervention needed to hit Net Zero Scenario (100% ZEV share) by 2050
Two- and three-wheeled vehicles	5%	1.1 billion	Two-wheelers: 74% Three-wheelers: 94%	Almost on track: minor additional measures needed
Municipal buses	1%	3.8 million	84%	Almost on track: minor additional measures needed
Passenger vehicles	53%	1.3 billion	69%	Positive trajectory: moderate additional measures needed
Light commercial vehicles	11%	160 million	75%	Positive trajectory: moderate additional measures needed
Medium + heavy commercial vehicles	30%	80 million	29%	Not on track: strong additional measures needed urgently

Source: BloombergNEF EVO 2022

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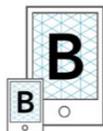
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